

**CONSTRUCTING CLINIC OPPORTUNITY SETS:
TOWARD ACHIEVING QUALITY RESIDENT EDUCATION
AND PATIENT CARE**

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By

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ABSTRACT

Constructing Clinic Opportunity Sets: Toward Achieving Quality Resident Education And Patient Care

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Ambulatory education clinics are needed to train primary care physicians, yet they are under siege from universities, insurance companies and other funding sources to provide both quality patient care and residency education. Today, residency education must be integrated into, or balanced with, cost-efficient and quality-effective patient care. How are these issues to be resolved? The purpose of this study is to explore how patient care and residency education are simultaneously organized in an ambulatory education clinic.

Medical education research has been focused on the teacher-learner dyad and conducted primarily in hospital settings. This study sought to analyze the relationships of clinic organizing processes to patient care and resident education. A qualitative, observational, single case study design was used. Methods included observation, interviews, and document review. The selected Internal Medicine clinic was affiliated with a well-respected academic medical center. Participants included clinic staff, faculty, residents and patients. Field notes were entered into NVivo and “open” and “focused” coding conducted. The remaining interviews and documents provided reliability.

Overall finding: Medical educators are searching for answers within the very narrow dyad of the teacher-learner, when the answers lie in studying the clinic’s networks. The actors construct and reconstruct the networks that provide patient care and teaching/

learning. Historical actors and the outer networks play major roles in defining the outer parameters of patient care and teaching/learning. Within the clinic, the actors (both human and non-human) construct and reconstruct a) the Socio-Spatial Opportunity Set (the nodes, interactions within nodes, and linkages across nodes), b) the Ordering Opportunity Set (prioritization of interactions into orderings), and c) the In-Action Opportunity Set (the in-the-moment actions when delivering patient care and teaching/learning). Changes in any one of these opportunity sets may increase or decrease the clinic's capabilities and opportunities for service/training provision. Through this process, teaching/learning and patient care become intertwined and interdependent. This model greatly expands the concept of the "learning environment." It eliminates the separation between the learning environment and teaching and learning, thereby relating the learner outcomes to the larger organizational issues within which teaching and learning take place.

Recommendations include greatly expanding the health care and medical education research agendas. Within clinics, the patient no-show rates, absent patient charts, data management software, and quality indicators must be addressed. Faculty observations of residents at work should be increased, as well as resident responsibility for self-learning. Evidence-based medicine and formal training on the organization of patient care must be incorporated into clinic settings. In order to accomplish these goals, cross-disciplinary and cross-node teams provide one solution for resolving network challenges.

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To my wonderful husband and best friend,

Larry, with love

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Life transitions are the most motivating factor in adult's participation in learning (Cross, 1981). This certainly mirrors my own personal experience. I became an "empty nester" and found myself passed over for a position because I did not have a doctorate. This provided the initial motivation for what has been a very rich, long, and life-changing journey through the valley of learning. There have been tremendous emotional and intellectual highs and lows along the way. What has made it all possible has been the support that I have received from family, friends, colleagues and mentors. They have given freely of themselves in so many ways, that it is impossible to truly express my gratitude. However, I do wish to acknowledge the roles of key contributors to my success.

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CHAPTER ONE: THE CONFLICTED NATURE OF RESIDENCY CLINICS

Introduction

This is a story of actors in a residency clinic network, what their roles are, and how they perform those roles. Here are four stories about several human actors: a patient, staff person, resident and faculty member/attending.¹ These are constructed accounts, not real people. I have summarized them from the events, circumstances and actions of the four sub-sets of human actors in one clinic.

The Story of Mrs. Jones, A Patient

Mrs. Jones is a 67-year old African American widow. She lives with one of her grandchildren. She has no car, so she comes by Medi-Cab. Today, she is on time for her appointment. She has been coming to the clinic for almost twenty years. She is on Medicare, and lives off a small social security check. She is constantly struggling to pay for the medications she needs for her high blood pressure and asthma. Today she is coming for a routine check up. The doctor recently switched her blood pressure medication and wants to check to see if it is working. She greets the receptionist, fills out the paperwork and sits down to wait.

The Story of Linda Hernandez, A Staff Person

Linda is a young mother with three small children. She likes working at this clinic, because the hospital it is connected to provides day care facilities for her children. This

is her first time working in a clinic. She does both telephone back-up and discharge. Linda sees this job as a stepping stone to better jobs in the hospital. She is constantly looking at the employment openings. She thinks the residents are not well disciplined—they come and go as they please, and they do not know who she is. When Mrs. Jones goes to check out today, Dr. Dortal has already left. He has no open appointments for twelve weeks. First he is on an out rotation, and then on vacation. But he wrote on the slip that he wants to see Mrs. Jones in eight weeks. This kind of situation makes Linda angry. Now she has to get up, and go find an attending to figure out what to do, before she can leave for lunch.

The Story of Jon Dortal, M.D., A Resident

Jon is on a very busy in-hospital rotation this month. By the time he gets to the clinic at 8:45, he has already rounded once on all of his patients in the hospital. He has several who need constant monitoring. There is an intern present, and he has told the intern to call him at the clinic if anything happens. He sees his first clinic patient, and then goes to the computer to check on his hospital patients. He goes to the nursing schedule and checks to see that Mrs. Jones is supposed to be there. She is not checked in. Half an hour later, his next patient is there. He calls this patient himself, and notices Mrs. Jones sitting in the lobby. Why wasn't she called earlier? The receptionist did not check Mrs. Jones into the clinic computer system. Now Jon has two patients to see in the time span for one. Needless to say, he isn't pleased, as he must get back to the hospital promptly by noon. His day is further interrupted by several phone calls about his in-hospital patients.

The Story of Anna Collum, M.D., An Attending

Anna has been out of residency three years. She is currently working two days a week, in the clinic because her children are very young. She sees her own patients one of those days, and precepts (teaches) in the residency clinic the other half day. She carries only a few weeks on in-hospital night and weekend call. Today, she is having trouble as her regular babysitter is sick. She is using a back-up sitter. The children and the sitter have been on the phone to her several times. The clinic is also very busy today. She has gone from precepting one resident to the next. She is most vexed by the absence of charts—there have been three residents who presented to her without charts. She likes going in and speaking with patients. In almost every case, she likes to “model” for residents by telling the patients what the plan is and how they hope to accomplish it.

Residency clinics are the newest health care battlefield. Ambulatory education² clinics are needed to train the new generation of generalist physicians, yet they are under siege from their universities and insurance companies to compete for patients with non-training clinics. How are these forces, pulling in different directions, resolved? For residency education, the ambulatory setting is relatively new, and has brought with it a host of teaching and learning issues. Residents are required to spend increasing amounts of time in ambulatory clinics. This requires more faculty and patients. The curriculum to be delivered in this setting is openly being debated. Technologies change daily. Faculty are caught in a knowledge warp – they are frequently less savvy than the residents in terms of the latest technologies. They have not been trained to teach during

office visits. Faculty are now viewed as income-generators, with less time for teaching and more pressure to see patients. Perhaps most importantly, for the first time in almost fifty years, federal funding for residency education has been decreased by the Balanced Budget Act of 1997 (Federal Register, 1998).

The entire health care system has changed. It is no longer a cottage industry of autonomous physicians (Starr, 1982). It is a complex system of public/private partnerships, contracts, and affiliations. It is a very conflicted system. It must keep pace with the ever-expanding technological innovations while at the same time maintaining its customer base, and constraining costs to remain competitive (Barnes, 1999). As health care funding started to decrease, academic medical centers' teaching clinics were forced compete with non-teaching clinics. This involved affiliations with managed care organizations and new forms of insurance company plans. These organizations' primary interests are profit making and patient care. In the past, the major activity of the residency clinic was to provide education for residents. Today, that activity must be integrated into, or balanced with, cost-efficient and quality-effective patient care.

A third force for change is the patient herself. Today, insurance is portable, so patients no longer are required to use residency clinics. This forces teaching clinics to compete for patient allegiance with non-teaching clinics. Patients have been "McDonaldized," i.e., they expect to receive the same kind of care within the same kind of time frame in whatever setting they use (Ritzer, 1993). They know they have rights and they use them. Without patients, of what value is a residency clinic?

In sum, all of these factors have combined to produce a time of rapid change for residency clinics. These factors are not so neatly separated as they appear above. In fact, the day-to-day and minute-by-minute enactment of clinic life is quite messy. There are conflicts that need to be constantly resolved. What appeases one patient may not appease another. What works for one resident as a way to learn may not work for another. The purpose of this study will be to produce an in-depth look at how patient care and residency education are simultaneously organized in a primary care, ambulatory education clinic.

Why is this study important? With the radical changes in the economics of health care, residency clinics are being pulled in several directions at once (Ludmerer, 1985). Faculty are being asked to see more patients while maintaining their teaching loads. Clinics are being asked to change their teaching methods and curriculum to incorporate more preventive and evidence-based medicine. Faculty have limited experience and knowledge in the new “ways.” Faculty are being told by their administrators to become more efficient and effective in terms of providing patient care. Finally, the patients themselves are becoming “impatient.” How can the clinic satisfy both groups of constituents--patients and residents? These clinics are in the process of changing the actions of many different actors³ under very conflicting conditions. This study provides a fresh perspective on how these changes take place.

The literature abounds with studies on each of the key issues discussed above. There are several different bodies of literature in areas such as residency and professional

education, health care organizations, managed care organizations (MCOs),⁴ and patient care organizations. Even the affiliations of MCOs and Academic Medical Centers (AMCs) have been studied. But what appears to be missing from the literature is an in-depth exploration of the daily enactment of the activities of a residency clinic. Studies of what happens when these forces are combined are not present in the literature.

Much of medical education research has been conducted in hospital settings. Where clinic studies have been conducted, they have focused narrowly on one or two sets of interactions, primarily the teacher-learner dyad. Much of the literature is conjecture, description or theoretical. Studies that look at the daily practices and activities of residency ambulatory education clinics are rare; studies of residency clinics that address the relationships of organization processes to patient care and residency education are non-existent (Bowen & Irby, 2002). In sum, we do not know what happens inside a residency clinic on a daily basis. How does this organization organize itself to accomplish its teaching mission, while maintaining quality patient care?

This chapter provides the background and rationale for this study, the problem statement, a brief summary of the study methodology, a description of the study site, Kordsdale University and the Kordsdale University clinic, an introduction to the findings, and a guide to reading the text.

Background and Rationale

Recent changes in health care are forcing more change in medical education than has been seen since the Flexner report was written in the early 1900's (Barnes, 1999;

Flexner, 1910, reprinted 1960; Ludmerer, 1999). Medical education has been extremely resistant to change, maintaining a sharp division between the preclinical, basic science years and the clinical years (known as the “2 x 2” model) (S. Bloom, 1988).

Throughout most of this past century, both students and residents have taken their clinical training in hospital settings. The formula for the development of well trained, competent physicians started at Johns Hopkins University in the late 1800’s. In the early years of the 20th century it was cemented by Flexner’s report that medical schools should become more like Johns Hopkins (Flexner, 1910, reprinted 1960). The formula has been successful. Today, as a country, we enjoy one of the highest standards of medical care in the world, much of it due to the development of solid academic training and research in what have come to be known as Academic Medical Centers (AMCs). AMCs are large university-based, education and health care systems that usually consist of a university hospital, a research center, and a college of medicine.

However, beginning in the mid seventies, and coming to full fruition by the mid eighties, politics, economics and to some extent, the will of the American people, set off a number of alarm bells throughout the health care system. These alarms include escalating health care costs, rapid changes in medical technology, and uneven access to health care--a problem for both poor and minority populations as well as those who live in rural or urban areas. As the alarm bells began to sound more clearly, politicians, government officials, the public and private sector reacted, creating a major upheaval in the organization and delivery of health care across the United States (Ludmerer, 1999).

These recent changes in health-care--covering everything from the organization of the resulting systems to the roles of government and the private sector, to the patients' and physicians' perspectives-- have been addressed in the literature. A deep discussion of these issues is beyond the scope of this study. However, four major areas of change in the health care system have affected medical education, and more specifically, resident education: 1) organizational changes wrought in delivery of care by changes in the funding of residency education, 2) the change in teaching venue from hospital to ambulatory clinic, 3) the movement toward generalist careers from specialty training and 4) changes in the patient "culture." These are discussed in detail below.

Changes In The Funding Of Residency Education

A brief summary of the organization of a traditional AMC is necessary in order to understand some of the difficulties facing AMCs. [For more in-depth analyses, see Starr (1982), and Ludmerer (1985; 1999).] For the most part, AMC hospitals are university-owned and operated, usually under the direct or indirect control of the medical school dean, although not always. Medical school departments have traditionally had a great deal of autonomy in providing education, medical services, and research. Unlike other university departments, faculty "practice," i.e., provide patient care in the clinics and hospital. Generally, a portion of the payment for care is returned to the physician faculty member, and a small portion is provided to the Dean for education. (In some schools this is known as the Dean's "tax.") A portion of the faculty practice dollars also remains in the department to fund education and research (S. W. Bloom, 1988).

As research funding and other state and federal sources have decreased, medical schools have become increasingly dependent on faculty practice dollars to fund both education and research (Wray & Sadowski, 1998). But these dollars remain department-specific. Oftentimes, one department does not even know what the next is charging, nor what its funds are being used to support (Allcorn & Winship, 1996).

AMCs usually have tertiary care hospitals. This is an accreditation status given to only a few hospitals in each state. It indicates that these hospitals have the credentials to provide for the sickest, most severely diseased, and disabled patients (Smith, 1985).

There was a period (roughly from 1965 to 1975) when AMCs were primary care oriented (S. W. Bloom, 1988). However, the new technologies, the AMCs research orientation, and departmental emphasis on specialty training moved the AMCs back into tertiary care (S. W. Bloom, 1988; Ludmerer, 1985). In the meantime, many community hospitals also became tertiary care hospitals, thereby providing direct competition to the AMCs (Ludmerer, 1999).

Since the 1950s, federal policies and fee-for-service insurance payments paid both physicians and hospitals whatever they charged. This encouraged the public to ask for as many high tech services as they thought they needed, and physicians provided them (Smith, 1985). It was in their own best interests to keep people in the hospitals for as long as necessary and to provide the most advanced techniques of the day. This became an accepted norm--both for the public and for physicians.

The spending spree lasted until the early 1980's when the system literally became too expensive. The federal government, private industry, and general public could not continue to pay the rapidly rising costs. Everyone became alarmed at the rapidly escalating costs of providing health care. The first move to clamp down on costs came in the early eighties. The federal government instituted DRGs (diagnosis-related groups). For the first time, payments to hospitals and physicians were limited by what the average payment was for an average case of disease X as defined by the DRG.⁵ Other cost-cutting responses included cutbacks in the number of foreign medical graduates permitted to enter the U.S. system, and reducing benefits to Medicaid recipients (Ross-Lee, Kiss, & Weiser, 1994). AMCs began to run deficits due to the high costs of serving the uninsured poor, medical research and curtailment of federal funds. The Balanced Budget Act alone will result in cumulative losses to AMCs of \$14.7 billion (Fox, 1999).

Escalating costs provided a perfect entry for private MCOs. Because they “managed” access to services, MCOs were able to offer plans to employers that were considerably cheaper than traditional insurance plans. At that point, traditional plans were paying for whatever services the doctor and patient decided upon. By carefully selecting their populations (usually young and working), MCOs were able to exclude the more severely ill, elderly, and disabled, as well as Medicaid and Medicare populations. Known as “creaming,” MCOs carefully selected a generally well population, and left the remains for the AMCs. It is no wonder that the AMCs perceived the MCOs as competition!

The insurance companies recognized competition when they saw it, and quickly developed their own sets of “managed” plans. Insurance companies have considerably more name, product and service recognition than the newer managed care organizations. Within the past few years, the insurance companies have dealt a severe blow to the future of the original managed care organization, leaving in its stead, a *pot pourri* of plans, developed on an almost individualized basis for each employer/client. In the study clinic, there were approximately 25 such plans that had to be taken into account for both billing and referrals. Every plan, even those within the same company, had different forms, different required information, and different procedures for accessing approvals for referrals and billing. One staff person was assigned full-time to assist physicians and patients in obtaining needed referrals to services outside the clinic. The term “third-party payor” will connote all of the variations on MCOs, insurance companies and government regulated insurance programs (e.g., Medicaid, Medicare, state aid programs), from this point forward.

At approximately the same time, surgery was changing from inpatient to outpatient due to improved anesthesia, new laser techniques, microscopic video cameras, and other computerized technologies. The AMCs were hit by their own success. For the first time since the 1950’s, hospital bed days decreased, federal and state funding decreased, and federal regulations tightened up in education, clinical services and research. To make matters worse, AMCs were now in direct competition with private corporations that had to meet far fewer regulations and had no mandate to conduct either research or

education. The era of expansion was over and the season of accountability and responsibility was upon the AMCs (Butler, 1992).

How did the AMCs respond? The changes forced AMCs to reexamine who they were and what they wanted to do. With financing from federal and state governments under continual threat of being decreased, many AMCs carefully reviewed their missions.

What should be the primary mission(s): patient care? medical education? or research?

At Johns Hopkins University, the trustees concluded that only when patient care and a solid financial base are in place, could medical education and medical research survive (Heyssel, 1989). Other organizations resolved the issue by partitioning all three missions, i.e., the medical school took responsibility for education; the hospital for patient care and (usually) a separate research institute for research (Allcorn & Winship, 1996).

Bondurant (1995) argued that the health care of both populations *and* individuals must come first. Since patient care is the AMCs' leading source of revenue, the AMCs had added incentives to see to it that patient care remained their first priority. They needed patients in order to teach (and for some types of research), but perhaps more importantly, they needed the clinical dollars to underwrite the teaching program (Carey & Engelhard, 1996). By the late 1980's, AMCs were faced with a large build-up of regional and national health care systems by the private, for-profit MCOs. Many AMCs quickly came to the conclusion that patient care needed to come first. But this had to be more than the tertiary care they had been providing. Primary care would have to

become their “bread and butter” (Gold, 1996), in order to act as feeders for their very specialized services.

As AMCs enlarged their primary care patient bases, they affiliated with existing HMOs, purchased community-based hospitals and physician practices, and purchased additional clinics. By 1990, one in seven HMOs was already affiliated with some type of graduate medical education program (Corrigan & Thompson, 1992). By 1997, over half of 91 HMOs reported involvement in graduate medical education (GME). There is no single database that tracks these numbers making it difficult to determine the extent of MCO involvement in residency education (Karp, Langschwager, Gamliel, & Fernandez, 1997). There is even less information available on the total amount of third-party-payor involvement. Affiliation with for-profit health care organizations has not been an easy process. AMCs continue to focus on providing education, research and specialty/tertiary care to individuals. MCOs have been unwilling to pay for medical education (Gold, 1996). After all, MCOs are profit-making organizations without a mandate or a requirement to provide for medical education. MCOs (and within the past few years, the old fee-for service insurance companies with their new “managed” plans) are only interested in the health of their insured populations. They cannot make a profit if they concern themselves with any larger or different missions. The mind set, culture, and values of the AMCs continue to be severely challenged (Smith, 1985).

These changes have also impacted the hospitals’ fiscal management structure. The combined faculty practices of a large AMC, and the services they represent, make it

possible for administrators of “faculty practices” to negotiate terms with various third-party payors. Today, most AMCs have separate physician faculty organizations that exist solely for the purpose of negotiating contracts with various third-party payors. These organizations, usually run as separate corporations, also protect the interests of faculty physicians. Thus, the average physician in the faculty practice is immune to the details of contract negotiations that would be necessary if one were practicing in a private setting.

These rapid changes in organizational affiliations impacted ambulatory education clinics as well as hospitals. After their purchasing sprees, AMCs now find themselves with large numbers of ambulatory sites, and even community-based hospitals. In order to sustain these systems, AMCs have become integrated health care delivery systems with a full range of services available from birth to death. Support services for all manner of patients are also available including separate housing facilities for transitional care, parents of sick children, families of cancer patients, etc. These support systems have also become part and parcel of the larger integrated health system. Their very size has made it necessary to focus on the business of administering and controlling them, rather than on medical education and research—the original purposes of the AMCs (Ludmerer, 1999). In fact, Ludmerer noted that the recognition and valuing of education appears to be almost as low as it was in the early 1900’s—before the Flexner Report. He views a time in front of us in which medical education will once again become proprietary.

The size of these health care delivery systems has resulted in both positive and negative outcomes. Until recently, size made it possible to continue to find sufficient funding to sustain medical education and some research. Today, as funding for health care continues to decrease relative to rising costs, even that is in question. All of the various delivery components can be used as training sites for primary care residents--a positive outcome (Meyer, Potter, & Gary, 1997). But organizational problems remain with departmentally oriented faculty whose offices are located back at the university. Will they provide training in these new sites--or are community physicians going to be enlisted? Community physicians, now credentialed as "AMC faculty" have slid in by the back door, without, in many cases, the same credentials or academic records as "real" university faculty (Ross & Johns, 1989). As funding for medical education continues to decrease and regulations continue to tighten—will it be possible to sustain such mammoth operations? Or will AMCs become dinosaurs of their own making?

In sum, several major forces combined to create significant organizational change in AMCs. These forces included responses to escalating health care costs by the government, the entrance of MCOs, and fierce competition by new "managed" plans from previously fee-for-service insurers. Changes in health-care delivery from in-patient hospitals to outpatient clinics is an additional force. AMCs responded by integrating and expanding their networks to incorporate large bases of primary care physicians and hospitals. The missions of AMCs--education, research and patient care--are not always compatible with the missions of MCOs and insurance companies--profit making and patient care (Corrigan & Thompson, 1991). These rapid changes have

created new dilemmas for ambulatory education clinics. What are residents supposed to learn? Who will teach them? How will they be taught? The very presence of the education activities conflict with new emphases on providing effective and efficient patient care. Residents and faculty must concentrate on seeing patients on time, keeping costs down, and keeping patients. Unlike academic settings, resident clinics conduct teaching and learning in real-time communities of practice. These activities have been challenged by the relatively new emphasis on the profitability of patient care services.

A Change In Teaching Venue: From Hospitals To Ambulatory Clinics

Until the eighties, most resident education took place in the hospital, with clinic training limited to one half-day per week. Usually, clinics were attached directly to hospitals, making it easy for residents and faculty to return to their primary interests and purposes: seeing patients in the hospital and conducting research. Much of this was due to state and federal regulations and reimbursement policies (Rogers, 1985). But dramatic advances in medical technologies radically altered both the kinds of services provided to patients and the places where they are obtained. Surgeries are now conducted in outpatient settings with much less invasive procedures and more portable aftercare treatments. This has had the intended effect of shortening hospital lengths of stay. Even chronic diseases that were previously managed as inpatient cases, e.g., depression, became manageable in outpatient settings due to new drug treatments. As patient care moved from hospitals to outpatient clinics, patients did not stay in the hospitals long enough for residents to see a complete cycle of care. Controlling costs became another major factor in shortening hospital stays and determining levels of hospital versus

ambulatory care. Home health care organizations now manage chronically ill and many terminally ill patients at home.

While the hospital remains an excellent training site for learning about the sickest patients, a new training venue was needed for learners to learn about longitudinal patient management: the ambulatory education clinic. Even when resident clinics were hospital based, a patient care service component was always present. In order for residents to learn, patients have to be present. However, medical education remained the primary focus of the clinic until rather recently. If it took a learner two hours to learn a new skill such as suturing a half-inch cut, the time was provided. Since the early 1900's, resident clinics primarily provided services to the poor at minimal cost or gratuitously (Starr, 1982). It was expected that the poor would wait long times to be seen. In fact, one faculty physician explained that, as late as the 1980's, there were only two appointment times at his clinic: 8 a.m. and 1 p.m. Patients were expected to come and wait until such time as residents took up their cases. Faculty and resident time with patients was much less restricted than today. Federal GME funds were adequate to cover the "downtime" which comes with teaching. Third-party payors rarely placed demands on the almost sacred teaching and learning functions.

Today, most ambulatory education clinics are no longer located in AMC hospitals. Sometimes, they have been relocated just across the street in a new office building, but in many cases, they were moved to rural or urban underserved communities and became truly "community-based." This new type of clinic offered fresh training possibilities for

residents. Procedures could now be taught and learned in outpatient clinics. The residents develop their “patient panels” where they act as primary care physicians for their own patients. Thus today, all primary care residency programs have some requirement for time in an ambulatory education clinic. (This varies, depending on residency program and resident year, from one-half day to three-half days per week).

There are a number of features in the ambulatory setting that are not present in the hospital. First, the patients are ambulatory—they can show or not show, or come early or late. The patients have less acute needs; there is more of a focus on chronic problems and long-term management (Laidley & Braddock, 2000). The patients must also be able to function in daily life, so there is more focus on social skills, and skills of daily living. As one resident put it, “when you change meds [in the outpatient clinic] you have to think about driving, alcohol. In the hospital, the nurses are there 24/7” [OB01]. Finally, the clinic presents an opportunity for residents to learn management and leadership skills, as these will become even more critical in this time of fiscal restraint across the health care sector.

Observing patients over a longitudinal cycle of several years (termed “continuity of care”) has now become as important a learning objective as providing intermittent critical care in the hospital. Residents develop more autonomy in their practice style. Skills are focused on “communication, negotiation, deductive clinical problem solving, and assessment of disease impact on social function” (Laidley & Braddock, 2000, p. 44).

For many specialties, seeing patients in ambulatory clinics has now become a standard instructional strategy.

However, there is a downside to practicing in this setting. It is not possible to go back and check on the patient in the middle of the night to see if the newly prescribed medication works. The visits are short; not everything can be covered in one visit.

Resident: That's the problem with the outpatient setting. Only fifteen minutes to see them in the outpatient setting. Doing that alcohol screening test two visits earlier would have picked that up [OB07].⁶

It is also necessary to continually negotiate compliance issues as the types of controls available in the hospital are not present in the clinic. In fact, non-compliant patients are often a topic of discussion.

The need for ambulatory clinics was clear, but why didn't the AMCs simply "apprentice" residents to private practitioners rather than going to the expense of building or acquiring new primary care clinics? As noted above, these primary care clinics were needed by AMCs as feeders to other more specialized services at the hospital. Hospitals could be linked in as automatic referrals in their own system. With private clinicians, the AMCs had little to no control over referrals or the quality of educational experience.⁷ As funding for GME became tighter, AMC administrators saw the growth of their integrated health delivery systems as the best and easiest mechanism for funding the education of the AMC.

In 1989 the Accreditation Council for Graduate Medical Education (ACGME) “mandated that 25% of residents’ time in each of three years be in ambulatory care” (Cope, Sherman, & Robbins, 1996). This was later raised to the current minimum requirement of 33% [DOC118]. In 1991, the undergraduate accrediting body (the LCME) changed its requirements to mandate some time spent in ambulatory care settings for undergraduates (Xakellis & Gjerde, 1995). The federal government also changed the Medicare reimbursement regulations for Graduate Medical Education (GME) in the early 1990’s. In order for hospitals to be reimbursed for residents’ time in clinics, the hospital had to own the clinic. In other words, sending residents to learn in private practitioners’ offices would no longer be reimbursed (Wray & Sadowski, 1998).

Subsequently, residency programs moved away from permitting residents to obtain their clinic experience in private practitioners’ offices to requiring residents to obtain their clinical experience in a resident education clinic (hereafter shortened to resident clinics). Resident-oriented primary care clinics provided the hospitals with full GME reimbursement *and* acted as a feeder function to send patients to hospital services. These clinics represented a significant time and resource commitment on the part of AMCs but they provided a needed teaching venue for residency education and a new source of hospital income.

However, problems arose with the movement of education to ambulatory settings. First, the patients are ambulatory. They arrive early or late, don’t show at all, bring their families, etc. No show rates may be in excess of 21% (Hixon, Chapman, & Nuovo,

1999). Yet patients expect to be seen on time and keep the visit relatively short so that they can get back to work. Waits for lab tests and X-rays do not enthruse the patient about coming back when other clinics/offices are not only available, but run more convenient schedules. Second, faculty are expected to see an increasing number of patients of their own. Strategies for doing this range from “co-practicing” where one faculty and one resident are responsible for a cohort of patients, to a “precepting” model where one faculty sits in a room and discusses the cases being presented by residents. This model frees other faculty to practice without teaching responsibilities.

A Change In Curriculum: From Specialties To Primary Care

The United States medical education system produced specialists for the past fifty years. The sudden focus on primary care required a shift in training venue, organization, faculty and learners. Issues as to what, and how, primary care (or generalist) training should be accomplished are still under considerable discussion. Judging from the available research, studies that delineate the *questions* are as absent as those that might provide *answers*. The terms “primary care” and “generalist” are loosely equated to indicate the first line of patient care. Altman’s (1995) definition of a “generalist” is perhaps the most comprehensive:

Generalist physicians are those who, by virtue of their education, training, and practice, have acquired and maintained the competencies required to provide their patients with all of their primary care needs and, either personally or through coordinated referral to other professions, with their secondary and tertiary care needs. The generalists’ work should take place in the context of a broad understanding of people, patients, illness, the nature of clinical decisions, and the fundamental advances in the biomedical sciences that affect patient care (p. 1090).

During the 1990's, competency lists were continually being developed (Bondurant, 1995; Cohen, 1995). These have culminated in the core competency project developed by the ACGME into six core competencies. (See Chapter 3.)

The clinic curriculum is openly debated as to differences from the hospital curriculum (see Chapter 2 for more discussion). As their physician purchasing power increases, MCOs also want input into physician training. Curriculum changes are being made to meet the demands of both MCOs and residents who will work for MCOs as their first (and perhaps only) employers (Greenlick, 1995). Finally, the issue of who will pay for medical education in ambulatory settings also remains unresolved (Corrigan & Thompson, 1992; Wray & Sadowski, 1998).

A Change In Patients--From Passive To Consumer Driven

Throughout western societies, a substantive shift has occurred in values. Gone is the emphasis on labor and production. Replacing it is an emphasis on what consumers want, and are willing to purchase. In an era of technology and global markets, consumer needs can now be met in a matter of hours with production occurring anywhere in the world. We have moved to a world of "post-Fordist flexible specialization" which has ushered in the end of traditional capitalism (Dent, 1995, p. 878).

According to Ritzer (1993), this new focus on consumer culture has produced "McDonaldization." In this perspective, there are four key principles of work organization: efficiency, quantification and calculation of services and costs,

predictability or standardization, and control through the replacement of human skills and knowledge with technology. We have come to expect the identical hamburger whether we eat it in Beijing or East Lansing. Yet we have also come to expect individualized service of very high standards. There appear to be two sides to organizations--or sometimes two very different organizations: those that thrive by permitting innovation, chaos and ambiguity, and those that produce products and services in automaton fashion.

Coupled with changes in consumerism, the federal government recently changed the Medicaid rulings, permitting recipients to “shop” for health care (Ludmerer, 1999). Whereas Medicaid recipients used to be assigned to clinics, now they may select whatever health care system is willing to take them. This has placed previously non-competitive residency clinics in a position where they must compete. Moreover, consumer rights are clearly labeled, and presented on forms to be signed when one enters a clinic. Patients and residents talk about their rights. We have moved to a consumer-oriented society in which the rights of individual consumers are paramount.

In a recent book review, Fox summed it up:

The time for the thoughtful and thorough teaching and learning of good medicine, the environment and the ambiance of medical schools and university hospitals in which this teaching and learning take place, and the quality of medical education are being adversely affected by ramifying internal and external changes that academic health centers have been undergoing (1999 p.1072).

Problem Statement

Health care reform across the nation forced a change in the teaching venue from hospital to ambulatory clinic. The reform movement also raised new issues of how teaching and

learning can best be carried out in ambulatory settings. Further complicating the procedural issues of teaching and learning was *what* to teach. The focus on generalism raised discussions about what primary care physicians should be learning. This in turn, has been further complicated by the increasing focus on the efficiency as well as the effectiveness of patient care.

In parallel, academic medical centers came face to face with the reality of needing primary care patients in order to a) continue to support their educational endeavors and b) provide a patient base for their specialists. Most chose to fight by obtaining or affiliating themselves with primary care-oriented, community-based health care systems. In many cases these systems included some sort of contractual agreement with at least one, if not several, insurance/ managed care organizations. However, as noted above, the purposes of these organizations, i.e., profit-making and direct patient care; can be in direct conflict with the purposes of academic medical centers, particularly medical education and research.

Residency education clinics are caught squarely in the middle of these conflicts and debates. On the one hand, they are charged with developing a new kind of physician who can practice in a “managed” environment. On the other, they are charged with providing efficient, effective and quality patient care services equivalent to those found in clinics not involved in medical education. Medical educators have already expressed concern that emphasizing funding by providing clinical care has shifted the focus of ambulatory teaching away from resident training and toward providing patient care

(Kralewski, Hart, Perlmutter, & Chou, 1995; Ludmerer, 1985). It is this tension between resident education and patient care that is so problematic.

We know relatively little about how these demands on the resident clinic are influencing teaching and learning (medical education) and patient care service within this setting. The changing emphasis on the service purpose, i.e., providing efficient and effective patient care, creates a new dynamic with the clinic's other main activity: resident education. Carey and Engelhard (1996) noted that "managed care also presents a major ethical dilemma in medical education: the incentives of managed care are directed to reduce overall costs, but the risk of deprivation of care may be in conflict with the best interests of the individual patient" (p. 843).

The question is: How is the dynamic tension between resident education and patient care in an ambulatory setting played out? Does the tension promote more effective learning --or has the shift in purpose moved to cost containment and patient care at the expense of resident education? Or vice-versa: has patient care quality improved because of the new regulations? How do those who participate in the daily activities of such a clinic enact these tensions, conflicts and dilemmas--do they find strategies and methods for dealing with them--or do the issues remain unresolved?

A Fresh Perspective: Interactions in Networks

In many residency clinics, there is a gap between what faculty and residents explain is happening in the clinic and what happens during actual observations. This is nothing

new. Argyris and Schön discussed the differences between espoused theories and “theories-in-use” in the 1970’s (1974). Organizational studies have also noted that it is often impossible to trace back decisions to any one individual or any one point in time. The assumed link between commitment and action did not exist (Mintzberg & Waters, 1990). Chia posited that actions cannot be separated from thought. In fact, he argued that actions come *before* decisions, a term he called the actionality of decisions (1996, p. 198). In this concept of action, activity is not privileged over passivity nor is the conscious privileged over the unconscious (p. 199). That is, the lack of an “action” can just as easily trigger decision or actions as can the active execution of an action.

Unfortunately, even after Becker’s (1961) study of the actions of medical students in hospitals, the field of medical education has largely forsook studying actions and interactions in favor of surveys and interviews. Observational studies are few and far between. Most have focused narrowly on the teacher-learner dyad, providing organizational theorists with grounds for critique. Lowdermilk studied environmental factors that either inhibited or facilitated learning. These included space, equipment, faculty availability, and policies. However, this list of factors was not related to the human actors, i.e., there was no actor network analysis (Lowdermilk, 1986). Recently two ethnographic studies of teaching/learning quality have been completed. They concluded that the environment must be taken into consideration, along with the teacher and learner. Environment was defined differently in each study, but generally included practice site attributes such as scheduling, resources, management and staff roles

(Young, Graham, Shipengrover, & James, 1998; Zayas, 1999). While such lists provide a beginning point for this study, their relationships to teaching/learning are still unclear.

Studies of residency clinics have focused primarily on the teacher-learner interaction (Irby, 1995). Studies of patient care services have focused solely on aspects of patient care, such as efficiency or effectiveness of treatment. See, e.g., (Kosecoff et al., 1987; Reuter & Gaskin, 1997). This study identifies and describes the *interactions* of patient care and resident education. Can both sets of activities thrive together--or does one or the other suffer from the need to carry them out simultaneously? The results of this study will raise issues about the delivery of health care and resident education.

In order to provide a fresh construction of the issues and problems involved in organizing residency clinics, a relatively new perspective, actor network theory (ANT), was selected to frame the questions. Derived from a larger literature on organizations as systems (Scott, 1995), actor network theorists sought ways to connect the everyday reality of the physical world with the activities of humans. In actor network theory, actors act in networks. Their actions change the network, as others (and the original actors) respond to the original actions. Actors are both human and non-human. An actor may be a resident, a patient, or a nurse, but it may also be a fire alarm, computer, Guyac cards, or the patient's paper chart. Actors may also be part of overlapping networks—at all levels of organization—from the state and federal clinic to regulatory agencies. This perspective does not privilege human agency--but considers all elements as potential actors. This study describes who the actors are in more detail in Chapter 4.

It then considers their social-spatial interactions, i.e. where the actors are located in the network and how much and what types of interactions they have with other actors in Chapters 4 and 5. It discusses how the actors order their interactions through time in Chapter 6. Finally, it looks at how actors act in the final moments of the encounter, the In-Action Opportunity Set in Chapter 7.

This study is the first actor network analysis of an ambulatory education clinic. Most actor networks have described organizational efforts around a single set of activities, for example, a research laboratory or a production line. Studying the simultaneous provision of education and patient care lends a unique dimension to studies of actor networks. While studies of various apprenticeship communities of practice have taken place in the situative learning perspective, the residency education clinic has not been studied. The processes by which actors order activities will also provide fresh theoretical insights to both the organization and professional education literature.

How is the action/interaction literature connected to the literature on cognition and learning? The situated learning and communities of practice literature provides the connection (Greeno, 1997; Lave & Wenger, 1991; Wenger, 1998). The explanation of these perspectives is in Chapter 2. However, to briefly summarize, the situated learning theorists posit that humans exhibit knowledge through their actions and interactions within a context or “situation.” One cannot separate the context from the actions, because it is through the medium of the context that one observes the actions. “All learning involves socially organized activity” (Greeno, 1997, p. 10). The question

becomes not *whether* to give instruction in clinic settings, but *what kinds* of activities to arrange for. These are not random activities. Network theory posits that they occur in ever-changing “nets” of relationships, and that they are ordered.

Research on networks in residency clinics, or for that matter, in any type of ambulatory clinic setting are missing. Research on the processes of ordering two sets of activities (education and service) are also missing. From the medical education literature, studies have indicated a need to observe a wide range of patients, residents and faculty.

What/who are the key actors that keep these networks intertwined? Are the issues of curriculum, which are so clearly addressed in the literature, problematic at the clinic level? These questions cannot be answered without speaking to and observing the clinic’s actors. It is through this form of research that clinic life will be constructed.

The term “teaching/learning” is used throughout the text. Patients, other residents and faculty, sometimes even the nursing staff, are teachers as well as learners. The interactions are all intertwined, pointing to the distributed nature of the cognition. *This study is NOT about resident learning OR faculty teaching.* First, no one has clearly defined either resident learning or faculty teaching in medical education settings. Second, separating out what is learned in the clinic from the many other educational settings residents attend every day is probably impossible. Finally, further work must be done on general competencies and/or possibilities of what the clinic is capable of teaching residents. This study sought to answer a different set of questions.

The unit of analysis for this study is NOT the individual, but the *interactions between and among actors*—including *both humans and non-humans* throughout the entire clinic. The actions, interactions, and processes by which the actors order their interactions produce “opportunity sets” that lead to patient care and teaching/learning. The “opportunity sets” are further described in the following chapters. In each case, they consist of an outer set of parameters with rather fixed or semi-fixed internal rules, regulations, configurations or orderings that are very difficult to change. Therefore the actors find that they must work within these opportunity sets to accomplish their purposes. The parameters of these opportunity sets provide broad constraints within which the work is carried out. The opportunities available within these sets are further constrained when the work malfunctions, doesn’t get done, is avoided, etc. It is that narrowing (or occasional expansion) of possibilities, opportunities and capabilities within the sets that is explored in this text.

Purpose Of Study

The purpose of this study is to identify and describe patient care and resident education network(s) in an ambulatory education clinic operating with “managed” affiliations.

The overarching research question was: What are the networks in an ambulatory education clinic, as they relate to patient care and resident education? Subquestions included: a) Who are the actors in the networks? b) What are the relationships of the actors? and c) What processes of ordering do the actors create and use?

How do patient care and teaching/learning come to be enacted simultaneously in a residency clinic? Who are the actors in the clinic network and how do they interact with each other to accomplish these two sets of (sometimes) very different activities?

Perhaps naively, I assumed that there would be two very separate networks, one for patient care and one for teaching/learning. I further assumed that they would intersect at distinct points that I would be able to clearly describe and pinpoint. Instead, the findings suggest that the work of the clinic is better represented as ONE network—with somewhat separate nodes, but nevertheless only one network. The network works hard at carrying out two sets of activities, patient care and resident learning, simultaneously.

The study is addressed to all who are concerned about outpatient residency education, i.e., faculty, staff and residents in primary care residency clinics as well as medical education and hospital administrators. However, it also contributes to the larger bodies of literature in professional and higher education and organizational studies of ordering processes.

Circumscribing the Study

A brief summary of the methodology is provided to assist the reader in situating himself in the study. Please see Appendix A for detailed information on the methodology. Two recent observational studies of teaching quality in residency clinics yielded lists of environmental factors to be considered (Young et al., 1998; Zayas, 1999). However, relationships and interactions among human and non-human actors have not been studied. This study was an exploratory, observational, qualitative case study. Applying

a framework of interactional analysis requires lengthy periods of observation, and attention to a large number of actors at the site. This has produced a rich, thick description of a unique clinic. It has also provided fresh insights into ways of thinking about how we constrain or expand opportunities for patient care and medical education.

Site Selection

The site selected is as similar to other residency clinics as possible. The residency clinic is associated with an academic medical center. An Internal Medicine clinic was selected because all patients were consenting adults over the age of 18. The site had to meet certain criteria: a) a low number of foreign medical graduates, b) an excellent reputation as an academic medical center, c) a diverse faculty and resident body, d) a high percentage of managed care patients, e) be located outside the state of Michigan, and f) have a collegial atmosphere. By the time this study took place, managed care contracts were decreasing across the entire nation. All of the five clinics visited had a much heavier mix of third party payors and less managed care than originally envisioned, therefore, criterion “d” was abandoned. The Korsdale University Internists (KUI) residency clinic at the Korsdale University and Medical Center best matched the remaining criteria. Because of the large number of residents in the clinic (100), a small subset was selected for intensive observation. Two first year residents (PGY1s) and two third year residents (PGY 3s) were followed one half day for three succeeding months. The study was also limited to the residency component of the clinic.⁸

The purpose of the study was to describe the daily practices/actions of the staff, residents and faculty. The organization selected was willing to open all parts of their clinic to me. It was never my intention to showcase problems in the organization. I do not wish to embarrass this organization in any way. However, during the course of the study, events happened in the clinic. As part of their regular organizing activities, all networks have mechanisms for addressing the unusual, disruptions, changes, and absences. The honesty and frankness with which people permitted me to share in those disruptions and changes was a tribute to the meaning of medical education research in an academic setting. I have tried to represent accurately the participants' actions as well as my own sense making about these events. All residency clinics are fraught with similar issues, problems, and challenges. It is my hope that this study provides fresh perspectives and insights for all medical educators, including those at Kordsdale. To this end, the study participants were very helpful and have my deep gratitude. This was not a study of the *medical* content related to quality of patient care, as I was not qualified to address such issues. However, during observations of clinic activities, a large amount of patient care was given. Where the *organization* of patient care was related to teaching/learning, I have shared my observations.

Time Period

I was present in the clinic, on a halftime basis, from January through July 2001, returning regularly during August and September 2001. During the study period, I observed the three major “phases” of residency education. From January to June, the clinic runs at full speed with all three classes of residents scheduled for their respective

maximum number of patients. In July and August, only the second and third year residents (PGY2s and 3s) are present. In September, the interns, or first year residents (PGY1s) join the clinic practice. Until January 1, they are taught using the GC modifier.⁹ In January, the clinic returns to full speed with all three classes of residents, completing the three-phase cycle.

Methods Selected and Implemented

Individual signed consent forms were obtained from staff, faculty, patients, and residents. All participants received code numbers that were identified separately from all written materials. The major data collection method used was observation. 118 half-days of observation by the author were conducted over the nine-month period. Observations were made by location, individual people, events and non-human actors. I presented myself as a visiting faculty member from Michigan State University, conducting my doctoral dissertation research. I wore a white coat with my name and university embroidered on the pocket. Additional data consisted of: 1) audio-taped interviews, 2) daily patient scheduling records, 3) aggregate results of a resident survey, 4) 115 documents and 5) the author's daily journal. The observational and interview data and journal were entered into NVivo and general themes were developed. As the data was analyzed, additional themes emerged, and these were added to the coding schema. Sections of the data were then reanalyzed in an iterative process. Data was triangulated by using all of the above listed sources.

Member checking was conducted on individual issues. For example, I confirmed that a number of people were concerned about the state of the medical records and the scheduling. However, as of this time, I have not been able to return to provide a final discussion of my findings. Due to circumstances beyond their control and mine, the Clinic Director could not provide a time for me to speak to the faculty and staff. Therefore, I am currently in the process of sending a written report to the clinic.

It is necessary to comment on the language of the observed conversations. Throughout the text, I have provided examples of conversations, primarily between residents and faculty, but also with other actors. The conversations appear to be abrupt, and almost stilted. Part of that was my own note taking. In order to capture the sense of the conversation, I dropped unnecessary words. However, in many cases, the conversations were very brief and abbreviated. There is almost a short-cut nature to the language used, in order to say the fewest number of words in the least amount of time. In one room, there are a lot of residents and attendings speaking, making the room noisy. Phones and other people often interrupt conversations, and everyone is in a hurry. This all lends itself to abbreviated conversations such as are reported here.

My Role As An Observer

I went into this clinic knowing no one. My role shifted over time and by work area. I began by primarily observing—asking questions when I did not understand. By the time I left, it was like walking into an extended family. There were times when I deliberately chose to be more of a “participant.” These events are discussed in the succeeding

chapters. The perspectives of *all* participants are represented in this study, but it is my own perspective that I have brought to the ordering process and telling of this text.

Study Limitations

Any study that has only one site does not permit generalizability. Yet the description of interactional processes found in this clinic will hopefully provide direction on further research. It would have been ideal to include smaller, community based residency programs, and other disciplines. Time and funding also constrained the study. During this period, I continued to work half time in Lansing, Michigan. Unfortunately, this meant that I was unable to be present for all meetings or other planned events.

Following an entire class through a three-year period would have been ideal, but this study arrangement permitted me to observe all three phases of the training cycle.

The Korsdale University Medical Center

The Korsdale University Medical Center (KUMC) is located in a major metropolitan area. The city has several other top quality academic medical centers, making competition readily apparent. KUMC was initially started as a private, religious hospital and maintains some of its religious ties even today. It is a private allied health university, with programs in pharmacy, nursing, medicine, and other allied health professions.

Korsdale UMC resembles the AMCs described previously. Several years ago, it affiliated with a community-based hospital, South Bay. Residents spend regular

amounts of time on rotations at South Bay as well as at Kordsdale. KUMC purchased a number of clinics that were contracted with managed care (e.g., Rancom) to act as feeders for their large number of specialists and sub specialists. It has an expanded set of home health services, and an intermediate care facility for patients who are not ready to return home. There is even a lovely day care center for the employees' children. This is a large urban campus sprawled over several blocks that provides high quality patient care and a wide range of additional services to attract good staff and provide medical education.

The Internal Medicine department has over 150 residents, including seven medicine chief residents. There are four programs within the department: 1) Medicine/Pediatrics (Peds), 2) Medicine/Psychiatry (Psych), 3) a combined ambulatory program with another hospital and 4) the categorical medicine program. There is no General Internal Medicine program. There are approximately 110 residents in the categorical medicine program.¹⁰ The Medicine/Peds residents do not participate in the clinic. However, some of the Medicine/Psych residents participate, and one of the combined ambulatory residents also participated. Some of the Internal Medicine residents conduct their ambulatory experience in other settings. During the study period, 100 residents from Kordsdale UMC trained in the clinic, with an additional five residents from another hospital rotating through on one-month rotations. Demographic information was unavailable for the five outside rotators. Therefore, information is reported only on the Kordsdale residents who were assigned to the clinic for their continuity ambulatory

experience during the July, 200 to June 30, 2001 training year. Of these 100 residents, 86 provided consent to be a part of the study.¹¹

The Internal Medicine residency program is one of the largest categorical (as opposed to General Internal Medicine) residency programs in the country. It is well known and highly regarded as a prestigious, quality program. It has a well-developed didactic program, with morning report and noon conferences taking place four days each week in the hospital. There are also grand rounds, journal club, board review courses and other short-term courses/rotations/conferences that are considered key to passing the boards.

Residents come from a large number of medical schools, but primarily from within a 250-mile radius. The diversity approximates the population, with a number of residents being second generation Americans, and speaking another language at home. There were only three foreign medical school graduates. Most residents go on to fellowships in sub-specialties at prestigious medical schools across the country. Of the forty-eight June 2001 graduates, eight went directly into General Internal Medicine practice [DOC67].

Clinic Purpose

The residents, faculty and administration/management staff stated clearly that there were two purposes: resident education *and* patient care [OB22;IN08;10]. Resident education is considered the major purpose, as opposed to undergraduate medical student education. Some faculty do precept medical students, but only on the faculty side of the clinic.

While staff stated that the purpose of the clinic was to provide “customer service” or “good patient care” they were also clear that this was just a job for them—and that money, including figuring out ways to get even more money, was a primary purpose for their being there [OB94]. The clinic had recently merged from two separate clinics (faculty and resident clinics were separate) into one. However, they maintained the same general structure in the new clinic, by dividing the space into a faculty side or wing and a resident side. With the new clinic, the “goal” is to treat patients the same on both sides, i.e., offer the same level of services to all patients. Apparently that had not been the case previously [OB46], yet no one was able to explain the differences.

Introduction to Findings

The work of the clinic is not easily separable. The same actors (in many cases) construct and continue to reconstruct both sets of activities. At several points in the process, patient care, teaching, and learning become interdependent sets of actions. These activity intersections are messy—they happen all through the opportunity sets. A change in one can change many others. Furthermore, the activities are NOT simultaneous, except during a few phases in the ordering processes. While the original assumptions of this study are largely in error, they provided a starting point for the study. The following is an introduction to the findings of this study.

Let us begin by imagining a nearly limitless number of ways in which both patient care and an ambulatory residency educational experience could be organized. One such

dream, if unlimited funds were available, would be to set up small neighborhood clinics that would be staffed twenty-four hours per day with residents, attendings, nursing staff, educators, behavioralists, psychologists, etc. Staff would work in teams with a certain number of neighborhoods or populations. The health and well being of the neighborhood would be the team's purpose. Insurance companies would vanish, and all needed services would be provided free of charge. The clinics would have all the latest equipment and be connected into a set of centralized services including the latest radiologic technology, electronic medical records, medical-data bases, and central hospital services.

Continuing the dream, residents could be assigned to work in these clinics everyday for six months to one year. Not only would they meet their continuity requirements, but they would have opportunities for developing a deep relationship with the neighborhood clinic. This could include assisting with its administration, conducting action research to improve patient health, and participating in patient education, home-care or patient services. Residents would be responsible for both seeing patients, and working with staff and attendings in the management of the health care for the assigned population.

In an alternative dream scenario, residents could be sent off for three months at a time to work in different clinics one-on-one with the best medical school faculty. There would be educators present who would work with both faculty and residents to assure the highest quality educational experience. Full-time behaviorists would assure that residents learn to communicate and provide support for a wide range of difficult

psychosocial issues. In sum, every resident, attending, patient, and staff person would leave work every day, considering themselves the luckiest health professionals and patients in the world. They would have the best of everything and enjoy living and working in this wonderful dream world!

The point to this imaginary world is that, as a nation, we have chosen to construct our health care delivery network in certain ways. As taxpayers, citizens, patients and professionals, we have participated in its construction. We have not done this alone. We have done it on the shoulders of those who have come before us, as well as those from a host of “outer” networks who have also impinged on our national health care delivery network. Beginning with Flexner, patient care was separated from medical education for at least the first two years of medical school (Flexner, 1910, reprinted 1960). Private medical insurance health plans began to grow significantly during the 1930’s (Starr, 1982). The Hill-Burton Act (1946) required hospitals to serve the poor and underserved in exchange for funding to purchase or construct buildings (Starr, 1982). In developing the National Institutes of Health (NIH) structure, professionals and elected officials determined that health research would be only partially under the direct auspices of the federal government. The rest would be granted to large academic medical centers, where physician specialists abide. Finally, Medicaid and Medicare, the two largest medical insurance systems, continue to shape how care is provided for the elderly and the poor. Medicare was established to take care of short term, acute care needs of the elderly, and Medicaid, to assist with long-term nursing home needs. These programs open certain doors for patients, their families and their doctors, and close other

doors. As more and more care is delivered outside hospitals, the gaps between Medicaid and Medicare have become larger.

If there is one thing that every reader should note, it is this: actors, both human and non-human, construct the residency clinic networks. In these construction processes, they circumscribe, expand, revise or reconstruct the capabilities and opportunities for providing patient care and teaching/ learning in a residency clinic. We can all chuckle at the dream scenarios above because we know that our national health care network couldn't afford such dreams. But it is we, as actors (and those who represent us, as well as actors such as funding and regulations) that make the choices that give the United States this type of health care system. In places where different choices have been made, there are national health insurance plans that cover all citizens, the government conducts research, and medical school tuition is either free or very low cost.¹² We have defined our capabilities by our own acts of inclusion and exclusion.

The Korsdale clinic is one very small microcosm of our national health care system. It was constructed by those who first saw the need for a clinic, and later, by the infusion of other regulatory bodies, laws, funding from the federal government, etc. Past actors have constructed the manner in which current work is conducted. Current actors continue to construct and reconstruct the work. *The network is not fixed*—it can and does change all the time. As medical educators, we have tended to view the organization of residency clinics (and hospitals, for that matter) as being fixed entities. When residency clinics have been studied as organizations, their structures were treated

as fixed entities (Culbertson, Goode, & Dickler, 1996). Furthermore, the role of organization has rarely been questioned in medical education. In fact, most research has neatly separated the educational components from the organizational components.

Reconceptualizing the Clinic's Work: Opportunity Sets

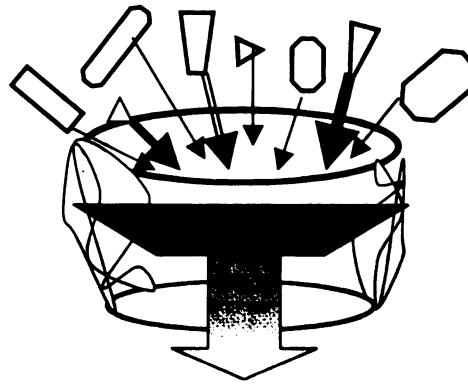
This text is about shaping the opportunities and capabilities of a clinic to provide quality patient care and resident learning simultaneously. I propose a new conceptualization of how that happens: Opportunity Sets. In the process of re-visioning, the conceptualization of the learning environment as a separate and fixed entity from the learning itself is declared null and void. Here is a brief, non-technical description of the process. The details of this model are provided in Chapters 3-6.

Imagine a funnel with lumpy, bumpy sides. The sides are bumpy because it is old, and has been heavily used. The purpose of using the funnel is to pour over twenty different types of liquid into the funnel, filter them, and have them mix together into a very high quality, smooth liquid on the other end. The funnel has at least three layers of gauze in it. The top layer is very tightly woven, with each layer having a succeedingy looser weave. The tight weave of the first gauze keeps the liquids fairly separate as it passes through. Through each succeeding layer, the liquids are better mixed, until at the bottom, they come out as one smooth liquid. Now imagine that the top layer of gauze is installed with super glue. It is almost impossible to change or move it, but it can still be done with the right tools and equipment. The next layer of gauze has only regular glue holding it in place—it is easier to change out if needed to make for a smoother liquid.

Finally, the bottom one sits in loosely, and can be fairly constantly changed.

Sometimes the layers of gauze get holes in them or breakdown, permitting the original, separate liquids to reach further into the funnel. These “holes” or “tears” must be repaired, incorporated, or worked around in order for the funnel to produce the desired results. This model is represented in Figure 1.1

Figure 1.1: Pouring Liquids through a Funnel

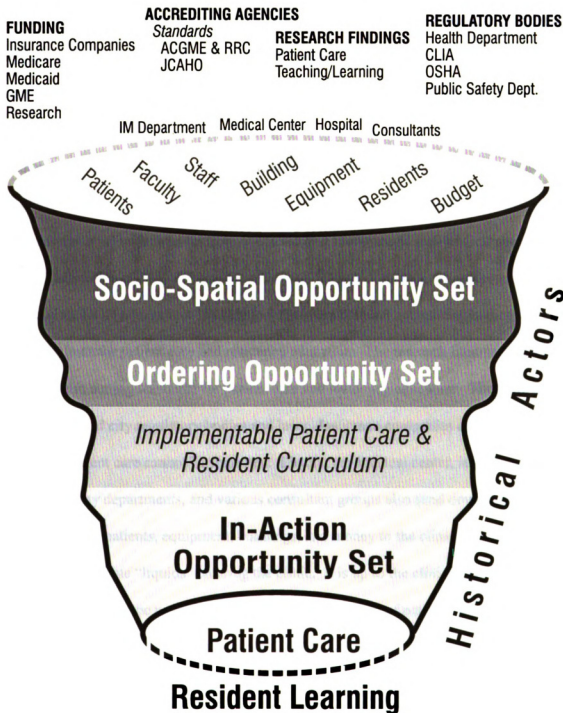


As we move to considering this image for the clinic’s organization, the bumpy sides represent history. The funnel represents the clinic itself. The liquids entering the clinic are all of the outer affiliations that the clinic has with the hospital, funding streams, and regulatory bodies as well as the actors who are tied into the outer networks (faculty, staff, building, patients, funding, etc.) The layers of gauze are the opportunity sets. Patient care and resident education result from this voyage through the funnel. This conceptualization is modeled in Figure 1.2 Clinic Opportunity Sets, p. 45.

Figure 1.2, Clinic Opportunity Sets begins with the historical actors that have made the sides of the funnel not so smooth. Historical Actors represent actions that were made in the past that have carried over into the present (see Chapter 3). For example, there had

Figure 1.2 Clinic Opportunity Sets

Outer Networks



originally been two clinics. When they moved to the new clinic, they maintained many historical features of two separate clinics. The staff, faculty, patients and residents also moved and had to merge from two clinics into one. There were two separate systems for maintaining patient charts—both were brought into the new clinic. Before anyone even began to see patients in the new clinic, all of the participants had to deal with a large number of pieces of history that would follow them into the new setting.

What are the “liquids” that get funneled into the clinic? Almost nothing is generated by the clinic itself. It is very dependent on inputs from a wide range of sources. These start at the federal level with funding from Medicaid and Medicare as well as Graduate Medical Education (GME) funding for residents.¹³ Each of these funding sources comes with its own set of regulations. In addition, there are national accrediting bodies that set standards, both for patient care and residency education. The research literature also plays a role in setting standards for patient care and residency education. There are also state, county and city regulatory bodies and laws. Insurance companies and other funders of patient care cannot be forgotten. Finally, the medical center, its connected hospital, faculty departments, and various consultant groups also send down personnel, mandates, rules, patients, equipment, buildings, and money to the clinic. These are portrayed as separate “liquids” entering the clinic. It is up to the clinic to sort them out and make them into one workable, smoothly flowing stream of patient care and residency education. The “Outer Networks” are discussed in Chapter 3.

Now, the doors of the clinic open, and the first Opportunity Set is encountered. This opportunity set consists of the building, the physical space of the clinic, money, staff, faculty, patients, residents, and all of the accoutrements necessary to run a clinic. These include computers, patient charts, exam room tables, chairs, gowns, bandages and other supplies, testing kits—the list goes on and on. The concept with this opportunity set is that the people and the various objects interact with each other in order to accomplish the work of the clinic. They interact both spatially and socially. The work is arranged such that certain physical spaces are for certain activities. But it is not just the people who interact. The objects, as we will see, also play large roles in how the work is accomplished. For example, there is a “V” in the hallway—impossible to change—that sends patients out the door with turning in their billing forms. The computer system was not designed for resident clinics, making it almost impossible to figure out who is the patient’s regular doctor. This is the most difficult opportunity set to change, because the space, objects, and people are fairly intransigent. Removing staff, faculty, residents, patients, computers, exam tables, etc. are not easy tasks. They may be moved around, and re-organized, but eliminating even one object or person requires large numbers of connections to the larger hospital and medical center. The first Opportunity Set is called the Socio-Spatial Opportunity Set, and is explained in Chapters 4 and 5.

The work that goes in the clinic happens over time. For example, a few days before the patient is due in the office, the patient’s chart is pulled to start preparing it for its journey to meet the patient and the resident in the exam room. The second Opportunity Set is about these journeys over time. It is a second dimension to the first, and as such, is

inseparable from the first. However, this process of re-ordering objects and people is easier than removing them altogether, therefore it is placed as a successor to the first opportunity set. As will be explained later, the staff changed the order of how one piece of paper got into the chart, by asking the patients to carry it with them until they met up with their charts. All of the participants remained the same: the patient, the paper, and the staff, but the ordering changed the work, as the staff no longer had to file the papers at the end of the day. The changes in the second opportunity set changed the first.

Changes in the first Opportunity Set will also change the second. The second Opportunity Set is termed the Ordering Opportunity Set, and is explored in Chapter 6.

After the very separate ingredients of the Outer Networks have become intermingled by passing through the first two opportunity sets, there is a brief instant in time where the maximum possible residency curriculum and patient care is present. This is the most that any one person or object can implement in this clinic setting. It is an ideal state—not the actual—but serves to set the outer limits for what can be accomplished.

The final Opportunity Set is what happens in-the-moment. It is what the patient says or does, the questions the resident asks or does not ask, the presence or absence of the patient chart, and the responses of the faculty. It is also the lack of a working instrument, or patient gowns in the room. It is what the attending chooses to address as a teaching point with the resident. After the patient leaves, it includes what happens when the patient brings back test results—or does NOT bring them back. Who reviews

those results reviewed and what decisions are made about those patients. This Opportunity Set is termed In-Action Opportunity Set, and is discussed in Chapter 7.

The results of this last and final opportunity set become the final parameters of what can be provided in the way of patient care and resident learning. Ultimately, this study is not about the final “outcomes,” but about the opportunities and constraints that define what is possible in the way of outcomes. The clinic actors ultimately define the “outcomes.” However, research has identified several desirable outcomes. These are explored in Chapter 2. Research in medical education has tended to focus on the in-the-moment processes. Anything beyond that has been termed the “learning environment.” Here I propose a more seamless approach—one in which each opportunity set contributes to the capabilities of the next, with no one opportunity set favored over the next. This approach makes it possible to discuss a different conceptualization of change than that which has been put forward in previous organizational and educational studies. The ramifications and possibilities resulting from this study are discussed in Chapters 8 and 9. In sum, the first two chapters provide an overview and theoretical framework, Chapters 3-7 describe the Opportunity Sets, and Chapters 8 and 9 summarize and discuss the findings and implications for this model.

A Guide to Reading This Text

In order to assist the reader in enjoying the ride through this text, I offer the following guide. The first two chapters provide the road map. Chapter 1 lays out the problem, and provides a very brief explanation of how it was studied, and what one will find

throughout the journey. In Chapter 2, the theoretical frameworks are discussed. Previous research findings, upon which this study has been based, are also provided in Chapter 2. Chapters 3-7 are the journey itself. One can consider the text like being on the top of the plateau for the first two chapters, and then starting down a narrow winding road into a gorge. The road is curvy, and requires one's full attention. The reading in these chapters is full of details, and complex. The chapters are set out to explain the major concepts of the Clinic Opportunity Sets (Figure 1.2), in the order provided by the model. Finally, in Chapters 8 and 9, one emerges from the gorge back up on the plateau again. Chapter 8 provides a summary of the findings, and Chapter 9 provides recommendations for policy makers and educators. The detailed description of the methodology has been placed in Appendix A so that the reader may follow the conceptual model through the body of the text. I have used several rhetorical devices throughout the text:

* First, the findings for each of Chapters 3-7 are summarized at the beginning of each chapter. The data to support the findings and the analysis of that data form the bases of the chapters. Therefore, the findings are embedded a second time in the chapter's text in order to assist the reader with matching the finding to the data and analysis. Each section is organized as follows: a) a description of the finding, its supporting data and an analysis of the finding, b) a discussion of the relationship of the organizational issue, network component and patient care/teaching/learning opportunities and constraints related to the specific finding, and c) how the finding relates to the literature. In some cases, there is more than one organizational issue

related to a finding. In those cases, the literature section has been summarized to address all of the issues under one finding.

* Second, throughout the text, I have “boxed-up” many of the non-human actors and some of the human ones as well. This is done as a way of introducing them into the text, without losing the flow of the text. It also sets them apart from the text, so that their status as actor is clearly noted. The boxes provide the reader with more information about the inner workings of the actor. But, just as in real life, when they are interacting with other actors, they are “black-boxed.” That is, their internal workings are rarely questioned. For example, we do not question our software programs on our computers unless there is a problem. At that time, we may need to know much more about the inner workings of the software program. The actors’ inner workings or full descriptions are boxed, and then they resume their “taken-for-granted” status in the text itself.

* Third, I have highlighted the importance of tying the organizational issues and network components together with teaching, learning and patient care through a series of small tables that appear throughout Chapters 3-7. These tables are then summarized into a larger table in Chapter 8 (Table 8.1) where the overall implications are discussed.

Chapter Summary

In sum, this text sets out to explore how patient care and resident education are delivered in a residency clinic. What it finds is that the path has already been laid out, with some

places carved in stone (federal laws, for example). The choices that the actors make on how they do their work and how they order their work, further narrows, but in some cases, may expand the path. All of this is a prelude to the actual enactment of patient care and teaching/learning. The prelude *sets up* for the enactment. The prelude cannot be separated from the enactment as it provides the construction of the enactment.

Endnotes

¹ Throughout this text, the terms “attending,” “preceptor,” and “faculty” are used interchangeably. Unless otherwise noted, they refer to the faculty who participated in this study. These faculty have completed their residency training, and have faculty appointments at the university.

² The terms “residency” clinic and “ambulatory” clinic are used interchangeably throughout the text. Technically, an ambulatory education clinic might also include students. In this clinic, a few students are present from time to time, but only on the faculty side, which was not part of the study. That is, the residents do not interact with medical students in the Kordsdale Clinic.

³ The activities of the “permanent” staff, e.g., nurses, office managers, faculty, etc. do not escape these changes either. The non-human actors – computers, patient charts, even the physical space are also changed.

⁴ MCOs are of two types: Health maintenance organizations (HMOs) and Physician Provider Organizations (PPOs). It also includes a wide menu of “managed” plans provided by all of the previous fee-for-service insurance companies.

⁵ “DRG reimbursement rules reduced the average length of stay for an inpatient by half a day, and the number of inpatient hospital stays dropped by 20%” (Ross-Lee, et al., 1994, p. 852).

⁶ Beginning in this chapter, I intersperse some of the conversations recorded throughout my observations. In order to further protect the confidentiality of the participants, the terms “resident, patient and attending” represent the specific individuals who made these statements. I have also noted where I spoke aloud, with a “KVB.” Where I made a written observation (i.e., no verbal statement was made by me or the participants), I have noted this in square brackets []. Brackets are also used when further explanation is necessary.

⁷ Since the completion of this study, this process is beginning to reverse itself. AMCs are finding that private practitioners will still refer patients. The costs of maintaining large ambulatory education clinics such as the Kordsdale Clinic continues to escalate. Several hospitals in Michigan have recently closed their residency clinics and are sending residents to private practitioners for their continuity experience.

⁸ There are occasional medical students and pharmaceutical residents present in the clinic. There is also a regular rheumatology clinic on Thursday mornings. I chose to delimit the study by including only the Internal Medicine residents.

⁹ The GC modifier is a Medicare requirement (www.jhu.edu/~comply/gcyr). It requires an attending to repeat most of the phases of the history-taking and medical exam of a patient for the resident’s first six months in the clinic. The attending must then write a complete note in the chart—signing off on the resident’s note is insufficient.

¹⁰ Categorical is the term used to describe a program that prepares residents to enter subspecialties of Internal Medicine, e.g. cardiology, gastroenterology, nephrology, etc. In this type of program, there is less focus on General Internal Medicine.

¹¹ The non-consenting residents were evenly split among the half days. Most were not present while I was on-site.

¹² There is considerable information on other national health systems available from Physicians for a National Health Program. Their web site is: www.pnhp.org/hcinfo/. All of their information is well referenced on their web site. See also: Foreign Medical Schools, at www.georgetown.edu/college/premed/foreign.htm.

¹³ GME funding is part of the hospital's reimbursement from Medicaid and Medicare.

CHAPTER TWO: SITUATING THE STUDY IN THE LITERATURE

Introduction

While the processes of resident learning are one of the central themes of this study, the study is about more than resident learning. It is about the *opportunity sets within which residents learn and about which they learn*. However, it is also about how actors make resident learning AND patient care possible. How do the actors construct and enact a “residency clinic” so that not only residents learn, but also patients receive quality care? The integration (or lack of integration) of these two sets of activities is addressed conjointly, taking into consideration the wide range of issues bombarding residency clinics.

The processes by which two rather separate and distinct sets of activities occur within one organization are fascinating. How do activities continue to be performed? How do actors prioritize activities? How do they juggle two very different sets of priorities? Can the same set of activities meet two different needs? It is this juxtapositioning of activity that is explored--not whether patient care (or for that matter, resident education) measures up to a list of predetermined categories.

This study is situated in the organization literature because it provides the widest range of general theoretical and methodological frameworks. However, the daily activities of the clinic involve both patient care and resident education. The perspective on this

puzzle of ever-changing, overlapping and conflicting set of patient care and resident education activities comes from a constructivist, symbolic interactionist framework.

If you ask medical educators to tell you what is wrong with the system, they will tell you it is the “culture”—the culture of health care, the culture of medicine, the culture we live in generally. The organizational culture framework focuses on beliefs, attitudes and values of the people in the organization and in its surrounding environment (Kunda, 1992; Morgan, 1986). But the organizational culture metaphor is unable to explain how people *act* within an organization, or how some actions happen outside the culture.

Studies of beliefs and values are, by necessity, retrospective and normative. Researchers began to realize that *actions* by individuals were often different than their *espoused beliefs*. Argyris (1992) differentiated between *espoused theories*--that which people say they believe in--and *theories-in action*--that which they actually do. As researchers spent more time conducting direct observations of organizational activity, they realized that organizations were ever-changing targets.

Through several decision-making studies, it became apparent that decisions could not be pinpointed and that actions were all there were. Actions were the *results* or *effects* of decisions: the memo finally announcing a new policy; groundbreaking for a new building, the change in the computer program--all signified prior decisions--but by whom? When? How? The organizational researchers could not really answer these questions. The researchers discovered that the decision makers attributed change or explained changes differently from what was being observed (March & Simon, 1958).

This led to models of decision making such as the famous “garbage can” model (Cohen, March, & Olsen, 1972) in which decisions and outcomes were perceived as random events. Weick (1978) developed a similar perspective with his term “loose coupling.” Both of these models were attempts to relinquish the rational, linear, planned approach to decision making.

Not only could decisions not be pinpointed, but when researchers asked people about them, the answers were not the same as their actions. They realized that most people’s “theories in action” were not the same as their espoused beliefs, hence the movement toward a focus on actions. The assumed link between commitment and action did not exist (Argyris & Schon, 1996; Mintzberg & Waters, 1990). How can we reconcile a world without beliefs? We do have beliefs, but they are essentially developed through becoming tightly enrolled in various networks. Latour noted: “We have many trials of strength through which are revealed which link is solid and which one is weak.... What we call structure is the shape traced by...trials: this point is negotiable, this is not, this is tied to this other one, and so on” (Latour, 1987, p. 200).

Take, for example, the issue of preventive medicine and health maintenance. This is a subject that is discussed in more detail in Chapter 7. The faculty all believed strongly in preventive medicine and health maintenance. They stated this clearly in their interviews with me. Yet, when it came to actually implementing this with residents in the clinic, there was no systematic manner in which it was discussed. The faculty did not encourage residents to use the prevention checklist in the chart. Moreover, what got

discussed, and how frequently it was discussed varied considerably. This was usually based on time (less discussion of prevention toward the end of morning sessions) or the importance of other clinical findings. Their “belief” was demonstrated in their actions as being much more complex than what they originally stated.

This breakdown in the paradigm of the importance of beliefs, decisions, and values refocused researchers on the importance of daily actions and interactions between the various actors and away from studying the espoused beliefs of individuals. The general dissatisfaction with gaps between retrospective analysis and actual observations led a component of organizational researchers to turn toward methods that involved observing actual practices. Today, qualitative research methods are questioned that do not produce a means to directly observe actions or verify that actions take place (Sandelands & Drazin, 1989).

Organizational Frameworks

History

Before discussing the current action theories, a brief historical perspective is needed on the changing concept of “organization.” This ultimately affects the epistemological perspective of organizing and the organizational analysis that is provided for this study.

From Taylor’s (1992) principles of management (originally written in 1916) to Max Weber’s (1992) bureaucracy (written in 1946), the concept of “organization” evolved into that of a rational, hierarchical, formal structure, with two classes of people: workers

and management. Differentiated from social organizations, formal organizations were “established for the explicit purpose of achieving certain goals” (Blau & Scott, 1992, p. 214). Organizations were viewed as fixed entities, with high degrees of formal structure. Leaders were considered to be upper level managers, and/or Chief Executive Officers (Barnard, 1938). Leaders were needed to create and maintain order; they did the thinking for the workers. A hierarchical arrangement was needed to maintain order and carry out the organization’s goals. Organizational studies focused on delineating this arrangement. Organizations were also considered to be bounded entities with little or no control over their external environments (Trist, 1992).

Beginning in the late 1960’s, new forms of organizations began to develop that did not fit the traditional view of hierarchy. Researchers began to realize that, in spite of everyone’s best rational intentions and decisions, things happened in organizations that were not planned and often had unintended consequences. See, for example, Cohen, March, & Olsen’s garbage can model of decision making (1972). Conceptualizations of organizations as action systems began to come into vogue (Katz & Kahn, 1992; Thompson, 1992). The popularity of the ecology movement suggested a different conceptualization: that of organizational ecology (Trist, 1992). This moved the analysis of what had been viewed previously as external to organizations, i.e., environmental effects, into a central place. The conception of organization changed to one of an “open system” (Katz & Kahn, 1992). That is, both the organization and the environment had influences on each other. In this model, organizations were viewed less as fixed, structured entities, and more as fluid, ambiguous, and oftentimes, conflictual systems.

Political theories and theories of power also dominated in the 1970's and early eighties. Who had power? The power of "lower participants" (Mechanic, 1992) was recognized, and organizations were termed anarchies (Cohen & March, 1992). The political nature of both power and leadership were also explored. In sum, by the mid eighties, researchers and theorists began espousing notions of organization in which all participants developed shared meanings, attitudes and actions around the work of the organization. The theories held that both formal and informal structures and processes were constructed within organizations and that these processes could affect the environment, just as the environment could affect the organization. These theories were influenced by both anthropology--the culture of organization (Morgan, 1986), and sociology--the action systems of organization (Strauss, 1993). But the ultimate removal from any notion of agency was Scott's institutionalism (1995). Developed to provide a macro-level view of organizations, Scott posited that organizations are formed into systems around various "institutions." Only global systems or institutions can be determinants of an organization's fate. All notion of individual agency is absent from his treatise.

The literature on the organization of hospitals and ambulatory clinics portrays health care organizations as somewhat fixed systems with boundaries that may be more or less penetrable. They have been viewed as rational (Alexander & Backman, 1990), open (Georgopoulos, 1972) or institutional (Scott, 1995) systems. Such systems are viewed as relatively stable, finite and purpose-driven. As noted in the earlier discussion of

mission separation by some AMCs, some medical educators continue to take a rational, purposeful perspective. However, others recognize that health care can no longer be viewed “as a discrete and even autonomous undertaking” (Bondurant, 1995, p. 95). Health care systems must be viewed as “interactive and interdependent” with practically all other elements of our society” (p. 95).

These newer perspectives have transformed the epistemological view of organizations as being fixed, bounded entities to organizations as ever-changing, dynamic action systems. While there remain some differences among the various action systems perspectives, there is common agreement on several aspects: 1) organizing can only be viewed by observing actions 2) actions are never repeated in precisely the same manner twice, consequently, 3) organizations are never final constructions, rather they are always under construction. In this chapter, I explore three current perspectives on actions/interactions in organizational analyses: actor network theory, activity theory, and situated cognition.

Throughout this text, several theories of action are incorporated. Actor Network Theory provided the theoretical framework for the study. The works of the situated cognition theorists, Lave, Wenger, Greeno, Brown, etc. are particularly relevant to the teaching/learning process (Brown, Collins, & Duguid, 1989; Greeno, 1997; Lave & Wenger, 1991; Wenger, 1998). Both frameworks are presented here. In addition, Engeström’s activity theory is briefly touched on as it provides the concept of groups of actions or “activities” (Engeström, 1999; Engeström, Engeström, & Vahaaho, 1999).

There is considerable overlap among actor network, activity systems and situated learning theories. All recognize the integral role of context and focus on interactions among actors that are considered both people and things. All consider cognition as distributed over the network (activity system is Engeström's term). Activity systems and situated learning developed from cognitive psychology. Actor network theory derived from problems with the agency/structure debate in sociology, as well as the dismissal of everyday reality in the global approach taken by the institutionalisms. Each has a somewhat different perspective: Engeström separates actors into categories such as the subjects, objects, mediating artifacts, rules, community and division of labor (Engeström, 1999). Lave and Wenger are more concerned about the processes of cognition, and their relationships to the networks in which they are developing (Lave & Wenger, 1991). Latour and Law focused primarily on the inability to separate human and non-human actors in networks (Latour, 1987; Law, 1994). In sum, all three theories provide somewhat different, but complementary perspectives.

Actor Network Theory

Actions/Interactions. Akrich and Latour (1992) defined actions as “a list of performances through trials; from these performances are deduced a set of competences [sic] with which the actant is endowed” (p. 259). Actions affect both the actor and that which is acted upon, creating “interactions.” Interactions become the unit of analysis--not individuals and not organizations. They are all that we can know about organization (Chia, 1996). Actions leave traces that may be studied. Unlike theoretical perspectives

that view, for example, decisions or values as key principles guiding human behavior, these perspectives implore us to look directly at interactions. Since we are always looking retrospectively, why not look directly at what actors do rather than what they say they think they did. Their reasons often do not match their actions. Argyris suggested that, when asked, individuals provide espoused theories of action, but, when acting, use theories in action (1978).

Both human and non-human actors act (Latour, 1987; Wenger, 1998). For example, when my computer breaks down, I act quite differently than when it is working. The computer, by virtue of its inaction, forces me to call my computer repairperson, order a part, install the part, reinstall my software, etc. The computer acted, and I reacted. Any non-human element can be an actor. Actions create reactions and interactions in an ongoing, ever-changing pattern. Both Chia (1996) and Strauss (1993) attributed this concept of action/interaction to John Dewey (1922) and George Herbert Mead (1938). Their views will not be discussed in detail here, except to note that the concept of action fits well with the Pragmatist school's antidualist position, i.e., no separation of body-mind, real-ideal, etc. The Pragmatists argued "that truth [which] arises out of interaction, is enacted rather than discovered" (Strauss, 1993, pp. 3-4).

Strauss (1993) refined the concept of action by discussing a long list of assumptions that are embedded in using actions as the unit of analysis for research. They are summarized briefly here: actions require bodies, however bodies can be any object, including body processes; actions are integral to interactions; actions carry meanings; human selves are

accounted for through actions (including the researcher's self): interactions and meanings are related; both exterior and interior worlds are created through interactions; overt and covert actions "may be preceded, accompanied, and/or succeeded by reflexive interactions" (p. 29); actions are not always rational and may incorporate emotions; actions are temporal; "courses of interaction are definable into sequences" (p. 32) or stages or processes; contingencies can change a course of action; interactions may be followed by reflection which may change the interpretation of the original interactions; and different actors may have different perspectives on an interactions (pp. 22-40).

Suffice it to say that a wide range of researchers from Dewey (1922) and Mead (1938) to Garfinkel (1967) and Strauss (1993) have studied, defined, analyzed and interpreted actions/interactions. They have gradually moved away from individual and organizational acts to utilizing action/interaction as the unit of analysis. Chia (1996) however, takes the final step: for him, interactions are not simply units of analysis--they are all there is.

But how can we notice actions? According to Weick (1995) we can attend to them only after they occur. Chia (1996) provided an example of how this happens. I put my hand in a drawer to find a pencil and I feel pain. I then open the drawer and search for the object that has caused the pain and find that I was stuck by a pin. The sequence of events is pain...pin. But when I tell the story, I reverse the experience and say that the pin caused my pain, i.e., pin...pain. "The creation of meaning is an attention process, but it is attention to that which has already occurred" (Weick, 1995, pp. 25-26). Since we

can only know actions after they occur, we are always looking at them retrospectively, or they are slipping away without our even seeing them.

Chia (1996) also argued that actions cannot be separated from thought. In fact, he argued that actions come *before* decision, a term he call the “actionality of decisions” (Chia, 1996. p. 198). In this concept of action, activity is not privileged over passivity nor is the conscious privileged over the unconscious (Chia, 1996, p. 199). That is, the lack of an “action” can just as easily trigger decisions or actions as can the active execution of an action. Law (1994) proposed a principle of symmetry in which the absence of action is just as important to observe as the action. The non-visible consequences of inaction may, in some cases, be more important than what is acted upon. “Action can be inhibited, abandoned, checked, or redirected, as well as expressed” (Weick, 1995, p. 37).

Actions themselves, however, are not products of individuals. Chia views them as distributed. This entails “a radical reconceptualization of the notion of human agency” (Chia, 1996, p. 162). Even though actions might appear to be the product of one individual, they “are in fact distributed and collective, especially cognitive tasks which have traditionally been represented solely as ‘mental’” [(Star, 1992) in Chia, 1996, p. 162)]. Oftentimes, we believe that meanings are developed, and action follows, but Czarniawaska-Joerges argued that it is the reverse: the creation of meaning comes from sharing collective action (1992). Knorr-Cetina defined one’s individual identity as a

“typified discursive construction” (1981, p. 10). Weick further clarified this by noting that “identities are constituted out of the process of interactions” (Weick, 1995, p. 20).

Weick further refined the definition of interactions by developing six situations of “thrownness.” These included: 1) inability to avoid acting; 2) no way to reflect on one’s actions before taking them--one simply acts on one’s own intuition and deals with the consequences later, 3) action effects are unpredictable, 4) patterns are only evident after the fact, 5) every representation of an action is an interpretation; therefore, there is no such thing as “objective analysis”, and finally, 6) language is an action. “Whenever people say something, they create rather than describe a situation” (Weick, 1995, p. 44). When studying residency clinics, talk is oftentimes *the* primary action--talk between patients and residents, residents and faculty, or nurses and residents or patients. Therefore, it is important to amass and analyze as much talk as possible.

In the early work on action theory, theorists were confined to the principle of “methodological individualism,” i.e., “that the capacity for action is a human attribute alone” (Callon & Law, 1997, p. 172). Actions were those of individuals and interactions were those that crossed between two individuals. Chia (1996) and Callon and Law (1997) argued that this is partially an artifact of western thought processes. The English language is based on subject-action-object. The action is completed by the subject and affects the object. Chia (1996) noted the absence of such a constraining concept in Chinese. In fact, the subject follows through the verb and the object. Our western differentiation of the subject from the action has led us to focus on the origins of the

action--who or what did it, rather than on the action itself. Callon and Law (1997) noted the absence of the individual-collective dualism in the Japanese language (as well as others). They argued that the logic of dualism has led the west to separate *individuals* from *collections of individuals*, i.e., organizations. For example, the anti-dualist approach present in Lave's (1988) concept of distributed cognition permitted us to address *how* knowledge is distributed or disseminated (i.e., what are the *actions* which took place in the dissemination process?) rather than *who* distributed or who received it.

The Structure/Agency Debate. Such conceptualizations have moved organizational researchers away from thinking of organizations as fixed entities consisting of individuals who make decisions and behave according to norms and rules established within the firm. There is no such thing as an organization or the organization--there is only *organizing*. Researchers observe sets or groups of actions (termed "activities"). From the actions of the actors themselves, it is possible to impute processes by which they order their actions (Latour, 1987).

Both theoretical frames, actor network theory and situated learning, center on actions. Among action theorists, there is little common agreement on what an action is, or the degree to which actions are intended or conscious. Who the actors are, and how one interprets actions also varies from theorist to theorist. In fact, perhaps the only commonality amongst various action theorists is that actions incorporate bodies and/or objects. What those bodies/objects do to constitute an "action" or "actions" or "interactions" depends on the theorists' particular conceptual framework. What appears

to most influence various philosophers' definitions of "action" and "actor" is where they fall in the structure/agency debate. In order to understand the manner in which actions have been defined (or left undefined) we must travel briefly (and with considerable unsophistication) into the realm of philosophy.

There are three general "camps" in the structure/agency debate: 1) agency is all that matters, 2) structure is all that matters, and 3) neither matter by themselves—it is the tension between them that counts. Within these three camps, all gradations are possible, such that we are no longer left with a debate between two opposing camps, but a convoluted, enfolded continuum.

Where agency is viewed as reigning supreme, the individual has completely free choice to make decisions and makes them of his/her own volition at all times. Depending on the theorist, there is usually a presumption that individuals will choose consciously and rationally (Segal, 1991). This places the responsibility of human development squarely on the wills, desires and drives of individuals. Both the flaws and virtues of any individual are attributed primarily to that person's ability to develop him/herself. At the other extreme, some posit that only societal structure matters. All actions are determined by the structure of the society in which we live. The norms, culture, values, and laws govern what we do as individuals. In fact, according to Wallerstein (1974), there is no such thing as "individual actions."

As these two polar extremes came to be examined in the light of modern day science, a third approach developed: that of networks (Latour, 1987; Law, 1994), activity systems (Engeström, Mietinen, & Punamaki, 1999) or arenas (Strauss, 1993). In this set of conceptual frameworks, neither individual nor societal structure can fully account for all that occurs within the world. These theorists posit that the *interactions* of the actors are all that matter. One cannot have an action without an interaction. It is through the *responses* to our actions that we learn what our actions mean. From this view, we operate as individuals, but our actions are confined and constrained by the society into which we were born. Our gender, race, class, geographic location, etc. are all part of the societal structure that influences our individual actions. We are born into a world that is already constructed. It becomes our task, through interactions with others, to determine what are appropriate actions and what are not. There are no divisions between agency and social structure. Such differentiations are viewed as *effects* or *outcomes*, rather than as predetermined givens (Law, 1999, p. 3).

Actor Networks. By the late 1980s, organizational researchers came to view actors as part of social networks. In these networks actions could affect any other actors in the network (including the originator), and those outside the network (Strauss, 1993). As researchers began to look specifically at actions in organizations, they also came to realize that the networks were not static--each action brought change. As even simple acts or practices are repeated, they are modified, revised, improvised or reconstructed anew. This provides for constant change or “permutations of actions” by all actors in

the organization (Strauss, 1993). The conceptualization of organizations as “fixed entities” was finally dead.

The actors form networks that produce actions or groups of actions, termed “activities.” As these activities become routinized, processes are developed (Law, 1994). (Otherwise all activity would be random acts and there would be no order.) However, in each iteration of an act, it is changed. It may be revised, improved, or re-created--but it is never precisely the same. Consequently the ordering processes are never complete and are always under construction.

A network approach to the everyday life of a residency clinic provides a fresh perspective on clinic organizing. In this approach, clinics are not viewed as bounded entities, but as dynamic orderings of activity. Patient care is not separated from medical education, as both are inextricably bound together in overlapping, integrated networks of action. Such an account asks: How are networks formed and re-formed? What and who are the component actors in the networks? What are their relationships? How do activities move from random actions to processes? What are these processes by which the networks are ordered?

Situated Learning/Distributed Cognition Theory

The second major framework employed in this study is that of situated learning and distributed cognition. Both are briefly discussed below. Situated learning theory has shown that learning occurs within context (Lave & Wenger, 1991). They first proposed

the term “communities of practice” in their study of West African tailors. They noted that apprentices started their training by ironing individual pieces, then progressed to cutting, before moving on to sewing, measuring and fitting. Apprentices did not learn in the order with which they would later actually make a suit, but in order of easiest to most difficult task. In other words, they started at the periphery of the “community of practice,” and progressively moved toward the center. Lave and Wenger termed this “legitimate peripheral participation.” As the apprentices became more proficient, they took on additional responsibility until they were at a level of competence sufficient to complete the apprenticeship program. One of the key differences in patient care is that the patient problems come to the residents in random order. The most junior, inexperienced resident may be assigned the most difficult case, purely on the basis of having the only open slot. Therefore, the progressive ordering that Lave sees in the tailor’s work is more sporadic in resident clinics. In fact, over a three year training period, one cannot even guarantee that a resident might see patient cases in all of the major diagnoses groups.

Lave and Wenger defined “community of practice” as a “set of relations among persons, activities, and the world, over time and in relation to other tangential and overlapping communities of practice” (1991, p. 98). A “community of practice” is composed of more than just learners and teachers. It incorporates a myriad of ongoing, ever-changing relationships of all group members and their interactions within their daily physical, social and political structures. Teaching/learning interactions are not teacher-centered. Instead, knowledge cannot be separated from action--they are inextricably intertwined.

Knowledge is acquired as an integral part of participating in the practices and activities of the training site (Cobb & Bowers, 1999). Instead of concentrating on acquisition of facts (content) and performance of procedures (skills and processes), the "community of practice" perspective focuses on *activities* that develop and apply knowledge.

In Wenger's recent work on communities of practice, he noted three characteristics of communities of practice: mutual engagement, joint enterprise and shared repertoire (1998). *Mutual engagement* requires actual participation in activities between members. Participants must engage in activities together—either in real-time or virtual settings. Geographic proximity or knowing someone by name is insufficient. This characteristic was certainly met by virtue of seeing patients in the clinic setting. However, it was hindered by the large number of patient no-shows (see Chapter 6).

Joint enterprise includes negotiating the meaning of the mutual engagement, as well as continually redefining it, while enacting the activities or practices. This process creates a mutual accountability to the community of practice. For example, attendings encourage the residents to take responsibility for their own patients by calling consultants, getting appointments set up for them, and making certain referrals would go through. An attending remarked to a group of new interns: "This is *your* practice – anytime you're doing something, you're helping this practice and the hospital" [OB116].

Wenger used the term "*shared repertoire*" to account for both the historical value of the resources available to the community of practice as well as their potentiality. While an

object, story, or name might come to have a particular meaning to a community, it may also be reinterpreted, recreated, or destroyed by the next activity. We see this in the small items—the expectation that when Dr. Smith is the attending, there will be food in the RWR; the basketball game as a love/hate relationship; and the stories about the patient who died in the clinic and what roles everyone played in that incident.

Furthermore, the difficult funding situation continues to generally impact the clinic. Everyone knows that money is tight. This surfaces in discussions about specific monetary issues, such as why staff can't get raises and why it is important to code properly. Wenger uses the terms “mutual, joint, and shared”—yet among whom? In this clinic, the work of the staff, and their engagements, enterprises and repertoires are quite different than residents' and attendings'. This study explores what is mutual and shared and what is not.

Is it Context or Activity?

Situated cognition (or learning) theory evolved from studies of apprenticeships in such diverse work roles as midwives, tailors, quartermasters, and butchers (Hutchins, 1993; Lave & Wenger, 1991). Studies in nursing (Hislop, Inglis, Cope, Stoddart, & McIntosh, 1996) and other allied health professions (Monti, Wren, Haas, & Lupien, 1998) provided further evidence that participants in learning environments are organized into informal networks and that learning is (at least to some extent) context specific.

In all of these studies, the focus is on how context shapes learning. The context and learning remain apart. Scribner critiqued the separation of context from learning that

appears in situated cognition. She noted that “separating out the elements of thought and setting implies an environmentally deterministic structure, or mental functions arising from nonsocial origins” Martin (1995, p. 153). Network theory embraces the inseparability of activity and context. Activities are constantly changing to suit the current situation, within a given set of larger parameters—in this case, something that has come to be known as “good clinical medicine” and “good medical education.”

The Vital Role of Artifacts in the Learning Process

As with actor network theory, situated learning theory recognizes the important role of non-human objects or artifacts in the networks. Situated learning theory posits that the physical and social contexts in which learning takes place affect how knowledge is acquired and practiced. Artifacts such as machines, room set-ups, buildings, and office procedures are as related to learning as are issues of power and access (Resnick, 1987). Knowledge may be developed through active tool usage (Brown et al., 1989; Hutchins, 1993) as readily as through formal instruction or observation. Apprentices learn from direct interaction with tools of the trade and specific physical environments (Lave and Wenger, 1991). Callon and Law would argue (as did Scribner) that one cannot separate the objects from the humans—they all act as distributed portions of the knowledge.

The Distributed Nature of Cognition in Practice

The second “half” of situated learning is the concept of “distributed cognition.” In distributed cognition theory, knowledge exists across and within the entire “community of practice.” That is, no one individual possesses all of the knowledge that any one

learner, or actor, will need. “Cognition, observed in everyday practice, is distributed—stretched over, not divided among—mind, body, activity and culturally organized settings” (Lave, 1988, p. 1). This conceptualization of knowledge provides a ready means for connecting action to knowledge. Knowing thus becomes both situated and distributed; it is a part of the context, and is represented by actors acting.

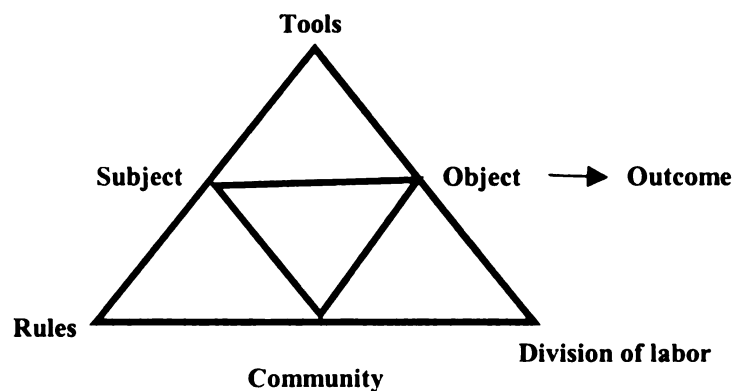
It also brings into question the epistemological issue of “individual identity.” By arguing for a “distributed” identity, an “individual identity” cannot exist. All identities contain only partial knowledge that is socially constituted by interactions with others (Czarniawska-Joerges, 1992). If knowing is represented by the actors’ actions, then how can we separate teaching from learning? There is nothing else except for the words and physical movements of the teachers as well as those of the learners, and for that matter, everyone else in that setting. Medical education studies of the faculty/learner dyad assume that this relationship is the most important in the clinic. This may very well be the most *frequent* interaction. However, learners may also have critical interactions with other staff, peers, and/or patients that are equally as important. For example, the most important part of an interaction for a resident may be discussing medication dosages with a patient or looking something up on the computer. A faculty member noted that having a window means a lot to her. She can look outside and realize that life is bigger than the problems she faces at work [IN08]. Relationships other than the teacher-learner must be taken into account.

Bereiter provided a critique to situated learning. “No amount of situated cognition or legitimate peripheral participation would get people to the moon and back” (Bereiter, 1997, p. 287). When you are in a new situation, you start “being stupid” all over again. There is very little that learners transfer from one situation to the next without assistance. “The main weakness of situated cognition is, it seems, precisely its situatedness” (p. 286). Therefore, learners must focus on what will transfer from one situation to the next. Learning how to work in one situation is insufficient. In the clinic, each case brings with it a whole host of different presentations, and a wide range of solutions. Clinics are also organized very differently. Bereiter’s idea would be to incorporate more reflective discussions about both the medical concepts being learned and the organization of the community of practice.

Activity Theory

Engeström (1995) separated activities from actions. Actions are short-lived and have temporally clear-cut beginnings and ends. However, since these are not easy to see and

Figure 2.1: Engeström’s Activity System Model (Hasu & Engeström, 2000)



can only be seen retroactively, he concentrated on activities as collective actions that produce some sort of systemic formation and evolve over time. The *subject* refers to the individual or sub-group whose agency is chosen as the point of view in the analysis. The *object* refers to the ‘raw material’ or ‘problem space’ at which the activity is directed and which is modeled or transformed into *outcomes* with the help of physical and symbolic, external and internal tools (mediating instruments and signs). The *community* comprises multiple individuals and groups who share the same general object. The *division* of labour refers to both the horizontal division of tasks between the members of the community and the vertical division of power and status. Finally the *rules* refer to the “explicit and implicit regulations, norms and conventions that constrain actions and interactions within the activity system” (Hasu & Engeström, 2000, pp. 63-4).

One of Engeström’s key points is that the “object” (almost objective—but not quite—see above) of the activity varies from actor to actor, and varies throughout time.

Activities

are oriented toward something and driven by something larger and more durable than just the specific goals of particular actions and individuals. This something—the object—is constantly in transition and under construction and *it manifests itself in different forms for different participants and at different moments of the activity*” (Hasu and Engeström 2000, p. 64).

This is an interesting way to conceptualize clinic activities. The patient’s “object” is to get care so that he or she can feel better. The medical records staff has an “object” of finding and prepping a chart correctly so that it may be used by someone else. The triage nurse’s “object” is to use the chart to call the patient back and do something for

the patient. But later in the day, when that same patient comes into the office, the triage nurse's "object" might be to obtain an INR reading from the patient. While everyone has different "objects" that vary over time, it is the sum of the total of them and their interrelatedness that makes this an organization or activity system as opposed to a random gathering. However, one difficulty of Engeström's model is its demonstration of movement over time. He demonstrates this by drawing successive triangles, but it is difficult to determine how the actions flow from one triangle to another. It also provides a sense of static moments where triangles exist.

Characteristics of Interaction Theories

All three of these interaction theories have similar characteristics. Some of the important concepts are discussed below.

Actors as Human and Non-Human

Within the last decade, the network perspective has become more solidified. Researchers proposed four principles that challenged standard approaches to organizational research. The first principle is that "the social is materially heterogeneous" (Callon & Law, 1997, p. 168). This redefined actor networks as consisting of heterogeneous materials. Both people and things coexist in a network and can be actors. Societies are built of buildings, roads, technologies, texts and money--this is commonplace knowledge. Usually, human components are delineated from non-human components. The non-human components are termed resources or constraints. Callon and Law (1997) asked, "Why should we start out by assuming that some of these have no active role to play in social dynamics?" (p. 168) Instead, "all these elements

and materials participate in social ordering” (Callon & Law, 1997, p. 168). “What happens if we treat them instead, as an *effect*, a *product* of ordering?” (Law, 1994, p. 10) [emphasis added]. When one starts to explore how it is that things come to be ordered a certain way, the answers are very different. Oftentimes the underlying distinctions between processes are quite unclear. In fact, in his most recent work, Law concluded that distinctions and differences are *effects* or *outcomes* (1999). It is our own interactions within networks that have produced such distinctions.

A physician is only a physician if she has a network that consists of patients, nursing staff, an office to practice from, a hospital to send sick people to, a pharmacy to fill the prescriptions she writes, and these days, all sorts of technological gadgetry, including a phone, beeper, computer and fax machine. Only when some combination of elements are in place is she able to be a “physician.” The capacity to act as a physician comes into being only when all of the other networks and points in her own daily network are relatively stable. Without these elements, she is unable to act as a physician.

From a parallel (and complementary) track, the situated learning literature also incorporates the use of both human and non-human actors. Lave and Wenger (1991) noted that apprentices do not learn apart from the environment in which they practice. Furthermore, studies have now shown that apprentices learn from direct interaction with the tools of the trade and the specific physical environment--including the placement of equipment (Hutchins, 1995; Lave & Wenger, 1991). They also learn from practicing the production of even small components of the commodity or service. Lave and Wenger

(1991) posited that learning primarily occurs within specific environments. When the environment changes, learning from the first environment is only partially transferred; new learning must also occur to make the adaptation to the new environment complete. The ability to transfer what has been learned from one environment to the next comes from having multiple opportunities to practice on different objects, different machines, and in different environments.

It must be noted that some researchers, e.g., Donaldson & Kuhne (1997); Lave and Wenger (1991), are unwilling to equate non-human and human actors. But even in the work of these researchers, the importance of tools, objects, and the physical environment has been elevated to “actor.” The presence or absence of equipment, the changes in equipment, the actual structuring of the physical space--all “act” on human actors. In Engeström’s (1995) activity theory, tools are the mediators of activity. For example, there are people in the clinic who only communicate with each other via computer. Whether the non-human actors should be equated with the human actors, we will leave for the philosophers to debate. The important concept for this study is that non-human objects must be considered to be just as critical to the teaching/learning process as the human actors.

Entities as Network Effects

Callon and Law’s second principle is that all “entities--human, technical and textual are *compound realities*, the product of a process of composition” (1997, p. 170). Entities are not solid, discrete states. They cannot be separated from their context, they are not

easily bounded, nor can they be separated into subjects and objects. Our use of the term ‘the’ in front of organization or individual suggests a singular, fixed entity (Weick, 1995). What appears to us as an entity is an *effect* of a network, or perhaps even several networks. For example, I accept my television as a fixed object, but in reality this is a “network” of wires, circuits, plastic and glass. It is also an effect of several larger networks: the one that manufactures televisions, the transmitter system, the cardboard boxes and foam insert industries, the transportation network (including the highway and rail systems) that transports televisions to retail stores, and the networks of retail stores and malls where I purchase my television. If the television breaks down, there is an entirely different network that I encounter for repair purposes.

Networks as Relational Effects

Callon and Law’s third principle states that networks are not static entities, but are “relational effects.” “The bits and pieces in the network...their form, their content, and their properties are not fixed. Rather their identity emerges--and changes--in the course of interactions” (1997, p. 171). For example, in a study about developing an electronic medical record, the computer programmer assumed that everyone would type in his or her own progress notes. But the consultant refused to type in his notes. This made it necessary for a resident to type in the notes after the consultant hand-wrote them (Berg, 1997). The *net-work* changed, i.e., the resident took on work of entering a summary of the consultant’s note. The computer also required validations by humans on the blood pressure readings. The numbers remained in italics until a person changed them. The computer acted in the network to change the work of the other actors. This has

implications for the significance of goals, strategies and preferences. Callon and Law argued that there are no such things as fixed goals, purposes or projects. “These are constructed locally in the course of interaction, and goals and interaction alter together” (1997, p. 172). The original ideas/concepts become *translated* into something new and different (Latour, 1999; Law, 1999).¹

Not only do people and things work together, but also the person cannot be separated from the network. Just as in Berg’s (1997) study cited above, the computer’s inability (a non-action on the part of the computer) to take the correct blood pressure reading forced an action on the part of the technologist, to enter the correct reading. Both human and non-human objects are viewed as actors, and subsequently both have the ability to act and be acted on. But if all we are left with is ever-changing networks consisting of both humans and non-human objects, where does that leave us with respect to organizations? There are no pre-set goals or purposes--nor is there an entity termed “organization.” Organizations are the results of actions--they are systems of organizing.

Enrollment

Actors are “enrolled” in their networks through the strengths of their interactions and associations with other actors within and outside any given network. Latour speaks about “enrolling” actors so that they may participate in the construction of facts within the network (1987). Once enrolled, actors may also be controlled. Enrollment comes in many different forms. It may be a paycheck, or the strength of relationships with colleagues. For residents, it may be that clinic training is a requirement of the residency.

The computer system is “enrolled” by virtue of its necessity and interactions with almost all actors across the clinic. The more associations that one actor has with other actors in the network, the more “tightly enrolled” that actor will be.

Boundaries/Environments

This conceptualization of organizing networks leaves them boundless. There is no boundary between organization and environment (Chia, 1996, p. 502). The organization is the environment. Meaning is context-bound but context is boundless. Defining a boundary is itself a process. The strength of the interrelationships with other networks is in full evidence in the Korsdale Clinic (see Chapter 3). There is an almost endless listing (large notebooks, in fact) of policies, requirements, and constraints from the outer networks within which the clinic operates. The importance and strength of these additional, multilayered networks is discussed in each chapter as they relate to the interactions within the clinic.

The clinic environment and the larger, external environment of the hospital and community are not viewed as separate entities having “external controls.” Rather they are viewed as integral components of networks. They may extend from any one patient to the federal policies that provide for Medicare/Medicaid funding. This study necessarily focused on the day-to-day activities of clinic life. However, the roles of both the outer networks and historical actors turned out to be very important and are discussed throughout.

Black Boxes

Just as the network represents the actors in it, so too, the actors can represent the network. The president speaks for the university; the resident represents the Internal Medicine clinic to the patient. Callon and Law called this representation process “punctualizations.” “Humans, objects and texts alike: if they are successful such entities have mobilized, represented and taken the form of the network of entities which lie behind them” (1997, p. 174).

These networks become so stabilized that they become “black boxes” (Latour, 1987).

The black box

translates the various materials that make it up. It *translates* them by coordinating them, by fronting for them, and by standing for them in a simple and coherent form. This means that for the moment, the fronted network acts as a single unit. It does not fall apart (Callon & Law, 1997, p. 174).

We cannot act on a daily basis without “black-boxing” many of the networks within which we interact. We use the phone and the computer and take for granted all of the various networks connected to them. The same holds true for the pharmacy, laboratory, and radiology department. When a resident writes a referral for a blood test or an x-ray, the assumption is that the networks that produce those outcomes will work as expected. No one questions how those networks are organized, staffed, or even what their hours are unless there is a problem with an outcome. Just as the clinic is “black-boxed” to the cardiologist who refers a patient to the clinic for antibiotics, so are other networks black-boxed to those who work in the clinic.

Actors as Networks and Points

This brings us to Callon and Law's fourth principle. "Actors are both *networks and points*. They are both individuals and collectives" (1997). The physician is a network as well as a point in many networks. She is made up of blood, bones, and muscles as well as all the previous socially constituted experiences that she has had. She is both a network in and of itself and one node in several larger networks, e.g., the health care system where she works, the clinic where she teaches, and the day care center where her child plays.

Ordering Processes

It is not possible to keep track of, to make sense of, or to deal with the myriad actions/interactions we face everyday. So actors develop patterns or processes in order to deal with the barrage of actions. The function of organizing is to reduce equivocality and gain a "workable level of certainty" (Weick, 1979, p. 6). But such patterns or routines are never completely automatic. In each enactment of the work routine, the patterns of action change. As the actor becomes more adept at accomplishing the task, shortcuts are taken, innovations created, improvisations made, etc. The more accomplished the actor, the more creativity and intersubjectivity one has in the routine (Weick, 1995, p. 171).

Chia (1996) asserted that the term we should be using is "organizing" rather than "organization." It is organizing that makes sense of the actions; organizing that is itself an "emergent process" (p. 160). Law (1994) preferred the use of the term "ordering."

The terms are used synonymously throughout. Both focus on describing the social as a process, i.e., a *verb*, rather than the commonly accepted form of describing social structure as a *noun*. The actions of the actors create processes, some of which endure and others which do not (Garfinkel, 1967). These processes provide the ordering of the practices and actions that construct the clinic.

There is no single social order, only "plural and incomplete processes of social ordering" (Law, 1994, p. 2). Methodologically, Callon and Law suggested that the assumption of these principles required an emphasis on the *processes* rather than either individual or collective actors. Since the actors themselves--both people and non-human objects such as computers and texts--are constituted of processes, we should focus on the "processes of transformation, compromise or negotiation" (Callon & Law, 1997, p. 171).

Unfortunately, even as the description of the clinic network is transformed into text, there is a danger of black-boxing, and perhaps even reifying the processes.

The focus is now "primarily at the level of interactive systems that include individuals as participants, interacting with each other and with material and representational systems," (Greeno, 1997, p. 7). The methodology arises from these basic assumptions. One no longer looks at the actions of individuals or even the role of individual objects. The focus is on *processes*. These include:

normal routines of collaborative work, distributions of accountability and authority, mutual availability of and attention to information sources, mutual understanding in conversation, and other characteristics of interaction that are relevant to the functional success of the participants; activities (Greeno, 1997, p. 7).

But processes in organizations have been studied *ad infinitum*. Process descriptions exist for decision-making, strategic planning, development, change, management and most recently, organizational learning. All of these areas, and many more, have been the subject of much discussion and many “how-to” business manuals. The difference in the methodological approach being called for here is that such studies have privileged the volition, the goals, the purposes, and even the knowledge of the individual human actors being studied. The researchers have operated from within the framework of “methodological individualism.” Worse yet, this individualism, particularly in studies of business organizations, often favored the managers’ goals and purposes. Attention was paid to workers only in so far as they did, or did not, fulfill the goals of the establishment.

The focus now moves from studying individuals to studying networks of both human and nonhuman actors. It changes from studying “who did what to whom,” to studying patterns or processes of interactions. But what are these processes? According to Law, sociologists have treated social structure as an object. Whereas, “the social is better seen as a recursive process, rather than a thing” (1994, p. 14). He then asked what drives the processes--and concluded that they self-generate. “The social is a set of processes, of transformations. These are moving, acting, interacting. They are generating themselves” (p. 15).

There may be patterns that we can impute to the processes, but these patterns are in turn created by the processes. Law claimed that the correct image is *not* one of a social oil

refinery. “Society is *not* a lot of social products moving round in structural pipes and containers that were put in place beforehand” (Law, 1994, p. 15). We cannot assume when we enter an organization as a researcher that the structure, form or function or even the current processes are static. “Instead, the social world is this remarkable emergent phenomenon: in its processes it shapes its own flows. Movement and the organization of movement are not different” (Law, 1994, p. 15).

What are modes of ordering? “The modes of ordering tell of the character of agency, the nature of organizational relations, how it is that interorganizational relations should properly be ordered, and how machines should be” (Law, 1994, p. 20). They become acted out and embodied in the context within which they are situated. “They are strategies, self-reflexive strategies for patterning the networks of the social” (Law, 1994, p. 20). They are always limited, always changing--they can be reshaped as new embodiments. Law called them “precarious pools of apparent order” (1994, p. 22). Among managers in the laboratory, he found four such modes of ordering: enterprise, administration, vision, and vocation. However, he cautiously noted that there may be many other modes of ordering--and that this is his own (and that of his actors’) interpretation. Processes are those events or strategies that keep elements together and make an organization fail or succeed. They capture the essence of how events unfold.

Developing modes of ordering is the process by which we make sense of organizing actions. This is difficult work, for it is easy to assume our own modes of ordering rather than work at developing those of the actors’ networks. We must constantly ask

ourselves what our underlying assumptions are. “Representations, whatever their provenance, are always *the product of ordering work*...they are produced *in ordering*” (Law, 1994, p. 155).

Research on Actor Networks and Processes

Studies of actor networks have taken place primarily within the field of science studies. They have centered for the most part on the creation of scientific knowledge in research laboratory settings (Balmer, 1996; Latour & Woolgar, 1986; Traweek, 1988).

Manufacturing processes have been the other center of attention (Belt & Rip, 1992). In all of these studies, the authors were interested in developing a social construction of the actor networks in the organizations studied. Of equal importance, the researchers explored the importance of non-human actors that were frequently highly technological elements. The results of these studies indicated that technical artifacts are rarely if ever, developed along the linear plan laid out by engineers or planners. Rather, artifacts are socially constructed, i.e., “continually reshaped and redesigned by the various social groups [actor categories] involved” (Bijker, 1992, p. 75). Further, “technical artifacts do not exist without the social interactions within and among groups” (Bijker, 1992, p. 76).

Studies of actor networks in medicine include the introduction of new technologies in hospitals, clinics and laboratories and the interaction between those technologies and the human actors who use them (Berg & Mol, 1998). Berg (1997) studied the implementation of a computerized patient record in the ICU. Brown (1995) studied the implementation of a hospital computer system. Yoxen (1987) conducted a historical

study of the origin and development of the ultrasound scanner, and Barley (1995) looked at the uses of various types of X-ray technologies. In all these studies, the authors concluded that the technologies become co-constructed with the work processes, i.e., both the technology and the work processes were altered in the development and implementation of new systems.

Health-related actor network studies *not* focused on technology issues have tended to be analyses of large-scale organizational systems. Bodervita, Buurma and deVries (1987) constructed the networks of drug regulation agencies in the United Kingdom and the United States. Pinch, Ashmore, and Mulkay (1992) reviewed the implementation of clinical budgeting in the U.K. National Health Service (which did not work as planned). Jones (1997) explored the relationships between biotechnology industries and academic health centers in the United States, finding a considerable amount of interdependence. Ackroyd (1996) considered the effects of corporate re-organization on professional groups, using the United Kingdom's National Health Service. He found that the professional groups are "encapsulated." Subsequently, new professional groups are re-organizing around the old ones. Using a different actor network affected by the National Health Service's re-organization, Dent looked at patient empowerment and found that there were "ideological and organizational contradictions between state policy and local practice" (1995, p. 875).

Although one could not term it a study of an actor network when it was written, *Boys in White* by Becker, Geer, Hughes and Strauss (1961) could, in many respects, be termed

an actor network study today. The authors studied student culture in a medical school with a participant observation method. Coming at the height of positivist social science, this must have appeared outrageous! They followed medical students into the labs, fraternities, cafeteria, clinics, hospital patient rooms, and lecture halls. They paid a great deal of attention to the non-human actors that the students used for learning (cadavers, microscope slides, texts, etc.) They found several processes (“themes”) by which students ordered their actions, including “medical responsibility” and “student autonomy” within the academic realm.

Becker et al.’s study leaves off where this study begins. What happens at the *end* of medical school, when students become residents? In the 1960’s, training in outpatient clinics constituted a smaller portion of time than it does today. The organization of clinics has also changed dramatically. Nevertheless, several methodological lessons can be learned from a careful reading of *Boys in White*. The authors were very attentive to both human and non-human detail. They conducted the study in the form of a constant comparative analysis, i.e., as they obtained data, they analyzed it and went back for confirmation and clarification. They did not begin with a long list of preconceived hypotheses, but they developed their perspectives on various issues by both observing the students at all times of the day and night and listening carefully to what the students told them. They conducted careful member checking against their hypotheses for new processes. In sum, this book provides a model for a well-developed qualitative study in a medical education setting.

Rather than viewing organizations as having a single, fixed order, the concept of ordering processes looks at the work of organizations as making sense of, developing and creating processes for bringing about order, or “ordering.” This study focuses on how such ordering takes place in a resident clinic. How do all of the actors in that setting, with widely differing priorities, develop processes for ordering their work/learning world? Where do they interact peacefully and where is there conflict? If there is conflict or tension, how is that managed?

In sum, this study is framed within the action theory literature of organizational analyses, activity theory, and situated learning. These perspectives view organizations as organizing processes rather than fixed entities. Both human and non-human actors order these processes on an ever-changing basis. The actors act within networks, shaping their own potential for producing effects or outcomes. It is the work of the net, i.e., the *net-work* that is important rather than the work of any one individual or dyad.

Review of Education Literature

Adult Learning Theory

Rather than provide a summary of the entire body of literature on adult learning theory, this section focuses on those components of adult learning theory that are most relevant to resident learning in a clinic setting. One of the principles of adult learning is having learners identify their own learning needs, and then teaching to those needs. (Cross, 1990; Knowles, 1990; Laidley & Braddock, 2000). Adult learning theory rests on the premise that learners must be ready and motivated to learn. They should become

involved in setting their own goals and educational content and participate in decisions affecting their learning—as critical steps in their motivation process. In ANT terms, they must act, and interact. However, those actions and interactions have to be relevant to their own learning needs and still meet the outcomes of the educational experience. Learners incorporate new information if it is compelling and recognized as a deficit.

One of the critiques of adult learning theory is that it relies on learners to define appropriate learning goals. Residents may not have sufficient experience or knowledge to recognize their learning needs (Laidley & Braddock, 2000).

Resident perceived learning needs may not constitute the entire agenda of teaching interactions: however, preceptor acknowledgment and attention to resident chose topics may improve the effectiveness of both teaching and learning. Thus preceptors may enhance teaching effectiveness by acknowledging resident perceived learning needs, while preserving their own role in identifying important yet unrecognized knowledge gaps or other needs (Laidley & Braddock, 2000, p. 47).

Strategies that incorporate adult learning theory, while at the same time improve the effectiveness of teaching/learning in clinics, have been suggested. These include: increasing the resident's role as primary provider, giving them a higher level of accountability, explicitly agreeing on roles for preceptors and residents, setting a limited agenda, directly eliciting learner-perceived needs; and using multiple techniques to assess resident knowledge (Laidley and Braddock, 2000).

Higher Education

Until rather recently, the literature has reflected a traditional view of learning as a process that occurs solely between teacher and learner(s). However, Jean Lave's (1988)

work on situated cognition and the work of organizational researchers [e.g., (Goffman, 1974)] have brought the issues of context and contextual learning, work activities and role performance to the discussion table in higher education. It is now rather widely accepted that changes in practice occur within context and that learning those practices also occurs within context. Unlike the rather fixed definitions of medical education learning environments, the higher education literature has not settled on any one term. Usually the term “learning environment” has meant the classroom itself (Donald, 1997; Johnson & Malinowski, 2001). In the case of an on-line course, it meant the discourse and emails around the course content. Others have used the term “academic context” or simply “context” (Menges & Austin, 2001; Menges, Weimer, & Associates, 1996) to describe the larger set of issues that shape and form the varied networks within which higher education takes place.

Regardless of the term, even fewer researchers have tried to define it. Winston et al defined it as the “variables that influence learning” (1994). However, the inventory developed in this study, the College Classroom Environment Scales (CCES), essentially defined a much narrower set of factors than *all* the variables that influence learning. The Scales focused on the classroom, students and professor. The factors included: active student participation in class, professorial concern, “inimical ambience” (measuring the perception of control and competition), “academic rigor,” affiliation (student relationships carry over outside class), and structure (firm deadlines, following the syllabus.) While these factors measure what happens inside the classroom, they do not

attend to how the professor, the building, or the students come to be in that room together studying a certain subject.

In the development of an academic planning process model, Stark and Latucca described the learning environment as more all-encompassing. They noted three sets of “influences:” external (society, governmental, disciplinary), organizational (program resources, governance, program relationships) and internal (faculty, students, program mission, discipline, and leadership) (1997, p. 142). These factors are then related to various elements of the academic planning process. They noted that all of these “influences” are related to each other and to the purpose of the academic plan. However, only the internal influences of the teacher, learner and discipline have an influence on the content. The entire academic plan then becomes the “educational environment.” The large circle that indicates the educational environment has a small arrow pointing to a small box termed the “educational process” which points to the educational outcomes. The outcomes are then fed back into the environment and influences. This is certainly the most considered description of the educational environment. The relationships between the various influences and their relationships to the academic plan are important. However, this is a proposed model, and as such, has not been tested through research. Additionally, the “influences” are essentially lists. They are not perceived as representing networks that encompass both people and things. Nor does the learning environment itself consist of networks that hold together both people and things. Why is the learning environment separated from the educational

process and the outcomes? Can this even be possible? In short, there is a need for further exploration of the context or environment that makes and shapes learning.

Professional Education

The study of professions and professional education has addressed professions primarily at two levels: a macro-level that subsumed all professions, and a discipline-specific level. But a third level, that of micro-level attention to context, environment and the activities of professionals on a daily basis has been discussed recently.

At the macro-level, researchers created theories of how individuals learn to become professionals, discussed means to teach professionals, and charted global trends that affected professionals. Definitions of professions and professional education are found in almost every text, but generally center around six characteristics: 1) possession of a skill based on theoretical knowledge, 2) provision of training and education, 3) testing of competence or members, 4) organization, 5) adherence to a code of conduct, and 6) altruistic service (Waddington, 1985, pp. 650-651).

Research studies of professional education are primarily discipline-based and focus on roles, competencies and their evaluation, and knowledge development (Donaldson & Kuhne, 1994). Most of the macro-level literature is broad-based, theoretical, historical or trend-oriented. For example, McGuire (1993) described trends that are changing the professions: the knowledge explosion has led to further specialization and an increasing division of labor; technology has changed the speed, variety and modalities of

communications as well as the methods for managing data; and relationships have moved from collegial to competitive, and from entrepreneur to employee. Also, informal social controls are being replaced by formal regulation (often from non-peer, external sources rather than peer or internal sources.)

Schön's work (1982; 1987) addressed the issue of professional knowledge. Moving from "technical rationality" in which knowledge is applied to decisions, Schön suggested that the "know-how is *in* the action" (1982, p. 50). We do not know prior to action; it is only in the action that we know. He provided a wonderful example of a tightrope walker. We only know that she knows how to walk the tightrope when she successfully performs the task. But professional knowledge is more than performing repetitious physical acts. Schön noted that professionals are able to change their movements in mid-act. They can correct, revise, or transform their actions while they are acting. He called this "knowing-*in*-action" (1982, p. 52). This usually occurs when the professional notices something awry or when there is an element of surprise to which the professional must react to.

Up until this point in his theoretical frame, Schön's work dovetails nicely with that of the other action theorists. But then Schön inserted his concept of "reflection in action." From a close reading of his work, it would appear that Schön can only tell through the *actions* of his professionals if they have reflected. That is, they draw, they speak, they ask questions, and they play the piano. Yet, he speaks about this as if he knows *how* they "reflected" upon these actions in their minds. From Argyris' and Schön's (1978)

own work on espoused theories of action and theories in action they believed differently earlier. Imputing thoughts and meanings to peoples' minds does not necessarily transfer into their actions. It is as if Schön is in conflict with his own, earlier theoretical stance.

Eraut (1994) critiqued Schön on other grounds. He claimed that Schön is "principally concerned with developing an epistemology of professional creativity rather than a complete epistemology of everyday professional practice" (p. 143). He claimed that Schön looked primarily at incidents of professional creativity--not everyday practice. Schön's perspective was a critique of the "technical rationality" approach that failed to account for practical competence in divergent situations--those that are unstable, have conflicting values or are uncertain.

A micro-level perspective on developing professionals includes, for example a study by Donaldson (1997) that highlighted the concept of professionals being "tool dependent," not only for their work, but for their learning. Schön discussed the ability of his professionals to pull from prior experiences as they approach new problems. He called this "seeing as, doing as" (Schön, 1982, p. 139). There is also a call for more work on daily processes within the context of the practice setting. In several studies of university continuing educators and evangelical Protestant clergy, Donaldson and Kuhne found that the function of time as being "hot", i.e., leaving little time for reflection, or "cool" i.e., slower times when reflection is possible, indicated a need for more processual studies. They further found that actors performed multiple roles simultaneously and shifted from one to another based on their reframing of the situation. They noted: "this finding

accents again the importance of focusing on activities and processual elements of professional work “at least at the micro level”(1997, p. 8).

In a review of the literature on professional organizations, Greenwood and Lachman (1996) noted that in this era of information technology with its unregulated access, the roles, legitimacy and power of the professional have been brought into question. The role of the client as a co-producer of knowledge is new. They suggested that studies were needed to determine the “internal processes of professional organizations” (p. 565), particularly those addressing issues of change.

Several of the action theorists make a distinction between *arena* as being “objectified and normative descriptions of context” and *setting* as being the practitioner’s personal view of context (Donaldson & Kuhne, 1997, p. 9). These distinctions were also upheld in Donaldson’s studies. Not only did the practitioners understand the formal job descriptions, organizational structure and work rules, but they also provided versions of their work that were more defined “by processes and recurrent patterns of activity and interactions than by a static sets [sic] of rules, reporting lines, and procedures” (Donaldson & Kuhne, 1997, p. 9). It is this “setting level” work that this study of daily clinic life explores.

Harris (1993) summed up the various perspectives on professionalism: “a new epistemology fundamentally characterizes professional practice as judgment and wise action in complex, unique and uncertain situations with conflicting values and ethical

stances, in a social and cultural context” (p. 51). A clear focus on actions arises out of both the professional education literature and the organizational theory literature.

Medical Education

Unlike the clergy and law professions, it has only been in the last one hundred years that medicine has come to be a profession. In the United States, up until the late 1800's, anyone who wanted to become a physician had merely to apprentice himself (very few women became doctors before 1900) to another physician. By the late 1800's the scientific advancements occurring in Europe had indicated a need for more formal training (Starr, 1982). Even before the Flexner Report of 1910, universities were beginning to offer courses in the basic sciences as a prerequisite to the apprenticeship years. Within ten years of the Flexner Report, physician training assumed the technocratic, 2 X 2 model in which the pure and applied dimensions are sequential (Bines, 1992).

This change from a strictly apprenticeship model to the technocratic model moved the *occupation* of doctor into the *profession* of medicine. It raised the standards by requiring a substantial amount of academic training at the university level in addition to clinical apprenticeship. By elevating the academic standards, and subsequently the certification standards, medical education moved out of the ranks of apprenticeship training and into the realm of professional education.

Organizational Factors. Comparative studies of learning in ambulatory clinics versus hospitals have not shown significant advantages for ambulatory learning. In several studies, medical students taking in-hospital rotations were compared with those taking ambulatory rotations (Butterfield & Libertin, 1993; Fincher, Case, Ripkey, & Swanson, 1997; Satran et al., 1993). No significant differences in clinical knowledge were found based on the setting. What these studies do not tell us is what the learners actually *do* in these settings. For example, do the learners communicate with patients, nurses, or families? Perform procedures? Ask questions? When the wide range of activities performed on any given day in a clinic are observed, clinical knowledge is only a small subset of skills being performed. The findings in this study suggest that learners may be learning to use computers, books, consultants and the attendings to solve an incredible variety of patient cases. A knowledge test cannot measure all of these rich interactions.

When training first started to move into ambulatory settings, medical educators expressed concern that residents would see an insufficient variety of patient problems to build the competencies necessary to treat a full range of outpatient conditions. Several studies concluded that, with the addition of subspecialty clinics, sufficient patient mix is available to approximate the national norms for ambulatory clinics (Irby, 1995). The two studies conducted at residency clinics did not address this specific issue, leaving it unclear as to the kinds of problems patients bring to residency clinics (Lowdermilk, 1986; Osborn, Sargent, & Williams, 1993). Bethea (1996) noted that the patient

diagnoses in a family medicine residency clinic are not statistically different than those in the national CDC list.

Other organizational studies of clinics have produced lists of environmental or organizational characteristics. Lowdermilk (1986) developed three categories of characteristics: 1) Physical setting (included design, space, resources and supplies/equipment); 2) Organizational factors (schedules, assignments, orientation, and rules/regulations), and 3) Social climate (preceptor interactions, feedback, teaching, advising, role modeling and interactions with others). In a review of the literature on medical schools that completed successful curricular change, the characteristics included a history of change, a cooperative climate, participation, development of new evaluation and performance structures, and relationships with the external environment (Bland et al., 2000).

Effective Teaching in Ambulatory Clinics. Research on clinical teaching methods has primarily consisted of surveying or interviewing residents or students, and in some cases, faculty (Irby, 1995). One observational study was found (Hekelman, Vanel, Kelley, & Alemagno, 1993). Irby noted that “the results of all 14 studies [conducted between 1980 and 1994] are congruent with each other and with studies of inpatient teaching” (Irby, 1995, p. 902). Good clinical teachers are: 1) positive role models in the physician role, i.e., clinically competent and communicate well with patients; 2) effective clinical supervisors, involving residents in patient care, providing direction and feedback, and scaffolding responsibility; 3) dynamic, interested and

enthusiastic about teaching; 4) supportive people, caring, easy to talk to, and valuing learners as individuals, 5) encouragement of lifelong learning and reflexivity (Copeland & Hewson, 2000; Irby, 1995; Klessig et al., 2000). Unfortunately, these studies did not examine the actions of clinical teachers, nor their interactions with residents and patients. Nor did they juxtapose the relationships between good clinical teaching with learner or patient outcomes.

Litzelman et al (1999) validated for residents the list of factors of preceptor teaching developed from the Stanford Faculty Development Program Clinical Teaching Instrument. There are 25 of them in seven categories: learning climate, control of session, communication of goals, promotion of understanding and retention, evaluation, feedback, and promotion of self-directed learning. Other teaching skills that have been emphasized include increasing wait time after questions (Lawrence, 1990) and the use of open-ended questions and daily feedback (Ferenchick, 1997). Lipsky (1999) placed more emphasis on self-learning. As this study explores, the “in-action” actions made by attendings are very complex. They cover all of these areas, but how they are enacted “in-the-moment” is not controlled by a neat set of rules.

Eight studies, completed with residents, looked at the duration of the interactions between faculty and learners (Irby, 1995). The length of time spent teaching appears to be a fairly direct function of the residents’ year in school, i.e., first year students receive more teaching time than third year residents. Teaching time can also vary on whether the patient being discussed is new to the clinic. A large number of studies have analyzed

discourse between faculty and learners. (Fourteen of the seventeen studies were completed with residents (Irby, 1995)). In most of these interactions, a large percentage of the time is spent on case presentation and case clarification (i.e., faculty asking the learner for further information). The most frequently observed faculty behavior was that of providing patient management. Instances of faculty providing positive and negative feedback, discussion of psychosocial issues, and demonstrations were not observed at all in some studies, and in others, only rarely. The literature has not addressed the interactions of the learners with nursing and office staff.

When faculty are asked which clinical skills they feel most confident in, they list the skills of clinical supervision, e.g., giving directions in patient care and providing information to learners. They give lower ratings to teaching skills, e.g., bringing in student experience, and providing learner feedback (Vanek, Snyder, Hull, & Hekelman, 1996). This is not a surprise, because the ordering process is such that there are very few opportunities to observe learners when they are actually doing most of the work.

Effective Learning in Ambulatory Settings. Thirty-four studies of learning were conducted on ambulatory settings between 1980 and 1994 (Irby, 1995). Of these, sixteen involved residents, primarily in family medicine or internal medicine. A large mixture of methods was used, including patient rating forms, self-report surveys, interviews, audio and videotapes, and oral exams. Irby found that no conclusions could be drawn due to the mixed purposes, foci and methods. For medical students, being in ambulatory settings did not significantly change content knowledge. When learners'

clinical skills were assessed using OSCEs (Objective Structured Clinical Exams) they yielded no significant results either. Another problem is that the settings being termed “ambulatory” vary widely--from private preceptors’ offices, to resident clinics, and a wide range of variations in between. In sum whether learning is occurring and how it is occurring for residents in ambulatory settings remains unanswered. Ultimately, each clinic must address what they consider appropriate resident learning. However, several key themes emerge from the literature:

- a) The ambulatory setting is designed so that most of the learning comes from seeing and treating patients. Therefore the need for patients is paramount.
- b) Residents need to see patients over time (continuity of care) in order to simulate the experiences they will have in their own practices (Irby, 1995).
- c) Residents model their behavior based on the faculty’s behavior (Kogan, Reynolds, & Shea, 2001).
- d) Residents need opportunities to generalize from specific cases; they must consider what would happen if the patient was 80 rather than 20, or how patients might react to a specific treatment if there are other complications (Eraut, 1994; Resnick, 1987).
- e) Residents and faculty must reflect on their experiences of the day—what went well, what could have been improved, where are there gaps in the resident’s knowledge that still require attention? (Hewson, 1992).
- f) Residents need feedback from faculty on their performances (Frye, Hollingsworth, Wymer, & Hinds, 1996).

g) Faculty development needs are still immense, particularly in the areas noted above (Kelley M. Skeff et al., 1997). I would also argue that there continues to be a need to address specific content areas such as preventive medicine, EBM, and practice-based research.

h) Faculty time for teaching is decreasing as pressure is building for faculty to see more patients (O'Malley, Kroenke, Ritter, Dy, & Pangaro, 1999; Skeff, Bowen, & Irby, 1997).

Review of Patient Care Literature

The patient care literature is divided into several components. There are studies conducted by physicians on small groups of patients centered on treatments of specific diseases. Then there is a large literature in anthropology and sociology on the socialization of the body, and the social aspects of medical care. See for example, Fox (1993). There is an entire range of “how to” manuals and journals on organizing patient care. See for example, Purtillo (1996) and Leebov (1989). A journal, *Health Affairs*, is devoted to studies of the provision of services.

In recent years, patient care standards have become the latest “hot topic.” In academic medical centers, these are primarily driven by the hospital standards, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Clinics that are directly affiliated with hospitals must continue to meet the hospital standards. The National Committee for Quality Assurance (NCQA) has also issued patient care standards. For the Kordsdale clinic, these standards manifest themselves most in terms of

privacy issues. “Sign-in” lists are not permitted, privacy screens must cover any computer that is publicly visible, and patient charts cannot be left anywhere except under a secure system.² Many medical schools have developed their own set of standards, trying to translate the larger issues of patient ethics and privacy into practical terms. In one school’s list of questions for physicians, they suggest that physicians ask: “Did I talk about one of my patients in the presence of strangers in the elevator today?”³ Other standards call for offering referral services to patients, returning patient phone calls in a timely manner, reviewed charts for incoming lab work or consultant reports, etc. In sum, just about every aspect of good physician practice has been codified into a standard. There is, however, no one central listing of standards for patient care in clinics. Again, it is up to the clinic to define its own patient care standards.

Rarely has the relationship of residency education to patient care been studied, particularly in clinics. A recent review of the literature on hospital-based studies looked at residency training and its effects on patient outcomes (Griffith, Rich, Hillson, & Wilson, 1997). The residents’ workload, their years of experience, and “structural features” that promote discontinuity were shown to affect outcomes of the resources utilized, the patients’ length of stay in the hospital, and patient satisfaction. There is one conclusion of some value: “Housestaff⁴ may use more resources, increase the length of stay in hospitals and make more errors prescribing medications, but “housestaff inexperience has no impact on morbidity and mortality” (p. 392). Another, more recent study conducted chart audits on the quality of patient care in preventive health and

disease management. There were no significant differences between interns (first year residents), residents, and attendings (Kogan et al., 2001).

One study evaluated the provision of patient care and the quality of resident education in 15 general internal medicine group practices in university hospitals (Brook et al., 1987). These practices were part of a four-year grant program from the Robert Wood Johnson Foundation to improve the quality of their ambulatory care programs. In all fifteen cases, new ambulatory clinics had been built or renovated, with old clinics eliminated. This is one of the few studies that used a combination of interview data, review of patient records, and direct observation. Realizing that four years may be insufficient to replace or start a new program, the authors nevertheless report rather dismal results.

In some cases, the practices actually showed slight deterioration in performance, in other cases, no improvement occurred. Standards of care for patients with diabetes and hypertension fell, and housestaff ranked their educational experiences in the practices fairly low. Meanwhile, quality of care, continuity of care, and access to care remained average or suboptimal (p. 396).

In short, the need for continued work on the relationship of quality patient care to resident learning is apparent. Both patient and resident outcomes must be considered. Is medical education providing our national health system with the best physicians?

Chapter Summary

Resident learning in the ambulatory clinic setting is almost a “given.” If residents and patients interact, residents will learn about patient care. The issue addressed in this study is not how residents learn, but how the processes of the clinic become ordered to

permit them to learn *and* to permit good patient care to occur simultaneously.

Consequently, this study is conducting an organizational analysis of a residency clinic, not an individual learner analysis. What emerged is considerably more complicated than my original assumptions of two separate networks that are neatly joined at specific points. The network is not only highly intertwined but, for the most part, inseparable. Furthermore, actions of the invisible networks of the larger health care universe were ever present. They reach into the daily clinic activities and structure what happens there with a highly visible and constant presence. This study argues that in the end, the “in-action” actions are perhaps the least important. They have been the primary objects of research because they are the easiest to change on an individual actor-by-actor basis.

Endnotes

¹ In their most recent works, both Latour (1999) and Law (1999) express concern that ANT will become “fixed” as a theory—rather than seen as a method for viewing the world differently.

² See the Patient Healthcare Standards from the National Health Services Performance at: www.patientcarestandards.org.

³ See for example, [www.wfubmc.edu/compliance/standards/patient care](http://www.wfubmc.edu/compliance/standards/patient%20care).

⁴ The term “housestaff” indicates all medical students, interns and residents who are “in-house”, i.e., in the hospital.

CHAPTER THREE: CIRCUMSCRIBING THE CLINIC— HISTORICAL ACTORS AND OUTER NETWORKS

Introduction

A considerable amount of research and mechanisms for measuring quality health care focuses, rightly so, on outcomes: the number of patients who are pain free with drug X over drug Y, the number of patients who are cured from a particular form of cancer, score card ratings of hospitals on patient quality standards, billings per physician, etc. Even in medical education, the focus is on outcome numbers: the average MCAT scores of the freshman class, the number of residents who pass their boards the first time, the number who receive prestigious fellowships, etc.

While outcome measures may be needed, they are usually selected because they are easy to measure, not because of any inherent relationship to what is known as good patient care or quality medical education. Furthermore, they tell us nothing about how they were produced. If one has a positive outcome, what are the essential elements that produce that positive outcome? Similarly, if the outcome is negative, what elements can be changed to produce a more positive outcome?

Outcomes are preceded by a large number of actors working in intricately woven sets of networks, from the federal level right down to the patient or resident herself. In order to produce these outcomes, all of the actors must act in the appropriate manner, at the

correct time and in the right place. The timing, placement, and enactment of these actions are the *prelude* to the outcomes. Without these actions, the outcomes do not occur. These are the actions that this study is about. What *precedes* the clinic outcomes of quality patient care and medical education for residents? How do the actions of the various actors come to delimit the outcomes? In this chapter, both historical actors and actors termed “outer networks” are explored. While the physical location of any given network’s core activities may be “external” to the clinic, the long reach of these networks extends directly into the clinic. The historical actors and the outer networks are the first sets of actors to circumscribe the experience that are possible.

Chapter Findings

Finding A: *The historical actions of previous actors have embedded the organization with interactions and processes that are often difficult to change.*

Finding B: *There is considerable control from “outer” networks - most changes came from the outside. The inner network’s links to the outer networks are generally weak.*

History

The Korsdale residency clinic has been a part of the hospital for over twenty years. It was originally established to support the mission of the hospital to serve the poor and underserved. The resident clinic was moved around within the hospital several times. For the past several years, it was located in a small space, on the ground floor of the hospital with direct street access. Residents went to the clinic one half day per week where they saw primarily Medicaid and Medicare patients. The space was very cramped. On the day I visited the old clinic, residents waited for their patients out in the

hall in front of the exam rooms they had been assigned. There was a small room, where one or two faculty were assigned to “precept” (i.e., listen to the resident’s case presentation, provide appropriate guidance and teaching, and sign off on the chart.) The population in this clinic was primarily elderly. They were well known to the staff. Due to a fairly high no-show rate, the staff had time to talk with the patients and get to know them. The residents were expected to do many of the tests and simple lab work on their own. Also, the medical records were situated directly behind the registration desk, making it easy for staff to find the correct charts. While the chairman of the department assured me that the residency clinic was now viewed as an integral part of the resident’s education [IN18], there is no mention of a requirement for a clinic experience in the resident’s handbook, much less pertinent details about the Korsdale Clinic [DOC79].

Approximately seven years ago, a faculty practice clinic was started in a separate space in a professional office building, located adjacent to the hospital but connected to it via walkways. This had originally been one faculty member’s solo practice. The charts were designed to reflect that physician’s own particular style. When the faculty took over the practice, he was still practicing, so the faculty took on his charting format. Other office procedures, already in place, remained as they had been in the solo practice. In this clinic, the patient population was younger, healthier, and for the most part, insured through a third-party payor, i.e., an insurance company. About 10% of the clinic patients were from HMOs. However, many of the third party payors such as Blue Cross/Blue Shield and Aetna had already developed “managed” plans of their own, and those were also present in the clinic [IN02;06].

In the faculty clinic, two models for seeing patients had been in use simultaneously. The faculty saw their own patients. Some faculty had residents assigned to “team” with them. Usually, a team approach meant that a faculty member and a resident saw more patients than normal during the same amount of time. Since this method was abandoned in the move, before this study began, I was unable to observe how this was actually carried out in the faculty clinic.

By the time I held preliminary meetings in the fall of 2000, a plan was already in place to combine the faculty and residency clinics. Both clinics had insufficient space for their patient volumes. They were moved into a single space in another professional office building that was approximately a fifteen-minute walk from the main hospital. When they moved, they maintained the division between the faculty and residency clinics by creating two “sides” to the new clinic. Although they merged the staffs into one, the faculty practiced on one end of the clinic and the residents practiced on the other end. The practices remained essentially separate except for the sharing of staff and the work of the Resident-on-Call, the ROC. (See next chapters).

This brings us to the first finding of the study:

Finding A: The historical actions of previous actors have embedded the organization with interactions and processes that are often difficult to change.

By virtue of the number of actors that may have been enrolled over a large number of years, historical actions represent particular challenges, as they are less likely to be in constant flux, and more a part of commonly practiced actions. The historical decisions

to have two separate clinics—one for residents and one for faculty was continued with the move to the new clinic. The resident clinic has been present for over twenty years. It was originally the place where anyone without medical insurance could obtain care. Even though it is now possible for residents to see the regular insurance patients, the perception remained that residents would see primarily Medicaid and Medicare patients.

Other historical actions were also difficult to change. For most of the time during the study, the patient charts maintained their two separate systems. To change all of the charts to one system was a very time consuming and tedious job. Yet it made it difficult for everyone to know where reports could be found, as the tab systems were totally different. Perhaps the biggest repetition of the past came in the separation of the faculty and resident practices. There was no longer any need for this, yet it was done as a matter of course. Throughout the text, there will be other historical actions discussed, in the context of current activities. The intransigence of current practice, made by the actions of past actors, is not something to be ignored.

Relationship of Historical Actors to Patient Care/Teaching/Learning

Throughout the text, the relationship of the networks and organizational issue to patient care/teaching/learning are explored. Each of these relationships produces opportunities and constraints for *all* clinic actors. However, the focus here will remain on patients, residents and faculty. In order to highlight these important relationships, each one is noted in a separate table (see next page). A summary table in Chapter 8, Table 8.1, is provided to further synthesize the relationships. As will be noted with all of the

relationships to the network, there are positives and negatives opportunities and constraints that must constantly be weighed. Which produce more quality capabilities for teaching/learning and patient care?

Table 3.1: Relationship of Historical Actors to Teaching/Learning/Patient Care

Organizational Issue #1	Historical actors have produced practices within the clinic that are difficult to change.
Network Element(s)	Clinic actors continue to enact practices determined by historical actors. They are strongly enrolled in historical practices.
Faculty Opportunities and Constraints	Faculty lost the opportunity to practice as a team with residents when the choice was made to maintain the two practices in a totally separate manner. On the other hand, faculty gain an opportunity to precept or teach with at least two or three colleagues every time they are in the clinic. (A full discussion of the advantages of having collegial discussions in the precepting room is found in Chapter 7.)
Resident Opportunities and Constraints	Residents lose the opportunity to team with faculty, but gain from having several preceptors to choose to present to. Residents are further constrained by the need to now deal with two forms of charts; most had previously only used the residency clinic charts. Residents also gain from seeing same day patients from the faculty practice when faculty are too busy to see them. However, they perceive this as “scut work” [DOC115].
Patient Care	The easy availability of residents makes it possible for more patients to be seen on a same-day urgent basis. However, patients lose the contact of seeing their own physician.

(See Table 8.1 for Summary of Relationships)

How does the Finding of the Importance of Historical Actors Concur with the Literature?

Those who have written about the history of medical education, or even particular medical school histories, have noted the extreme difficulties in changing curricula, teaching methods, or other aspects of the educational organization. At the Harvard

Medical School, it took major new resources in the form of buildings, funds, computers, and a new faculty evaluation system to change the curricula (Tosteson, Adelstein, & Carver, 1994). Some faculty refused to change and were literally moved to a new “research institute” within the medical school. Bloom (1992) and Ludmerer (1985) have also chronicled the difficulties of change in medical schools due to past historical actions. Renée Fox noted that we continue to have reform without change. The same reforms are continually being advocated, but change does not occur. She discussed a long list of those reforms: lifelong learners, more emphasis on ambulatory, more generalists, etc. (1999).

Interlinked Outer Networks—Beyond The Clinic’s Walls

The Kordsdale University Clinic does not exist in a vacuum. It is linked to the larger world at different levels and by different means. Within the university itself, the clinic faculty are all members of the Department of Internal Medicine. In fact, the generalists who teach in the clinic are but one of many “sections” in the department, each representing different subspecialties such as neurology, cardiology, endocrinology, etc. The Internal Medicine Department is located within the larger academic medical center of Kordsdale University and Medical Center, with its undergraduate medical school, and all of its other allied health programs, to say nothing of a large hospital complex. KUMC is also tightly affiliated with a neighboring hospital for services that it does not provide.

The faculty are linked (or enrolled) into the Department by their teaching and administrative responsibilities. They are also enrolled in the university by their committee responsibilities (e.g., informatics, curriculum, student assessment). All are enrolled in the hospital by the twelve to seventeen weeks they spend on in-hospital teaching services. Residents are linked to the hospital by their hospital service and teaching rotations, and the didactic program. The entry-level clinic staff have the loosest links to the hospital. The major staff links for entry-level personnel to the hospital consists of a union (very inactive) and courses available at the University “Staff U.” These are primarily short courses on medical terminology or software programs.

Most of the human and non-human actors in this study will be described in the next chapter. However, one non-human actor is very tightly enrolled as a key player in most

Object Actor: Money

Money is an actor—an unseen, but nevertheless ubiquitous one. The references to it are subtle. The managerial staff usually mentioned funding when discussing the lack of progress on the Phase 2 construction, the difficulty in obtaining raises for staff, and the need to justify additional managerial staff [OB81].

The control of funding is primarily in the outer networks. The staff in the clinic control the billing and minor spending, that is, pre-approved budgetary items. However, approval of raises and new positions are made outside the clinic--either by the Chair of the Department of Internal Medicine, or with the approval of Medzicon [OB81]. Before I started this study, a colleague suggested that I should follow the money. In some sense she was correct. The buck stops at the President’s Office, with the Department of Medicine not far behind. However, in reality, one could say that the big bucks stop with federal laws or appropriation bills, such as the Balanced Budget Act and Medicare/Medicaid funding.

of the outer networks: money. As noted in Chapter 1, this is the first of a series of “black-boxes,” that is, brief explanations and descriptions of the object actors that will

appear throughout Chapters 3-7. This “boxing” sets them apart so that their status as actor is clearly marked, yet their interactions with other actors are noted in the text.

The Korsdale UMC has been steadily losing money for at least the past five years [IN18]. In order to address these losses, the President’s Office employs an outside consulting firm, Medzicon, to “assist” various faculty/clinic practices in becoming fiscally sound. During the study period, a number of consultants from Medzicon were present in the clinic. They were able to make some changes in the billing procedures that presumably brought in more of the billings dedicated to the clinic, but many issues remain unaddressed.

Only the Office Manager and Clinic Director were in contact with the consultants. The new Nurse Manager also had limited contact with the consultants. I initially discounted the consultants’ roles in the clinic, as it seemed as if very little was being accomplished. However, at the end of the study, the consultants came down with a mandate “from the President’s Office” that the faculty had to see more patients per hour. This created enormous anxiety and lots of discussion. (See Epilogue.)

Beyond the university, the many other networks may be categorized into three types: accrediting bodies, regulatory agencies, and funding agencies/insurance companies. To study all of these clinic relationships and linkages to other networks would be a study unto itself. However, this clinic is “linked” in a myriad of fairly separate networks that exist beyond the clinic’s walls. These have been termed “outer” networks, to distinguish

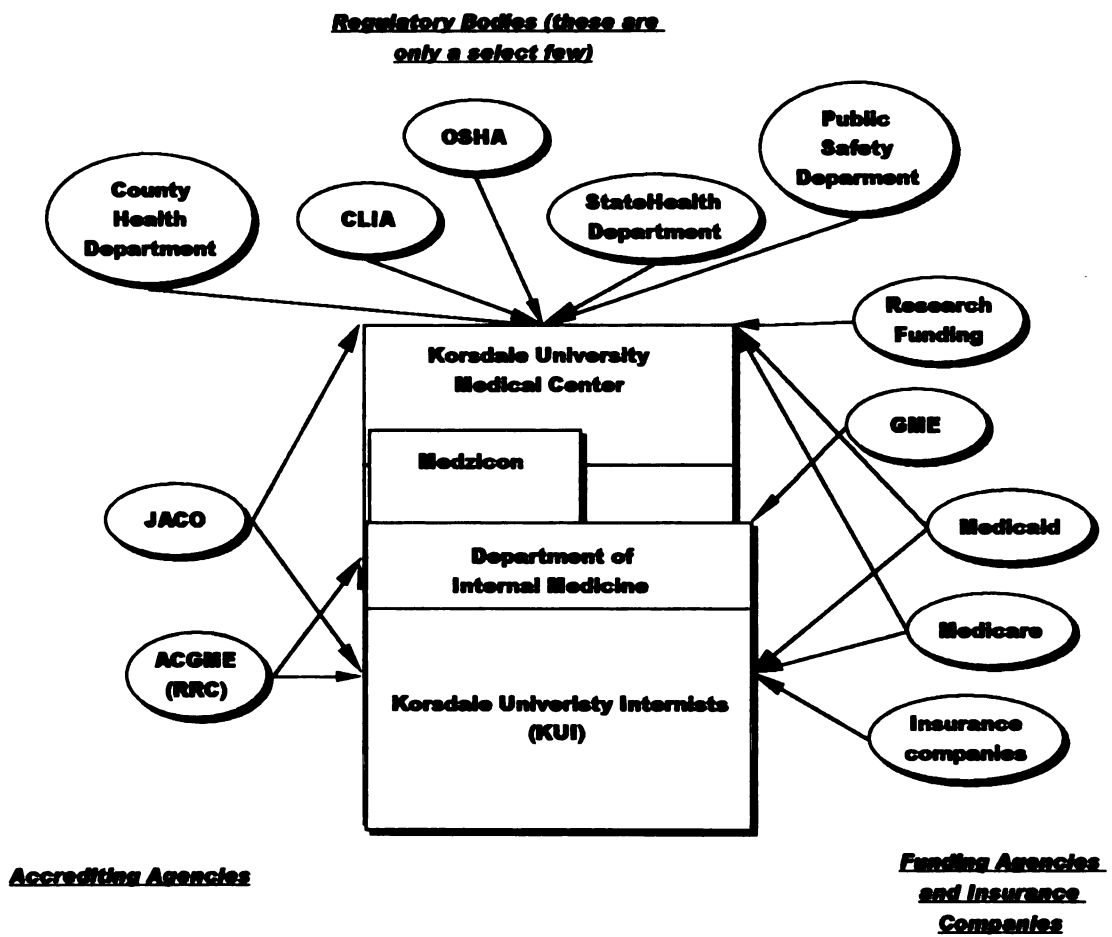


Figure 3.1 The Outer Networks

them from the “inner” clinic network (see Figure 3.1). They are purposely not defined as “external” and “internal.” While the physical location of any given network’s core activities may be “external” to the clinic, the long reach of these networks extends directly into the clinic. As demonstrated throughout this text, the actions of these networks create and maintain the activities that provide the purposes of the clinic. These outer networks direct and change the clinic actors’ daily interactions. Therefore, they are as much a part of the clinic life as the inner network. The term “outer” provides a means of distinguishing these networks from the daily clinic actions without suggesting such a definitive separation as the term “external” implies.

Accrediting Bodies

Two major accrediting bodies require on-site inspections. These are the Joint Commission on Accreditation of Healthcare Organizations (JCAHO)¹ and the Internal Medicine Residency Review Committee (RRC) of the Accreditation Council for Graduate Medical Education (ACGME).² The JCAHO hospital standards are required because the clinic is not a freestanding entity; it is owned by the hospital. The JCAHO standards most in evidence in the clinic are those dealing with privacy for patients. The discharge area is supposed to provide some measure of privacy for patients who need further tests or referrals. Any computer monitor in a public or open area must have a special privacy screen that makes it difficult to view patient names. The registration desk is not permitted to have a sign-in sheet for the patients, because one patient could read another’s name.

The RRC standards are somewhat more general where the clinic is concerned. These standards are about the quality and type of medical education experiences in the residency program. The standards clearly specify a requirement for a continuity experience: “Over the 36 months of training, at least ½ day each week must be spent managing a panel of general internal medicine patients in continuity” (IM Program Requirement IB2). The “panel” are patients that residents see and treat on a regular basis. That is, it is insufficient to see patients on a “one-time-only” basis. There is another requirement for ambulatory sites: “The clinical settings in which these experiences occur must include a minimum of one-third of the time in ambulatory sites...” (IM Program Requirement IB2). Within the next few years, residency programs will also be required to demonstrate that residents are achieving a set of predetermined core competencies. These include patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice (Common Program Requirements IVB1-6). Such requirements set the initial parameters for what can be provided and accomplished in ambulatory education settings.

Regulatory Bodies

Officials from a number of regulatory bodies arrive on a regular basis and walk around inspecting X, Y, and Z. They usually leave reports for what needs to be improved, changed or added. These regulatory agencies include the local health department, the public safety department, CLIA,³ OSHA,⁴ and the state environmental safety inspector. All of these various actors have the force of regulations, laws, and rules from their

specific city, county, state or federal agency behind them. They leave a list of unmet regulations and expect that the clinic will figure out ways to implement or enforce them. For example, a sign needs to be posted in a specific location; the epidemiology control procedures must be more carefully monitored; different types of waste must be disposed of using revised procedures; the pharmaceutical supplies must be listed in date order *and* by supply name order, etc. Each and every time a regulatory agency person walks through, or a new list of rules is promulgated by one of the regulatory bodies, the staff must address changes in procedures or processes in order to meet the revised standards or regulations. I chose to pay minimal attention to these standards. However, these regulations can change the ordering of certain teaching/learning and patient care processes. These are discussed below.

Funding Agencies and Insurance Companies

Last, but not least, the funding agencies and insurance companies play major roles in the work of the clinic. This is particularly true in patient care, but even teaching/learning does not escape. Invariably the first question asked after, “Who’s your doctor?” is “What type of insurance do you have?” Each of these funding sources contains its own regulations for documentation, referrals to other needed services and billing. Discussions about home health, which drugs a patient should be given, and who a patient can be referred to, are directly related to the patient’s type of insurance. It is so confusing that often the patient herself does not know what her plan provides. She might know that it was Aetna, but not understand that Aetna has an entire menu of plans with different provisions for services, co-payments, etc.

The paperwork also varies by insurance company. The woman who does the billing noted that there are 26 different code numbers, physically located in separate locales, where she sends the billings [IN15]. This is for *one* insurance company. There are two different laboratory request forms, depending on the patient's insurance. Referrals for each insurance company are handled differently. There is a full time referral coordinator who spends hours on automated phone or computer systems each day in order to authorize referrals made by the physicians. In all, there are 4 FTEs⁵ who work on referrals and billing. One faculty member told me that if he had his way, he would get all the insurance company CEOs in a large football stadium, and give them 24 hours to develop one standardized insurance form. If they couldn't do it, he would begin shooting them dead, one by one, until they agreed on one form [IN18]. While he was joking, there was an underlying seriousness to his frustration in terms of the administrative nightmare that the insurance companies have created.

Both Medicaid and Medicare funding, key components of the office "billing mix" have regulations and laws attached to them. These regulations are most evident in the form of the coding necessary on the encounter form used for billing purposes. Other Medicaid/Medicare regulations are directly related to patient care. One example is the GC modifier. During the first six months of the intern's clinic time, the modifier requires that the attending re-examine every patient seen by an intern. Also, Medicaid pays for drugs, but Medicare does not. This means that physicians must always take into account a person's ability to pay before prescribing medications.

The Graduate Medical Education (GME) funding is also a part of the Medicare/Medicaid dollars received by the hospital. In the past few years, stipulations have been placed on this funding through the Balanced Budget Act [Federal Register, 1998]. However, it still remains a lucrative source of funds for most medical schools. On a per resident basis, the funds pay all of the resident's salary, fringes, and many of the direct teaching expenses. There is also an "indirect" amount that may account for the extra supplies, X-rays, etc. that a resident might use or order. This indirect funding is based on an elaborate formula developed over many years. The federal government does not require the hospitals to account for how they spend their indirect funding [Balanced Budget Act, Federal Register, 1998].⁶ At the Korsdale UMC, the Department of Medicine receives all of the GME funding, both direct and indirect [IN18]. All of the GME funding goes directly to the departments, rather than into the general university fund. The shortfall in clinic revenue in the previous year was "made up" by the Department, presumably with some of this funding [IN18].

Finding B: There is considerable control from "outer" networks - most changes came from the outside. The inner network's links to the outer networks are generally weak.

The outer networks played a much greater role than originally envisioned. They insinuate themselves into the teaching/learning ordering process (e.g., the GC modifier), the billing, scheduling, and direct choices about patient care. There is fairly direct control from the president's office in the form of the Medzicon consultants. The Chair of the Internal Medicine department hires faculty without consulting current faculty [OB53]. There are also regulations, insurance companies and accrediting bodies. Here

are just a few examples of ways in which the outer networks take actions that change the clinic work.

Internal Medicine Department

Throughout the winter there continued to be an increase in patient volume on the hospital side. The faculty discussed their large in-patient volumes at almost every turn. The Clinic Director appointed a small subcommittee of faculty to make suggestions for resolving this issue. The subcommittee polled the faculty and came up with a solution. At the next faculty meeting they were hardly permitted to speak by the Clinic Director, who proposed her own solution. After the meeting, one committee member stated to another: "I don't know why she had us work on a different committee report,"[if it was already decided] [OB51]. In the end, the solution was taken away from the Clinic Director. The Chairman of the Internal Medicine Department hired two of the Chief Residents to be hospitalists, i.e., their only responsibility would be to see hospital patients. An attending noted: "It's so typical that they went ahead and made this decision without talking about it and thinking things through with the rest of us. It's a microcosm of everything that's wrong" [MT33]. This changed the faculty's flexibility to schedule weekend changes among themselves, as the new hospitalists had to be given a certain number of weekends off. Here was a solution that cut the number of weeks that everyone had to be in the hospital, yet it was not viewed favorably because of the way it had been implemented. The clinic is but one small part of a very large, and very firmly entrenched bureaucracy. The money and power still lie within the Department of Internal Medicine.

APC code

One change in the clinic happened because of changes in federal reporting requirements. New federal guidelines were put in place about how one could bill in ambulatory settings. (APC codes would be required as of a certain date.) In order to account for this, the encounter form had to be redesigned. A small staff committee worked on the new form with the Medzicon consultants. When they showed the form to the Clinic Director, she became involved in critiquing and providing input into the details of the form--so much so that the Medzicon consultants asked that she not meet with them again [OB98]. Unfortunately, her input was often needed as she was the only one who understood issues from both a physician perspective and from a larger, organizational perspective. When implemented, this form generated considerably more detailed discussion than the previous form. For example, the form required three statements about diabetes: with/without complications, controlled or uncontrolled, and type e.g., type II. This generated a conversation between a resident and attending as to what the resident would mark in each of the three boxes, rather than the previous form where the resident simply noted "diabetes" [OB68].

Insurance Regulations

The insurance company requirements regulate not only which doctors people can see, but how frequently. Insurance issues are also an important determining factor in developing a plan and selecting consultants. Who will pay for the medications or the referral to the specialist needed? Is home health care available under this plan or another? One day a patient came in who had a sore in his mouth. The resident and

attending determined that he needed a referral to an oral surgeon. The patient had insurance, but the question was, would they pay for the procedure he needed? After checking with the discharge desk and not finding an answer, the attending and resident went back to speak to the referral coordinator:

Attending - Referral Coordinator: Do we have an oral maxillofacial surgeon on the Blue Cross Blue/Shield list?

Referral Coordinator: We don't have anybody. There's somebody in the dental group. They need to contact LOGHO [the hospital's central clearinghouse for insurance issues]. [The attending went back into the Central Office, and got the phone number for LOGHO.]

Attending - Resident: So an oral surgeon. I don't know if they are contracted or not. He needs to contact this group. [The attending goes and finds the hospital directory, takes it from the nurse's station and gives the resident the number.]

Attending to KVB: I just hate insurance companies. Two minutes to look at it [the sore in the patient's mouth]— and the whole rest of the time is figuring out how to pay for it. Is this my job? Apparently it is [OB67].

Not only are insurance issues time consuming; they are viewed by physicians as outside their realm of expertise. They create detours in the flow of taking care of patients, and are resented because of the time and frustration with the outer networks. Additionally, physicians are caught in a bind. In this case, they made a determination that the best patient care involved seeking a consultant. Yet they viewed the bureaucracy as a hindrance to obtaining that care for their patient.

Consultants

There is one very positive example of faculty linkages to outer networks—that of using consultants or specialists. Engeström has termed this type of work, “knot-work.”

Research on the organization of work has focused on “temporally and spatially compact and stable ‘centers of coordination’” (1999, p. 346). For the most part, the clinic fit this

definition. But finding and working with consultants extends one set of activities to a much broader array of networks—one that is constantly changing and varies with both time and space. “The notion of a knot refers to rapidly pulsating, distributed and partially improvised orchestrations of collaborative performance between otherwise loosely connected actors and activity systems” (p. 346). Engeström further argued that these temporary knots redistribute control, responsibility and trust. They also bring into question normal forms and divisions of professional hierarchy. This provides a clear explanation for the very collegial nature of the work the residents and faculty do with consultants. It is temporary and centers on individual patients. It may last for months or be only one phone call, depending on the nature of the patient’s problem. The authority or control of the communication, may go both ways. In one case a patient was not happy with his knee surgery and the resident was urged by the attending to call the surgeon’s partner.

Faculty to Patient: The person best known for knees is M.T., but he’s in the same group. Is that going to be OK? You’ll need an MRI. Resident (first name), send him to M.T.

[Back in RWR.]

Resident: How soon could he see him?

Faculty: Here’s what I would do – call M.T.’s nurse – be open and honest with him. Get the MRI in a different place.

Resident: Let me try to find what surgery he had.

Faculty: You don’t know if it’s a meniscal tear?

Faculty –KVB: Each surgeon has his own nurse.

[a little later]

Resident: I got M.T. on the phone – I thought I was waiting for his nurse but I spoke with him directly. He said it sounds like D.S. [the surgeon who performed the surgery] did a crappy job of follow-up. So I said – well, let’s just say that they did a poor job of communicating.

Faculty: Great – sorry it took so long [OB69].

The faculty is urging the resident to take responsibility for the patient by contacting the surgeon’s nurse. But note the role reversal. The surgeon admits there are problems, but

it is the resident who is taking responsibility for trying to solve the problem. The

Human Actor: Consultants

Consultants are actors in other networks who, upon linking with the clinic network, have a great deal of influence over an individual patient's care. The attendings are constantly role modeling how to use consultants or sub specialists. There is a fair amount of discussion about not just who to use, but the importance of actually speaking to the consultant. For example:

Attending A: [Reading urologist report.] CT without is normal, CT with contrast is normal. I would actually call him [the urologist].

Resident: He's going to see him next week.

Attending A: I still want you to call him [urologist] up.

Resident: I will later this afternoon [OB97].

Resident: [Presenting to Attending B.] 45-year-old female CVA/TIA. Five pacemakers. She's a very poor historian.⁷

Attending B: Who's her cardiologist?

Resident: He's outside. Change of insurance. She came here with records.

Attending B: Did you talk to S____[the cardiologist]?

Resident: I'm trying to get them to fax over the records.

Attending B: No, I meant like call and see who this lady is [OB72].

Engeström argued that this is considered "knot-working." (1999). Most research on organizations has been conducted within tightly knit, "temporally and spatially compact and stable centers of coordination" [p.#]. But knot-working is a form of temporary linkage, albeit patient-specific, to other networks. They are critical at the time, but only for specific situations.

consultants generally add a richness of expertise that is unavailable in the Clinic. This assists in resolving individual patient problems. However, organizational and managerial issues were not openly discussed with the consultants.

Staff Linkages to Outer Networks

The discussion above has been about how the outer networks extend into the inner clinic network. But there are also ways in which some of the clinic staff connect themselves to the outer networks. However, these are, for the most part, local connections to very nearby networks. The referral coordinator has a one-way connection to the local

insurance companies. She requests referrals, and they approve or deny them. The nurses call the pharmacies to place prescription orders. For the most part, these connections do produce changes in the clinic. The Nurse Manager was able to work with the laboratory to make a change in laboratory hours. The Office Manager and Clinic Director were able to obtain two new managerial positions [OB116]. They also meet regularly with Medzicon and key administrative staff in the Internal Medicine department. The faculty are also connected to the Internal Medicine Department. I did not attend a departmental meeting, but one attending noted: “they focus on the hospital, how it’s losing money, finances, management, etc.”[OB42]. The clinic is discussed only in the smaller meetings of the general IM faculty. Human actors within the clinic are linked to the outer networks, but not in ways that provided them with fresh perspectives on clinic problems or promoted changes in the relationships with the outer networks. Thus, the dividing lines between the inner and outer networks are not so neat and clean. The outer networks continue to extend themselves into shaping the work of the clinic, while the clinic actors also extend themselves out into the outer networks.

A few attendings perceived themselves as victims with little power to change things. “We hold very little clout in the institution. We hold very little clout in the department, so we’re the easiest target” [IN06]. Some saw the clinic through rose-colored glasses—things would get better since things had already gotten better with the move to this clinic. It is just a matter of time. Therefore, it is OK to let things continue as they are.

Faculty: Despite all the negatives at the end, I do think that overall the clinic... I think the average patient that goes there on the resident’s side gets very good care, gets much better care than they do in a lot of the other systems that would be their choices of how to obtain care. For the most part it really does run well, but there’s

lots and lots of things we can to improve it. Putting our office all together puts it right in front of you, the difference between sort of one way of ... how indigent patients get their health care versus others. We're trying to raise everybody up to a standard, which takes a lot of resources and it's difficult to do under these circumstances. It's a lofty goal that we've got and we're not there yet. I think we do a better job than I see anybody else doing, given the same population of patients that we're seeing [IN13].

Relationship of Outer Networks to Patient Care/Teaching/Learning

Why are the outer networks important to patient care? Changes in regulations such as the APC codes make it possible for the clinic to capture more of their actual costs.

Changes in Medicare and Medicaid can translate into additional services available to patients. But these changes often have both positives and negatives. They take the decision making power out of the hands of the local network and put it into larger, more distant bureaucracies. This makes it difficult to individualize or personalize solutions for individual patients and their families.

Why are the outer networks important to teaching/learning? The outer networks' regulations and rules mean that residents and faculty have more to learn. Oftentimes, there are more bureaucratic rules to finesse around in order to provide patient care. Both residents and faculty had to change their reporting and charting behaviors in order to correctly bill for the new APC codes. As noted above, obtaining services from insurance companies has to be done on a case-by-case basis. Both the type of specialist and the type of insurance may be barriers. The department chair made the decision to hire two Chief Residents based on inpatient volume, not on their ability to teach.

Table 3.2: Relationship of Outer Networks to Teaching/Learning/Patient Care

Organizational Issue #2	Outer networks have considerable control over daily clinic life.
Network Element(s)	There is strong enrollment of clinic actors into outer networks, including patients, faculty, residents, staff, funding and buildings.
Faculty Opportunities and Constraints	More resources make it possible for faculty to do more teaching; however, decreases in funding can create a need for faculty to see more patients, thereby decreasing this ability. Changes in regulations also push faculty to change their practices (for example the APC codes), which may result in more billings, and more teaching to residents.
Resident Opportunities and Constraints	When patients need outside services, residents have an opportunity to learn how to obtain those services. However, time spent doing this is time taken away from learning other aspects of medicine.
Patient Care	Patients have certainly benefited from the safety nets of Medicaid and Medicare, yet a large number of people still fall through the cracks. Many issues surrounding the inadequacy of these safety nets are noted throughout this text.

(See Table 8.1 for Summary of Relationships)

The clinic actors are heavily tied into the outer networks by force of law, employment, education, funding, and history. In other words, the clinic actors are very well enrolled in the outer networks. At the same time that the outer networks delimit what is feasible to provide in the way of both services and training, they also provide the greatest opportunities for expansion of services and training. For example, the two new hospitalists make it possible to serve more patients. They also provide more faculty teaching for residents while on hospital rotations.

The same holds true for consultants. They are selected based on their ability to provide clinical expertise, not on what they can teach residents. Along with historical actors, the outer networks become the first circumscribers of patient care and teaching/learning. They set rules and regulations that clinic actors must follow, before the clinic can even open its doors.

Once control is wrested from the inner network(s), the goals and purposes of the clinic organization become secondary to the needs of the outer networks. One can argue that loose control in the inner network makes it easier for more control to be exerted by the outer networks. For example, if the actors in the inner network had been able to demonstrate movement toward getting their costs under control, perhaps Medzicon would not have required the faculty to start seeing patients every fifteen minutes. With only a single case, it is impossible to determine this with any degree of certainty. But it is worthy of further research.

In sum, there is considerable control exerted over the inner clinic network by outer networks. From the hospital to the federal government to insurance regulations, most major changes in clinic work come from the outer networks. This has positives and negatives for both patient care and teaching/learning. In some cases, more funding may be made available for additional services that would not be available without the outer networks. On the other hand, local control is lost. This often makes it more difficult to individualize responses to problems. In this clinic, the links from the inner networks to

the outer networks are also weak—at least at places where change takes place. There are also areas of excellent linkages such as those involving consultants.

How Does The Finding of the Importance of the Outer Networks Concur With The Literature?

Callon and Law's fourth principle of networks is that distributed entities are also points (1997). In the case of the outer networks, there are a number of "black boxes," i.e., organizations or networks that one takes-for-granted. One does not question the inner workings of the Medicaid or Blue Cross/Blue Shield. One only looks at what regulations or rules they put forth that must be attended to in the clinic. Such black boxes are visible or invisible, depending on where one stands in the network. The hospital in-patient service is black-boxed for most staff and faculty discussions. The computer system is black-boxed by everyone in the clinic. Both the regulatory agencies and the insurance companies are black-boxed to everyone except the one or two people assigned responsibility to make certain regulations are met.

In Irby's (1995) review of the ambulatory care medical education literature from 1980 through 1994, several studies were conducted on the cost of providing training in ambulatory care settings. See for example, (Jones, Culpepper, & Shea, 1995).

Generally, the studies concluded that training is expensive and cannot break even without financial assistance. A study of faculty productivity in a teaching ambulatory clinic compared to a non-teaching ambulatory clinic found a productivity loss of 30-40% in the teaching clinic (Garg, Boero, Christiansen, & Booher, 1991). As financing

becomes more difficult, issues of cost will drive more of the daily activity in ambulatory clinics. This was already apparent in the Kordsdale Clinic. The chief residents were hired in order to permit an increase in patient volume. Clinic staff positions were filled on temporary bases in order to save fringe benefits.

These findings generally concur with the literature, however, it provides some fresh insights as well. The rules, regulations, and actions taken by the outer networks have not previously been explored in terms of their relationships to patient care and teaching/learning. This study's finding is that these relationships either produce or constrain the opportunities to provide services and training. The regulations and actions set the outer parameters for what is possible to accomplish within the clinic. The next chapters discuss how the clinic actors enact all of these rules, regulations, and decisions made by the outer networks.

Chapter Summary

Before a discussion of the inner workings of the clinic can even begin, the actions of the actors that have preceded the current actors must be recognized. In this clinic, two actions continue to play large roles in the present clinic. One is the separation of the clinic into two essentially separate clinics with one set of staff. The other is the continuing role of having two completely different patient chart formats.

The outer networks also play a large role—much larger than expected. They align themselves in several categories: accrediting bodies, regulatory bodies, and funding

agencies and insurance companies. The research literature on both patient care and residency education also play some role. The medical center, hospital and Department of Internal Medicine also play roles in how the clinic carries out its daily work. All of these agencies and entities impose very separate rules and restrictions on the clinic actors. It is up to the clinic itself to figure out how to enact them.

Endnotes

¹ For more information on JCAHO, see their web site: www.jcaho.org. (Zayas et al., 1999)

² For more information on the RRC and the ACGME, go to their web site: www.acgme.org. The complete listing of all program requirements is on this web site.

³ CLIA = Clinical Laboratory Improvement Amendments. The CLIA program is a part of Medicaid and Medicare services designed to ensure quality laboratory testing.

⁴ OSHA = Occupational Safety and Health Administration. This is a federal agency whose primary purpose is to assure worker safety.

⁵ FTE = full-time equivalent. It is used to represent one staff person working 40 hours per week.

⁶ The indirect medical education payments “are made through a formula that provides a percentage add-on to the diagnosis-related group payment a teaching hospital receives for most Medicare patients. For the 1997 fiscal year, HCFA [the Health Care Financing Administration] estimates that IME payments were approximately \$5.1 billion (Dickler & Shaw, 2000, p. 822).

⁷ A “poor historian” is a term commonly used when a patient is unable to provide clear details of what types of surgeries or problems they have had, when and where. One attending encouraged a patient who was seeing multiple doctors to keep track of doctor visits, drugs prescribed, etc. in a little notebook.

CHAPTER FOUR: THE SOCIO-SPATIAL OPPORTUNITY SET— PRESENT ACTORS, NODES AND ABSENT ACTORS

The actors don't have a strategy; they get their battle plans, contradictory ones, from other actors. The actors in a technological project populate the world with other actors whom they endow with qualities, to whom they give a past, to whom they attribute motivations, visions, goals, targets, and desires, and whose margin of maneuver they define. It is precisely because of this work of populating that they are called *actors*. For a given actor, this is the way the *strategy* of the other actors is interdefined (Latour, 1996, p. 163).

Introduction

This chapter and the next describe the first in-clinic action dimension, the Socio-Spatial Opportunity Set.¹ It consists of the actors' interactions in both social and spatial dimensions. The term "Opportunity Set" has been used because these actions combine the required elements of the outer networks and historical actors to produce opportunities for the in-clinic actors' spatial and social interactions. What comes out of the Opportunity Set is usually less, but, on occasion, may be more than what went in. This chapter begins with a description of the human actors who are also the study participants. It then discusses the nodes of the network, and subsequently the non-human actors that interact with the human actors. Finally, it explores the import of missing or absent actors on the work of the nodes.

Chaos-City

Before going further, it is important to note that I did not start out by seeking a clinic with problems in order to observe them solve their problems. The purpose of the study

was to observe a clinic in a prestigious academic medical center in order to determine how patient care is enacted simultaneously with teaching/learning. There is a tremendous amount of activity in the clinic. I would be remiss if I didn't note that everyone works very hard at their jobs to keep the wheels turning. In spite of very intense workloads for staff, everyone remains highly professional. Patients are treated in a professional manner, and as noted in interviews, they believe they are getting excellent care [OB02;07;13;51;70].² Residents noted in the survey results that the teaching from the attendings is one of the best parts of the clinic [DOC115]. The only idle chatter to be heard is usually in the RWR, a room that is closed off from the more public parts of the clinic. In short, I did not go looking for Chaos-City. But that is in fact, what I found. This is not my term. It came directly from one of people who worked in the clinic [OB119].

Findings for Chapters 4 and 5

The following are the findings about the Socio-Spatial Opportunity Set that are discussed in this chapter and the next:

Finding C: The Socio-Spatial Opportunity Set. The actors construct and reconstruct the configuration of the residency clinic network. This includes both human and non-human actors' social and spatial interactions, hereby termed the Socio-Spatial Opportunity Set. This configuration, and the ways by which the actors control the configuration circumscribe or expand the capabilities and opportunities for teaching/learning and patient care.

Finding C.1. Human and non-human actors combine to do the work of the clinic.

Finding C.2. The configuration of the clinic network, i.e., the pattern of nodes and their linkages are a key factor in delivering patient care and teaching/learning. In this clinic, the nodes operate fairly independently of one another.

Finding C.3. The interactions or links between the nodes are critical to the ability of each node to function. However, there are few links and little linkage redundancy between nodes.

Finding C. 4. The actors assert minimal control of the “net-work” (both inside and between nodes). Control primarily surfaces when there are problems, and then as a blaming mechanism. This can also result in disorder, further limiting patient care/teaching/learning.

Description of Clinic Study Participants: The Human Actors

The study participants are, for the most part, also the human actors in the network.

There are occasional outsiders who enter and become part of the network for brief periods. However, I chose to focus on those who do the work or participate on a regular basis in the activities of the network. These are primarily the faculty, residents, staff, and patients.

Finding C.1. Human and non-human actors combine to do the work of the clinic.

Faculty/Attendings

There were seventeen medical school faculty who were part of the practice during the study period. Two of them were hospital based, and one chose not to participate in the study. Of the fourteen who consented to be a part of the study, over half had once been chief residents at Kordsdale. All but two faculty had attended Kordsdale Medical School and became Kordsdale faculty immediately following their residencies. Only one faculty member had had experience working in a non-academic, private physician office. Of the five non-Caucasian faculty, one was African American. One physician faculty member spoke Spanish and had a following of Spanish-speaking patients. Most faculty were

relatively young. They had been out of school on average, approximately five years. Three faculty had been with the program longer than ten years. There were ten females and seven males. All of the males worked full time, but several of the women worked various percentages of time ranging from 20% to 80%.

Almost the entire faculty were responsible for teaching and/or administration in the medical school or residency program. One was Associate, and another, Assistant Director of the residency program. Another was responsible for the third year (medical student) Internal Medicine clerkship program. Many others taught courses or ran seminars for residents or medical students. One had faculty development responsibilities. In all, there are approximately 15 FTEs of faculty time, of which 1.5 FTE is devoted to precepting in the clinic. 2.0 FTEs are devoted to seeing their own patients [DOC116]. A few faculty with greater longevity had received some faculty development training. However, newer faculty had received little to none. This is consistent with Skeff's (1998) findings that few internal medicine faculty have had formal training in teaching. Throughout this text, the terms "faculty" and "attending" are used interchangeably. These terms refer to faculty who provided consent, and primarily to their role as "preceptors" or attendings in the clinic. That is, their other teaching and administrative responsibilities were not a part of this study.

Staff

Of the twenty-nine "permanent" staff present at the end of the study, one hundred percent were female. Only five were Caucasian, the remainder being African American

or Hispanic. The Office Manager and Nurse Manager, both nurses, had long years of nursing and managerial experience. Most of the entry-level staff were young, with two to four years prior work experience. Most had previously worked in a medical setting, but not in an ambulatory clinic. The staffs of the resident and faculty clinics were merged from two different sets of office practices into one. This created a lot of tension over the first few months as they had to sort out which practices would be maintained from which office.

There was a considerable amount of staff turnover. During the study period, five of the eight nurses, including Medical Assistants (MAs) and Licensed Practical Nurses (LPNs) left and were replaced. Two positions turned over twice during the period. The five medical records staff also completely turned over during the study period [DOC111]. Because of the turnover, there were a large number of temporary full- and part-time staff that lasted from one to two days up to a few months. At one point, one of the temporary MAs who had been there a few weeks provided training to an even newer temporary MA [OB 61]. This contrasted with faculty, some of whom had been in the clinic for over ten years. The high staff turnover rate was never addressed as an issue at faculty meetings [OB01;27;64;103;115]. However, there were lots of comments.

Faculty: I don't even know everybody around here anymore [OB40].

Clinic Director: Look at nursing station now – nobody trained. Going out and getting a body doesn't help [OB53].

Patients

On the residents' side, the patient population is an older population with many chronic illnesses. They are primarily on Medicaid or Medicare. Based on observation, they are

approximately 80% African American.³ There are also approximately 5-10% Hispanic patients. The clinic makes it possible for Hispanic patients to see a Spanish-speaking doctor or have a translator. The patients on the faculty side tend to be more diverse, with a large number (~50%) of younger, working Caucasians, although even here, there is a fair amount of diversity. Patients on the faculty side have a much wider range of insurance mechanisms, including HMOs, PPOs and standard third-party payors (e.g., Blue Cross/Blue Shield.) When these patients need to be seen on an emergent or same day basis, a resident usually sees them. No one has precise figures on the percentage of patients holding each type of insurance. The general “guesstimate” is that the clinic, as a total, has approximately 48% third party payors, 2% self-pays, 25% Medicaid and 25% Medicare [OB11]. From observation, it appears that there are considerably more Medicaid and Medicare funded patients on the resident side, with most of the third party patients on the faculty side.

The patients are key actors in this network. They bring a diversity of medical problems that are treated on an outpatient basis. To the residents, this is the most important part of the clinic experience. In the 156 case presentations by residents, the range of problems discussed covered all of the common problems and many uncommon ones. While no formal statistics were available on the types of cases seen by residents, the problem list appeared to be consistent with other studies on the diversity of patient diagnoses (Bethea, Singh, & Probst, 1996). The patients also bring with them a host of community and social issues that have to be resolved. These range from getting an ambulance for a patient who has no insurance, to determining an appropriate level of “assisted living”

care for an elderly patient [OB69]. Many patients also need home health care, particularly after returning from hospital stays. Of course, the patient's insurance plays a role in what can be provided.

In the patient care and registration networks, patients are transformed into identification cards, insurance cards, charts, and names on a schedule to be crossed off. Until they are actually being vitaled, or seen by a resident, they are for the most part, treated as objects to manipulate up and down the halls and in and out of exam rooms. Once in a room with a member of the nursing staff or physicians, they become humans again—as both nurses and physicians treat patients with a great deal of respect and care. This appears to be an issue of the amount of time each staff person has to spend with patients. When there are a lot of patients to be seen, it is important to get them vitaled and into the rooms as quickly as possible.

Residents

As noted in the previous chapter, all Internal Medicine residents are required to spend one third of their time in ambulatory settings by a combination of block rotations⁴ and a continuity clinic experience.⁵ Because of these requirements and the fact that the clinic meets only the minimum number of weeks for continuity clinic, very stringent guidelines are established as to when residents are permitted to miss clinic. They can only be absent during their ICU and Emergency medicine rotations, and certain other specific rotations. On their four-week South Bay rotations, they are permitted to miss only two clinics out of four. Residents also receive four weeks vacation time. The

Associate Program Director must clear any other absences from the clinic. Over a twelve-week period, the residents averaged 8 half days in the clinic [DOC113].

During the study period, there were 100 residents assigned to the Korsdale clinic each week. Due to the excused rotations, approximately 6-10 residents are present on any given half-day. The PGY1s (interns or first year residents) are in the clinic only during afternoon sessions, as they have hospital responsibilities every morning. The rules set by the clinic for the number of patients to be seen by residents are as follows: First year residents (PGY1s): 3; Second year residents (PGY2s): 4-5; Third year residents (PGY3s): 6-7 [OB82]. During the study, there were 61 male and 37 female residents in the clinic. While the university does not track residents by race or ethnicity, from observation, the number of Hispanics and African Americans was probably somewhat lower than the national population.

Anonymous Participants

There are a large number of people who are associated with, but do not work in the clinic. Unless someone spoke directly to me, or their interactions with staff were key to something I was observing, I did not take notes on these people. Where discussed in the text, their general titles are noted, with no further information provided. Perhaps the largest group of these anonymous participants are the pharmaceutical company representatives. There is also a rheumatology clinic on Thursdays that takes place in the same space as the Internal Medicine residency clinic. Rheumatology faculty and residents are present in the same clinic space on that morning. For several weeks, a

faculty pharmacist and a few pharmacy residents also worked one morning a week in the clinic. There are also minor interactions with laboratory and pharmacy staff that are located on the same floor as the clinic. Transportation staff is available to take people in wheelchairs out to their rides, and hospital staff who deliver packages, x-rays, etc. Patients' family members are also present. Finally, there is the staff of a consulting group, Medzicon, who from time to time visited the facility.

The Clinic Space

The newly merged clinic is located in a rectangular office building that belongs to the hospital. It is separated from the hospital by a major thoroughfare, making it necessary to walk across a lengthy overpass. The new space is very modern and up to date, with a lovely play area for children in the lobby, comfortable waiting room chairs, carpeting and fake greenery. Half of the floor had recently been abandoned by another hospital owned clinic, Rancom. It had been heavily contracted with managed care organizations and was failing financially. The stated reason for the failure was its inability to provide the additional services required by their members for the contracted price. Rancom abandoned its pediatric space. This space had been designed with smaller-than-average exam rooms to be used with babies and children. These same exam rooms now have to accommodate a full size exam table and at least one chair. If patients bring two family members, one has to wait out in the hall or in the lobby, or stand in the corner of the room.

The Korsdale Clinic floor space is designed in such a manner that the patients enter into the center of the rectangular floor from the elevators. The main waiting room occupies the center, with registration, pharmacy and the laboratory also being accessed directly from the main waiting room. Each clinic (KUI and Rancom) then occupies one long hall (~ 250 ft in length) and two halves of the shorter halls (~ 50 ft). The long hall in the Korsdale clinic has a nursing station near each end. The faculty practice is placed at one end and used one nursing station; the resident practice is placed at the other end and uses the other nursing station. (See Figure 4.1 Clinic Layout.) When asked if they had considered other means of dividing up the space, faculty and staff noted they discussed it, but decided to maintain the separation of residents and attending practices [IN06]. The size and layout of the space turn out to be key issues with both staff and faculty.

The patients enter the clinic space from the central lobby by walking down a short diagonal corridor that produces a sharp “V” with the main outer corridor. In order to reach the discharge area they have to double back up the other leg of the “V.” When going into the exam room an MA escorted them, but usually patients leave alone. Signs went up the end of February, four months after the move [OB 25]. Even with the signs, patients remain confused. They often miss the discharge area, leaving without obtaining another appointment, getting their referrals taken care of, and perhaps, most importantly, turning in their encounter form, the primary billing form.

Phase One of the clinic re-construction was completed before the study started. This consisted of retrofitting a few exam rooms as staff offices, adding computer and phone outlets, and renovating two offices into one long narrow room for faculty and resident

teaching/learning. This room is termed the RWR (Resident Work Room) throughout the text. It is the primary location for discussion about patients between faculty and residents. At the beginning of the study period, everyone spoke eagerly of Phase Two, when changes would be made to better accommodate patients and staff, particularly the nurses' stations, discharge area, and medical records. By the time the study period ended (nine months later), another plan replaced Phase Two. The Korsdale Clinic would take over the failing Rancom clinic that occupied the other half of the floor. Two months later, KUI would move into the Rancom half, and evacuate the new space that had just been renovated. Within the course of one year, the clinic would move twice, and merge three different staffs. The second merger would also involve the merger of two very different sets of faculty. (See Epilogue.) While space is not the only limiting factor, to a certain extent, the very physical arrangement of space sets the outer limits for what can be accomplished within the clinic. Because the space cannot be changed (remember the floor has to be reinforced to hold the medical records), space becomes an in-clinic "actor" that must be worked around. It is the first (but not last!!) actor who constructs the work, which in turn continues the process of defining how patient care and teaching/learning will be delivered.

Because this study focuses on the resident's side of the clinic, a brief description of where the residents "live" while they are in the clinic is in order. The RWR is at one end of the long hall, whereas the faculty workroom and offices are at the other end of that same hall. The RWR is approximately twenty-five feet long by eight feet wide with large windows on one long, and one short side. Most residents and faculty sit along the

counter under the long window side. There are rarely sufficient chairs in the room. There is no place for coats, so in the winter one corner has a stack of backpacks and coats piled up. In addition, most chairs have coats slung over the backs. A few faculty waged a constant battle to keep the room cleaned up. It can be a very busy place, or there can be almost no activity at all. There is a counter on one of the short sides with two computers. Two more computers stand on the long counter near the other end of the room. Because of its location, and the programs on that computer, one computer is rarely used.

The residents tend to gather around the computers in the corners, making it difficult to use the phones that are placed next to the computers, the bookshelf with all the books, or the copy machine. Oftentimes, the room appears jammed with people at either end, and empty in the middle. Any type of private conversation has to be held by using an exam room or a faculty office at the other end of the clinic. The size and number of people in the room also make it very noisy at times. On several occasions people tripped over the backpacks on the floor and spilled their drinks. Staff are not permitted to eat in their work areas (except for those who have offices), as they are too public. But the RWR almost always has some type of doughnuts, candy or other “healthy”(!!) snack present at the beginning of a session. Dr. Smith, an attending, brings food for the residents at least one or two days each week [OB111].

The Nodes in the Network and Their Actors

Prior to the study, I assumed that there would be two networks in the clinic: patient care and teaching/learning. However, as the workings of the clinic became apparent, the evidence pointed to only one network, with a number of “nodes” that vary in their distances, activities, and linkages to core practices.

The Work of the Nodes

The term “node” is used for separate sets of activities occurring within the clinic. Nodes are delineated when the activity is separated by a) physical space or distance; b) the amount of actor interactions, i.e., fairly self-contained with little to no crossover into other nodes; and c) professional training, i.e., the current actors have already delineated their own nodes by virtue of their professional degrees. According to Callon (1997), much as an individual human being can be considered a network of various bodily systems, the nodes can be considered networks onto themselves. But in order to simplify the language and permit us to focus on various levels of organization, they are represented in this study as *nodes* in the larger clinic *network*. For the most part, work activities are completed within each node. The nodes consist of both human and non-human actors interacting to complete their defined set of activities in order to move the patient care or teaching/learning processes from node to node. As in the larger network, the actors order the work inside the nodes. When the work of the nodes is going well, it is rather unremarkable.

Discussions about the importance of some interactions over others were frequently borne out in conversations and comments made by the faculty and staff. However, the final

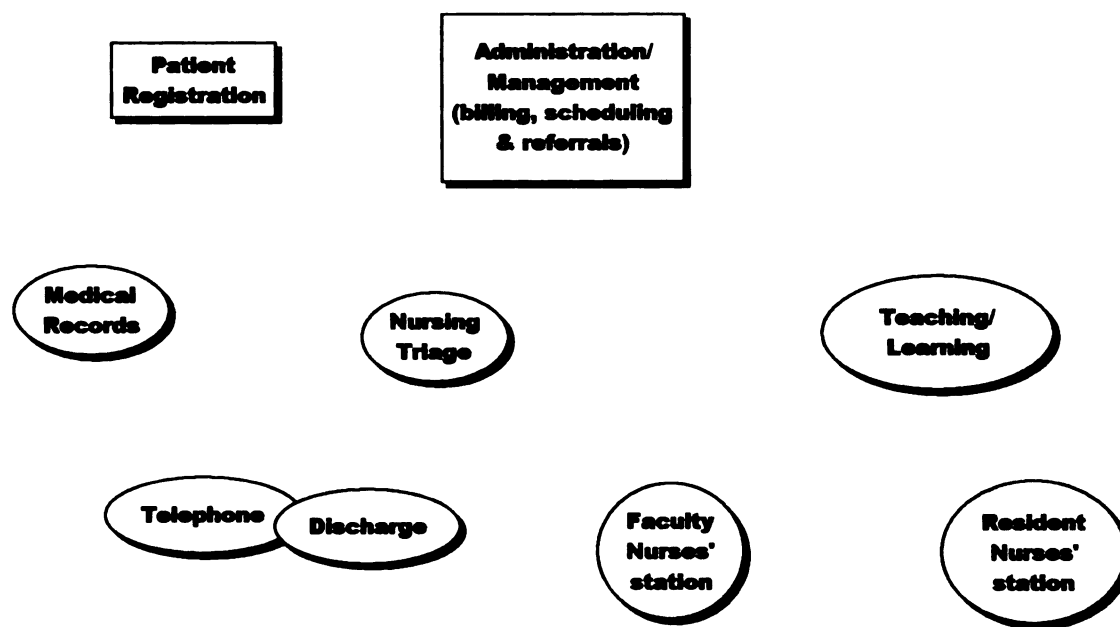


Figure 4.2: The Clinic Nodes

selection and arrangement of the nodes reflects my own perceptions and choices. By selecting these nodes, I am in no way imputing motives to any individual.

This section begins with a description of the two most distant and separate nodes:

Patient Registration and Administration/Management, before returning to the core patient care and teaching/learning nodes. As discussed in the previous chapter, networks consist of both human and non-human actors. Most of the key human actors as study participants have been introduced previously. Here, some of the key non-human actors in the network are introduced. I have chosen to do this by inserting them into boxes.

This sets them apart from the text, so that their status as actor is clearly noted. None of the actors act alone. Therefore, the descriptions of the nodes below situates both the human and non-human actors within them – both socially and spatially.

Patient Registration

The Patient Registration area is a separate node. The registration desk staff report directly to Hospital Finance, and have almost no contact with the rest of the staff [OB18]. The four women who are responsible for the registration desk sit behind a high counter in the patient lobby. By virtue of their placement and type of work, they are unable to leave their work site during office hours.⁶ The staff carry out a separate set of activities not linked to the rest of the staff. Their main connection and interaction with the nursing staff (i.e., letting them know the patient is present) is through the computerized Clinic Scheduling and Billing System, the CSBS. There is an occasional phone call back to nursing or discharge [OB94], but for the most part unmediated human interaction is minimal.⁷

The registration staff's major activity is to enter the patient into both the hospital billing system and the CSBS. The two systems are incompatible, so all of the same information, with slight variations, has to be entered in both systems. The hospital system is used if the patient requires any additional services such as the lab, pharmacy, or X-ray. The CSBS system notes on the computer schedule that the patient is present and ready to be seen in the clinic. The staff also checks the patient's demographics for correct address, phone number, etc.

Registration staff must also verify patient insurance for over 25 different insurance companies. Some companies have Internet databases; others require phone calls. The staff received special training for carrying out their activities. Their work is rated by how few mistakes they make in their data entry in the hospital system only. These mistakes are easily observable by their manager in a different building. They receive monthly bonuses based on their hospital entry error rate. Furthermore, computer errors affect billing. The indicators related to the immediate bottom line are the only ones that appear to count. Staff treatment of patients is not part of the bonus system. The quality of care literature indicates that patient satisfaction during a visit makes a difference in return rates, (Little, Cannon, Whitson, & Jarolim, 1991; Oppenheim, Bergman, & English, 1979) but that is not one of the indicators being measured. The registration staff speak with each other and with patients. At the end of the day, one staff person from registration brings the cash receipts back to someone in discharge. This is the only time any clinic staff interact directly with registration desk staff [OB18]. This node contains a very isolated and well-delineated set of actions and actors. It is the node

where patients must start and successfully pass through this node's work in order for the rest of the actors' actions to commence.

Administration/Management

All of the staff that have rather separate administrative activities are combined into one Administration/Management node. This includes the Scheduler, Biller, Referral Coordinator, Nurse Manager, Office Manager, and Clinic Director. They act fairly independently, and for the most part, do not do each other's jobs. The activities of the administrative staff are considerably different than other staff. They include hiring, evaluating staff, designing organizational charts, billing, scheduling, referrals, going to meetings about upcoming changes, addressing system issues or dealing with complaints from physicians or patients. Their actions and interactions are not dependent on the presence or absence of patients—thereby placing them outside the realm of the patient care processes.

For some period of time, the types of work that they do primarily requires them to interact with their computers, telephones, the encounter forms, and the CSBS. They could do this work anywhere. Consequently, they are tucked away in offices along the patient hallways, with their doors closed. During the study period, this staff met together with the Clinic Director at least once a month. These meetings, and other frequent interactions with each other were generally about overall issues, concerns, and problems in the clinic. This is the one group of staff who attempt to address problems that cut across nodes. Because of their frequent interactions, they are treated as a node.

The managers at the top levels remained the same throughout the study period. The Chair of the Internal Medicine department (not considered part of this node) directly supervised the Clinic Director, who in turn, directly supervised the Office Manager. The Nurse Manager reported to the Office Manager [DOC004].

During the study, the Clinic Director was rarely in the clinic. She precepted one half day a week, and saw some of her own patients one half day a week. She was ill during a good portion of the study. She stopped precepting and seeing patients for approximately

Object Actor: Computer Software Systems

The CSBS (Computer Scheduling and Billing System) is one of the few links that held the clinic nodes together. According to the staff, the design of the CSBS system was given to a programming company as a political favor. Staff: “CSBS is someone’s toy at Kordsdale—that’s how it was explained to me” [OB36]. The programmers used (or designed) a system that might have worked well in a regular clinic operation where the same physicians are present every day. But the software was not designed for use in residency programs, nor could it be easily altered. It is filled with bugs that seem unfixable. For example, the date ordering of patient visits is from 1999, then 2001, and then 2000. When I asked why these had not been addressed, the Clinic Director noted that they sent people for training, but she hadn’t seen any benefit yet [IN04].

In addition to the CSBS system used in the clinic, residents and faculty had access to four different hospital systems [OB01]. There is a system for hospital laboratory results and another for radiology reports. There are at least two “overall systems” in which residents could place hospital orders, and obtain reports from a wider range of specialists, as well as laboratory and radiology reports. Often, the residents spent a considerable amount of their clinic free time on the hospital computer systems, dealing with their hospital patients. Residents and faculty also had access to the Internet and to a large number of medical search tools and reference libraries, such as MD Consult. Staff do not use the Internet, but everyone has email. Of course, computers are needed to run the software, but there are ample computers throughout the clinic and this was not raised as an issue.

twelve weeks. However, even when she was well, she worked primarily out of her office in the medical school/hospital complex, a ten-minute walk from the clinic. She

has other responsibilities in the medical school, making it difficult for her to spend more time in the clinic. She is very knowledgeable about the activities in the clinic. She is also the person with the most organizational historical knowledge as she was one of the first preceptors in the clinic. When issues arise, she is a very hands-on manager, who is intently involved in the details. Yet at other times, she leaves the Office Manager to resolve issues on her own. The staff view her as very controlling. She noted that she had been viewed by the past three clinic office managers as a ‘micro-manager’ [OB114]. Yet everyone agrees that her concern for the clinic is genuine and she really does want to help the clinic move forward.

The Korsdale Office Manager, whether because of, or in spite of the Clinic Director, is almost a non-entity in the clinic. She is absent from the clinic a great deal of the time. Some of this time is spent attending meetings “on the other side,” i.e., in the hospital. When she is present, her office door is always closed. No one ever knew if she was onsite or not [OB61;110]. The Office Manager is directly responsible for the day to day running of the clinic and managing the staff. She has a tendency to “dump” issues and problems on the other administrative staff. This creates a great deal of resentment on the part of staff. They view her as not wanting to be responsible, not taking charge, and not supporting them when they deal with issues [OB37; 49;116]. In several cases, the staff independently worked out solutions to problems, only to have the Clinic Director and/or the Office Manager criticize what they had done. [OB103]. There was also considerable confusion about who managed the actual work activities. This node probably used the CSBS system more than any other.

Telephone and Discharge

This is one of only a few nodes where there is work sharing. The telephone receptionists and discharge staff move back and forth interchangeably, depending on the patient volume. They are located in a central office with an open counter into the hall for patients to discuss discharge issues. They have more direct interactions with patients, faculty and residents than any other node. If you want to know what is going on, here is the “hub.” This office holds paper supplies and forms, so the residents are continually

Object Actor: Telephone

The telephone plays a critical role in the clinic. When asked about which objects they interacted with most, faculty placed the phone in the top three (charts and computers being the other two) [DOC117]. The phones are in constant use. Faculty and residents use it to communicate about their hospital patients and to check with consultants and patients. Staff use it to communicate with patients, pharmacies, and even with each other. Because of the length of the hallway, it is easier to pick up the phone and dial down to another node than to walk the hall. The faculty also use the phones for chart dictation, highlighting the interrelationship among attendings, phones and charts. One faculty noted: If I’m dictating, is that the telephone or is that the chart? So that might be both? Because I do dictate—but I’m on the telephone with my chart. The simultaneous relationship [IN13].

The phone is also used to solve patient problems. Here are my notes on a resident phone call:

The resident has been on the phone for close to a half hour, first with the patient, then with ??. Resident has made four phone calls--repeated the story to 4 different people – patient has chest and abdominal pain and suicidal thoughts. Both his internist and psychiatrist are here at Korsdale. Can the patient get an ambulance to bring him here? Apparently the answer is “no.” They will take patient to the nearest hospital if he has no money [OB100].

running in and asking for a piece of stationery or a work release form [which did not exist]. Oftentimes, a resident, attending and patient would all stand at the counter together until the staff person could obtain an appointment that was satisfactory to all.

When a patient calls in, staff could: 1) make an immediate open appointment (usually several weeks out), 2) route emergency, same day, or override appointments to the triage nurses, or 3) route calls for needs other than an appointment (e.g., signed forms or drug pick up for the indigent program). Calls for medication refills, problems with lab test results or other consultations are directed to the triage nurses. As one staff pointed out—because the patients are so sick, about 90% of all the calls are sent on to the nurses [OB35]. The office is extremely busy. The phone rings from the minute people enter the clinic until it closes at night. The number of calls per day averaged 334 in March, 2001⁸ with an abandon rate of 22% (72 calls). That is, 22% of the callers hung up their phones before getting through to a receptionist [DOC56]. Toward the end of each session, discharge also backed up. Sometimes there were as many as eleven people in line waiting to get checked out.

The discharge staff's interactions with patients are exemplary. One of the staff figured out that a patient had used her maiden name previously, but now she was using her married name. That was why she had two charts, and was registered in the system twice [OB40]. Another staff person assisted a sick father by taking his baby in an infant seat out to the lobby [OB94]. Another time, one of the staff wheeled a patient across the lobby to the lab area [OB17]. Their acts of kindness were continual, but unrecognized by management.

Nursing triage During the first few months of the study, two or three triage nurses sat at the other end of the same room as the four to six telephone receptionists and discharge

Object Actor: Encounter and Referral Forms

There are two key forms that bind the discharge and billing staff to faculty and residents: the encounter form and the referral form. An encounter form is generated on each patient visit in order for billing to take place. The encounter form must provide standardized information on diseases being treated, and the level of intensity of the visit. These are called ICD-9⁹ and CPT¹⁰ codes, respectively. Medicare, Medicaid and all insurance companies require these. Every physician in the country who bills uses these same codes. Therefore it is important to have the form filled out correctly for billing purposes, and to teach residents how to complete them. The encounter form essentially holds together the entire teaching/learning process. Not only must both the resident and the attending sign the form, but also it must be coded correctly. Throughout the span of the study, this form generated lots of discussion. In fact, one of the faculty provided three, half-hour lectures to the ambulatory residents on coding the encounter form correctly.

The form is generated in medical records and attached to the front of the chart the day before the patient visit. At the end of the patient visit, both the resident and attending code and sign the form. They give it to the patient who turns it in at discharge. Discharge collects the forms and sends them on to billing. The minimum number of people handling the form was eight, even though only two wrote on the form.

The relatively new referral form is stapled to the encounter form. By the time these get back to discharge, they are often separated from the encounter form. Previously, residents had complained that consultants never called them back. This form was designed so that physicians could explain their specific consultant or X-ray request. The discharge staff either make the referral or provide the phone numbers [OB01;70].

The referral form is also a control mechanism for scheduling return appointments. There is a line on the bottom of the form-noting follow-up. This is where the physician notes when the patient should return. However, if there aren't any referrals, the physician often forgets to sign this line, resulting in patients not getting rescheduled, phone calls by staff back to physicians, etc.

staff. For same-day appointments, the triage nurses make decisions about who is seen or not seen (occasionally with physician consent if a slot is unavailable). If there is a problem with scheduling, a nurse might speak with an attending to ask if the patient could be seen. This is not an easy job. The triage nurses are making decisions as to who needs to be seen and when by the description that they receive over the phone from a

patient. There are no visible signs or symptoms to be observed. Some patients explain their illnesses quite well, while others have great difficulty explaining. Some patients use family members to speak for them. Usually the nurse would speak briefly to the patients. She could either send the patient to the ER, or tell the patient that she would call back once the patient's chart was pulled. The nurse then writes up a little pink slip and puts it in a special file. Approximately every fifteen minutes the "Walker" arrives from medical records, picks up the pink slips, takes them back to medical records, pulls the charts and brings them to the triage station. If the nurse needs the chart more immediately, she calls medical records, and they bring her the chart [OB39;OB74].

The nurses also have to figure out who the patient's doctor is. Oftentimes, this is a guess as the patient has seen multiple physicians. The nurses also deal with walk-in patients. There are approximately one or two of these in every session. The nurses have the ability to "override" CSBS scheduling rules in order to get patients seen. The only other people with this capability are attendings [DOC63]. The professional roles of these actors also define the work of this node.

Triaging patients takes most of the nurses' time. The nurses group their work. They take care of the sickest patients first so that they can be scheduled into same day appointments. They leave all of the medication refills to the end of the day and call them in to the various pharmacies at one time. In many cases the triage nurses are waiting for papers or charts. They need paperwork from a pharmacy, a home health agency, or there are mix-ups with referrals.

The nurses are also responsible for nurse visits. These are primarily INR checks¹¹ (a blood test to check the speed of blood clotting), although there are occasionally other reasons as well. The visits are scheduled every half hour from 9 to 11 a.m. In practice, if a patient shows up at noon, they are still taken in and the test is run. In the former residency clinic, the INR checks had been done by pharmacy residents and staff. As the nurses pointed out, this new task added a considerable amount of work to their schedules (approximately 2-4 hours per day of one nurse's time). Previously, they had used that time for patient education [OB36]. Other triage nursing responsibilities include maintaining the drug room, talking to the pharmaceutical representatives, and asking for more drugs. The nurses also handle matters that no one else can answer or complete.

Because they are located in the same room, the telephone staff have easy accessibility to the nurses for questions about patient care, or reading diagnoses on handwritten papers from the doctors, because they were located in the same room. The room is quite noisy (phones and patients at discharge). It is often difficult for the nurses to hear the patients on the phones. One of the nurses noted that the one thing they had asked for in the move was to be placed in a separate room. This finally happened on June 11 [OB97].

However, the room they were given is a refurbished pediatric exam room. With four workstations in the room, the nurses couldn't move their chairs back to stand up without hitting the back of another chair. The room is also at the far end of the last corridor—now nearly a block walk to medical records. One of the faculty called this new long distance set up the “witness protection program” [OB100].

Object Actor: Medications

As in most clinics, there is a fairly well stocked “drug room,” kept under lock and key by the nurses. Pharmaceutical representatives stop by almost every day and stock the room with their drugs. The nurses keep track of this in a large notebook, and the physicians are supposed to sign out the samples when they take them for their patients. This is considered a valuable resource. One of the attendings regularly checked to see if a particular drug had come in for a patient of his who “fell through the cracks.” The patient is on Medicare, but has so little income that she could not afford the drugs she needs [OB57].

Previously the pharmacy faculty had developed a program of free drugs for indigent people. The pharmacy faculty did not move to the new clinic, so the KUI faculty picked up the program’s administration. This is quite a time consuming process. Each drug has to be requested on an individual basis from each pharmaceutical company. Requests have to be renewed every three months. The forms from the pharmaceutical companies vary, requesting different types of information and even different forms of income verification. Once the drugs come in, they have to be sorted by patient into little brown bags. Over 75 people had been in the program during the seven months the KUI faculty had administered the program. Hospitalizations had been reduced by 7% to 30%, based on these same patients’ previous record over the same time period the previous year [OB64].¹² The suggested finding was that people who remain on their medications can reduce their frequency of hospital visits and length of stays. The faculty were applying to the human subjects Internal Review Board to do a more controlled study of the efficacy of this program.

Between the triage nurses and the teaching/learning node, there is considerably more interaction. Particularly around issues of individual patient care, the triage nurses occasionally check with an attending or resident about a specific patient need. The nurses are also required to have attendings sign off on their INR patient visits. The residents and attendings initiate interaction with the nursing staff when they need further information about health care system issues. For example, one day an attending asked a nurse about the name of the social worker that the clinic used [OB09]. On another day, there was some discussion over dosages of a particular medication for a pregnant woman [OB56].

The nursing station staff also has some interaction with faculty and residents [NR64;65]. However, for the most part, this is limited to the faculty/residents asking for a specific test, then leaving. The nurse gives the test, interacting only with the patient, and brings the results back to the RWR. The high turnover of MAs and LPNs keeps interactions to a minimum, or at least focused on making certain that the basics are provided [OB47]. It also makes it difficult for the part-time attendings and residents to make certain that the work is getting accomplished.

Attending: I just saw a nurse tell temp A to show the new temp B how to fill out the lab requests. It's like the blind leading the blind![OB61].

New nursing staff: "One of the doctors asked if I were a temp and when I said 'no', he said, 'Oh, that means we have to be nicer to you' [than to the temps]" [OB91].

The work of the faculty node is excluded from this study. However, I did attend the faculty meetings. These faculty meetings are primarily a part of the faculty node, but it is also the one place where issues involving the residency side of the clinic are discussed. The meetings are held in the main hospital, once a month. All of the clinic faculty are almost always in attendance. While most of the discussion centers on issues of in-patient care, it is the one place where there is free and open discussion about the clinic's problems. The faculty view these meetings as being part of a democracy [OB06] but decisions are never made in these meetings. One attending told me after a meeting that he had been here several years and it was always like that [MT02]. The key staff (Office Manager and Nurse Manager) are not invited to the meetings. Toward the end of the study, the Office Manager and Nurse Manager came to one meeting [OB115]. This movement of staff out of one's node and into another was highly unusual. When I

checked back five months later, the staff had not been present at any additional faculty meetings [OB120].

Faculty Nursing Station

The triage nurses are separate from those who work on the floor. One nurse, two LPNs, and two MAs take care of the faculty and resident nursing stations. The nurses believe that the resident side is busier—"it's usually non-stop" [OB15]. There was also an initial concern that there be one standard of care for both sides [OB46]. Therefore, one nurse rotated between the two sides for most of the study period. This is difficult, since the two nursing stations can only speak to each other via phone. They are not visible to each other. Toward the end of the study, a decision was made to keep the same nursing staff at the same nursing stations in order for them to get to know the patients and physicians better. The Clinic Director was working toward a team assignment of one nurse or one LPN and an MA assigned to a group of physicians. However, there was too much staff turnover to put the plan into practice. The nursing work is very similar at both nursing stations and is discussed below.

Resident Nursing Station

The resident nurses' station is located in the main hall, very near the "V." The computer system sits half into the hall, and half in a small alcove. The patient's name pops onto the daily schedule screen of the CSBS system when the registration staff enters it. Two MAs or LPNs stand by the screen to check when new names appear. The screen has a privacy film over it, making it difficult to read unless one stands directly in front of it. Consequently, everyone is always angling for the "correct" position in front of the

screen. One of the nursing staff (usually an MA or LPN) checks the patient name off the hard copy schedule, which is the only accurate recording of who is present or absent.

The staff person finds the chart and calls the patient back to a “vital room” and “vitals” the patient. That is, she takes their blood pressure, temperature, weight, and notes down the reason for the visit. If patients are diabetic, she will also check their blood sugars.

The MA places the chart into the plastic holder on the resident’s exam room door.

If the resident is still seeing another patient, the MA returns the “vitaled” patient to the main waiting room to wait for the resident. Usually this whole process takes just a few minutes, with little time to educate or speak with the patients. Once the exam room is free, the staff cleans the room and calls the already vitaled patient. The MA or LPN then walks down to the RWR and calls the resident’s name to tell him/her that the patient is ready. After the physicians have done their initial patient assessment, they sometimes need to run further tests. The LPNs and MAs are called into the exam room for EKGs, pap and pelvic exams, or “quick-read” urinalysis. They are also used to re-bandage wounds that have been undressed, or provide other assistance to the physicians where necessary.

The resident nursing station staff spend most of their days talking to each other and to patients. They hold occasional conversations with discharge, medical records and registration over issues of missing encounter forms, missing charts, or patients who aren’t checked into the system. The nursing station area reminds one of traffic congestion. There are often four or five people bunched into a very narrow bottleneck

area. Patients go one way to be vitaled, another way to the exam rooms. The EKG machine has to be wheeled around the patients. Patients forget umbrellas and coats,

Object Actor: Patient Exam Room Objects

Each patient exam room is supposed to have a set of supplies that is in the same place in each room. This includes items such as gowns, sheets, tongue depressors, various lab kits, otoscopes¹³ and their cones, The MAs and LPNs are responsible for stocking the rooms in their spare time. But these are the positions with high turnover and lots of temporary staff. The rooms are rarely fully stocked. Even when stocked, items are rarely in the same place from one room to the next. One day the Nurse Manager explained in a meeting that she had been over “the list” with the staff and addressed that issue [OB103]. However, one week later, the same problems of missing objects were reoccurring [OB105].

so they have to be found before the patient leaves the clinic. Residents are constantly coming to check the schedule. The nursing staff spends a lot of time giving directions and running (literally) to keep up.

Medical Records

During the study, the medical records staff were without direction. No one seemed to know quite what to do with the overwhelming task of merging two sets of patient charts. The medical records node had at least three different temporary supervisors over a nine-month period. The charts are located at the opposite end of the clinic from where most of the records are needed. This is because the floor is insufficiently reinforced to hold the records in any other part of the clinic. The medical records staff do not physically interact with other staff unless they come to the medical records office. One of the medical records staff, the Walker, essentially walks the corridors all day long to pick up requests from nurses for more medical records, and pick up charts that faculty and residents finish. She also tries to find missing charts. The staff have a number of ways of keeping in touch with the remaining clinic actors. They stay in touch via phone with

Object Actor: The Patient Chart

The charts are one of several unifying/separating objects that interact with almost everyone across the clinic. During the study period, they were, simply put, a mess. Each of the previous clinics had kept their records with a different number of categories and tab forms—one had eight, the other had four. The charts had an odd, two-hole punch clamp that required every piece of paper to be two-hole punched with a specially set punch. The charts had been filed alphabetically, according to the person's last name. This worked fine in a small clinic, but now there were lots of Jones and Smiths, and even the first initial was insufficient separation. In one of the clinics, the progress notes had been kept in reverse order from standard procedure. The physical act of merging two very different sets of charts for thousands of patients was overwhelming.¹⁴

Many of the files had not been “purged” of old/excess material in years. A number of patients had two files, and a few had three. All of the lab forms, X-ray reports and consultant reports had to first be alphabetized, then re-filed into the charts. This process was, for the most part, put on hold during the move. Consequently, most reports had not been filed for over two months after their arrival date. There were over three feet of stacked reports needing to be filed. This was an enormous, thankless and very boring task. If one patient had four reports, unless those reports all came in on the same day, the chart had to be pulled four times. There was no chart audit system in place, and no system for tracking the charts once they left medical records.

In addition to tracking patient care, the chart is a vital part of the teaching/learning process. It embodies both the patient's history and a record of the current visit. It provides proof that the resident provided care for the patient, and that the attending supervised the visit. The chart also serves as a marker for the patient. The chart is left in the resident's exam room door to indicate that the patient is ready to be seen. Two charts in the door holder indicate that the resident is getting behind in terms of seeing patients. They serve as reminders of what needs to be done next, when the resident has left a clear future plan. To some extent, they serve as an evaluation instrument of the resident's progress. One day an attending was reading the patient chart while she was listening to the resident's presentation:

Attending: You need to document more. You need to be able to tell me she had this on this date and this on this date. It's a mess – you can't figure it out. Is this your last year?

Resident: Yes.

Attending: Let's make it a goal to get better documentation [OB116].

the triage nurses. Two staff are trained to use CSBS. They are constantly looking up patient names and medical record numbers. Finally, the Walker serves as a very physical link to all of the other nodes in the network.

The staff work consists of pulling charts, preparing them, sending them out, shelving them, and filing—lots and lots of filing!! For one patient visit, a chart is pulled as many as six or seven times: once to assist the nurses in making a decision about the patient being seen, a second time for the visit itself, and as many additional times as there are reports generated from the visit. On busy days, over 100 charts are pulled for scheduled visits plus another 20-30 for nursing/triage and other needs. This excludes pulling charts for filing purposes.¹⁵

Patient Care/Teaching/Learning

This node is separated from the nursing station node because the interactions in this node are primarily among the patient, resident and faculty. There are only a few, very limited interactions with nursing staff. All male residents are required to be escorted during gynecological exams, so they must ask a nurse to be present. When residents need a urinalysis or an EKG or other test taken, they ask the nurses to perform the test. The residents do not stay in the room with the nurse while these tests are being performed. The nurse brings the results of the tests back to the RWR.

There are four phases to this node: 1) Resident/Patient Interview and Assessment (in patient exam room), 2) Resident Case Presentation/Resolution (in RWR), 3) Agreement on Treatment Plan (in patient exam room), and 4) After Care (inside and outside clinic). These are discussed in considerable detail in Chapters 6 and 7, therefore, they are only touched upon here, to note their existence as a node. See Figure 4.3.

1) Resident/Patient Interview and Assessment Phase. During this first phase, the attending is not present. The resident reviews the previous history in the chart, interviews the patient in the patient exam room (sometimes with family members present), and completes the physical exam. She then orders any additional in-house tests to be run and returns to the RWR to discuss the case with an attending.

2) Resident Case Presentation/Resolution Phase. During the second phase, the resident returns to the RWR from seeing the patient and searches for an attending. There are no assignments of resident to faculty, so it is catch-as-catch-can. At the same time, the resident may be writing up her progress note in the chart, and looking through the chart for previous records. She then presents the case to an attending. In almost every case, the resident begins by presenting the problem that has brought the patient in, pertinent history, whether the resident has seen this patient before, or what circumstances led to the patient coming to the office (e.g., sent for follow-up from the ER.) The attending also looks through the chart at this time, and often signs off in the chart whether the resident is through writing her note or not. The attending responds by either questioning/discussing the patient further or going in to see the patient. (See Chapter 7 for a further discussion of this process.) Occasionally, toward the end of this discussion, the attending might use teaching scripts (Irby, 1992). These are small “preset” mini-lectures about a general topic, such as the use of antibiotics in upper respiratory infections. The resident, attending, and the patient’s chart are the main actors during this phase. However, it is not unusual to see additional actors pulled into the resolution of the case. These include reports found on the computer, Medline searches, looking things up in books, or calling a consultant.

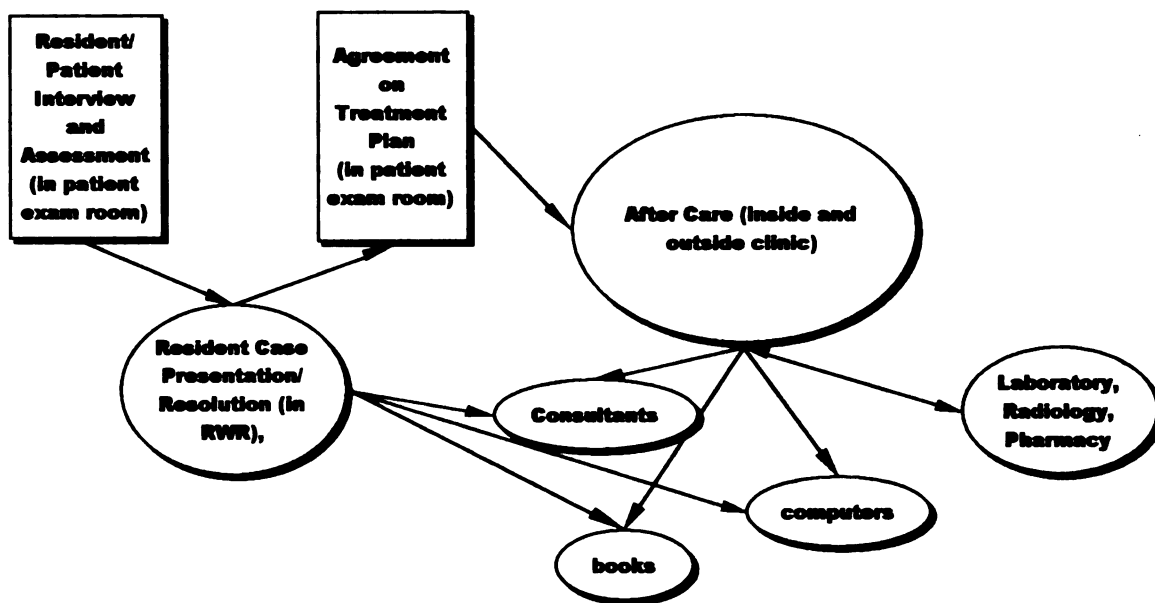


Figure 4.3 The Patient Care/Teaching/Learning Phases

3) Agreement on Treatment Plan (in patient exam room). During this phase, the resident (and usually the attending) return to the exam room to discuss a treatment plan, further testing, use of other services, etc. with the patient. This may be

Object Actor: Computers, Books, Journals

There are four computers in the RWR and most of the time, at least two of them are busy. However, most of the work being done on them is connected to the residents' in-hospital work. Residents could check labs, and even write orders directly from the clinic computers. The hospital software also formed a valuable tool in checking labs and reports on clinic patients. For example, in the "food sticking" patient case above, while the resident was talking, the attending went over to the computer and looked up what they had done for the patient in the ER [OB04]. Or in another case, the patient claimed to have had an ultrasound done, and the attending went directly to the computer and checked on it [OB43]. This easy access to labs and reports is quite an advantage to being in a clinic that is connected to a large hospital complex. Most of the patients saw other specialists who are tied in through the hospital network. They also have all lab work and radiology work done through the hospital so that almost all of the reports are immediately on line through one of the four hospital computer systems. These systems are used very frequently.

There is also a good supply of general texts in the clinic that were used in case discussions [OB09;05;41]. On occasion, attendings bring in journal articles that pertain to case they had discussed [OB107]. There are also teaching aids, i.e., laminated little charts lying around the RWR. One of them is for treatments of asthma and another for determining the best CPT and/or ICD-9 codes [OB47].

complicated by the patient's ability to pay, his/her own wishes, and the role of the attending in the discussion. The primary purpose of this phase is to plan the next steps, whatever they might be.

4) After Care (inside and outside clinic). Once treatment has been decided upon, it must be arranged if it involves further testing or visits to consultants or other referrals. Next appointments must be scheduled. Once the test results come back, they must be reviewed for "abnormals" and then decisions on how to further treat must be made. This process continues until the patient returns for another visit.

Chapter Summary

This chapter has introduced many key actors and the normal interactions that they enact in order to carry out patient care and teaching/learning. The key actors are both human and non-human. Some of the non-human actors, e.g., the CSBS system, are probably more important than any one human actor in the clinic. The work of the nodes is carried out in rather separate physical spaces. This physical separation also lends itself to social isolation. Many actors do not speak with, or even know the names of, those outside their own node. Some of the node division is professional, i.e., those with professional degrees carry out different work activities. These activities tend to be in physically separated spaces such as the patient exam rooms or the RWR. In the next chapter, the configuration of the nodes is explored, as well as the linking mechanisms that move the work from one node to the next.

Endnotes

¹ “Opportunity Set” connotes putting a large number of ingredients in, and coming out with a more formed product, which is usually less than the sum of its parts. In many respects this is the case, as it is impossible to satisfy all of the many masters of the outer networks simultaneously. However, there are times when the opportunity set permits an expansion (within the outer parameters). This too, can be the result of interactions in the clinic. Thus, we cannot think narrowly of only *less* than what goes in—we must also consider the possibility of *more*.

² One of the patients stated, “When you come here, you feel like you’ve been treated by a doctor instead of handled by an HMO.” [OB07]

³ There are no clinic statistics available on ethnicity.

⁴ Block rotations consist of at least two weeks, usually four weeks, or one month, in which the resident remains in the same clinic every day for the entire period. In this program, block rotations are arranged in private physician’s offices and are usually four weeks.

⁵ A continuity care experience is required in order that residents get to know patients and treat the same patient more than once. This means that the residents are required to establish a “panel of patients” that they see over a longer period of time, in order to observe progression and remission of chronic disease, address prevention issues, etc. The minimum requirement is one half day per week. for 30 weeks. [ACGME/RRC req.] The Korsdale residency met the minimum requirement.

⁶ Staff rotate over breaks and lunch so that two staff are always present.

⁷ Many of the staff and faculty did not know the names of the women at the registration desk, and vice versa.

⁸ The telephone data provided me was incomplete in each of three months. There were seventeen days worth of data for March. The rates for April and May were approximately the same, but there were even fewer days' worth of data. Also, Mondays were the largest call day (sometimes over 400 calls), with Fridays being the lightest call day (as low as 312 calls).

⁹ ICD-9 codes = International Classification of Diseases, Version 9.

¹⁰ CPT codes = Current Procedural Terminology. The Health Care Financing Administration (HCFA) developed these codes with the assistance of the American Medical Association (AMA). They assist in assigning reimbursement amounts to providers of Medicare carriers. However, they have now become widely used by almost all insurance carriers. For more information, see: www.aacap.org/clinical/cptcode.

¹¹ INR = International Normalized Rate. This is a blood test to determine the clotting speed of blood. It is used primarily with people who are taking coumadin to thin their blood. For more information, see: <http://www.fpnotebook.com/HEM165.htm>.

¹² Not all patients had been in the medication program for the same length of time. Therefore, the differences in decreased hospital admissions were adjusted for length of time in the program.

¹³ These are light instruments that have disposable, cone shaped tips. They are used for looking in patients' ears, noses and throats.

¹⁴ What appeared on the surface to be a simple matter of putting the report into the chart is a very complex process. The letter of the alphabet first divides the reports. If a patient's name begins with "B", it goes into a three-foot long manila folder under the B's. But even this is not easy to do, as the correct patient name has to be found on the form and circled. Sometimes the patient's name is not on the form—only their number—or the doctor's name and a Ms. Smith. Then the report has to be looked up in the computer before it can be filed. In their spare time, staff would take all the reports out of the "B" section and alphabetize just that section. But nobody had any time to pull the charts and actually move the reports from the file box to the charts. So when new forms arrived, they were stuffed back into the already alphabetized ones. By the time I left, the medical records room was considerably cleaner than when I started, with the enormous filing piles reduced to a few-days turnaround. But that was primarily due to a decrease in patient visits over the summer. The medical records staff was planning on working overtime a number of weekends to move all the charts to one tab system and to a numbered system (using the patient's medical record number). This is a unique identifier for the patient, making filing considerably easier, as numbers are easier to prioritize than letters.

¹⁵ Charts have to be pulled all the way out to file, because there is a requirement that every piece of paper be attached in the chart. In order to do this, the special clamp has to be opened and the paper inserted under the correct tab. The clamps can only be opened when the files are laying flat. Because this was so time consuming, the new Nurse Manager suggested that they "loose file" to at least get the backlog of reports stuffed loosely into the files. This meant just going along the shelves of charts and loosely stuffing the reports into the charts. Then when the chart is pulled for the next patient visit, all of the reports and papers can be filed by opening the clamp only once. This was well intentioned, but for the first few months, the staff did not have time to attach the loose papers when the charts were pulled. Therefore, there were all kinds of loose papers in the front of the chart while it was being used for the patient visit. These would spill out on the floor, get crushed, and sometimes lost. Eventually, the staff got caught up and the problem disappeared, but there was a time when the temporary solution appeared to be almost worse than the original problem.

CHAPTER FIVE: THE SOCIO-SPATIAL OPPORTUNITY SET

CONTINUED--

LINKING THE NODES AND CONTROL OF THE NETWORK

[There is] no labor without division of labor, and no division of labor without management and coding, without files and flow charts. Our bureaucracy—so widely scorned—is our second brain, as indispensable as the first.... [You need] other technologies for management, visualization, coding, and recording that make it possible to pass the rest of the task on to one's neighbor (Latour, 1996, p. 216).

Introduction

The “structure” of organizations has been an oft-discussed topic in the literature. It has most usually been viewed as a management tool i.e., how can managers change the structure of the organization to better manage those who work within it? Initially, it was assumed that there was only one possible way to structure—in a hierarchical fashion (Barnard, 1938). There was also an assumption that there was only one structure in the organization, that management had determined it, and that it was a fixed entity (Pfeffer, 1982). Structure has usually been viewed as something that management controlled and could change at any time. Until the early nineties, there was also an underlying assumption that a better structure would produce a better product. But changing the structure did not produce the desired results. Research over the past twenty years has focused less on structure and more on viewing organizational processes (Cohen & March, 1991; Wheatley, 1992).

By using network analysis, the concept of structure as a fixed entity disappears.

Networks are fluid, unbounded, and change over time. They also change depending on the work to be carried out. In this study, the net-work changed based on the merger of two separate clinics into one. Further, change occurred as new requirements were imposed from the outer networks.

There does not appear to be a causal relationship between the configuration of the networks and the work accomplished within the clinic. However, a relationship does exist. The various elements in the configuration, and the configuration itself delimits (or expands) what is possible to accomplish in the way of clinic work.

Several elements of the configuration are important to study in order to understand how the clinic comes to carry out patient care and residency education in a certain manner.

The actors have arranged their work into rather independent socio-spatial nodes. But the nodes are linked in order for work to flow from one node to another. How is the work within and across nodes controlled? That is, how do the actors assure that the work of the clinic is actually accomplished? None of the work of the “net” or “net-work” is static. It changes over time. This chapter provides a template for examining a clinic network from a socio-spatial perspective. As these components of net-work reveal themselves, they demonstrate how they draw further borders around what can and cannot be accomplished in the areas of patient care and teaching/learning.

There are an almost infinite number of ways that networks may be configured. See Figure 5.1, next page. One typically thinks of a network with a strong central core,

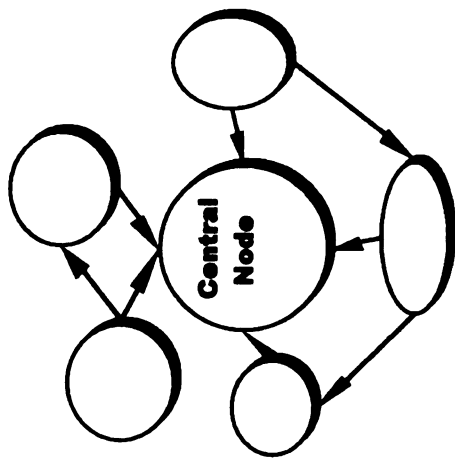


Figure (A)

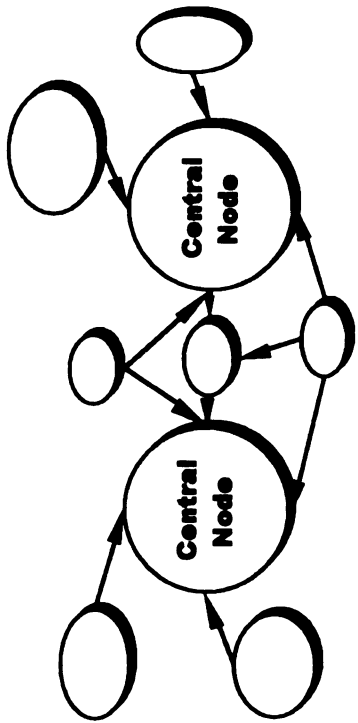


Figure (B)

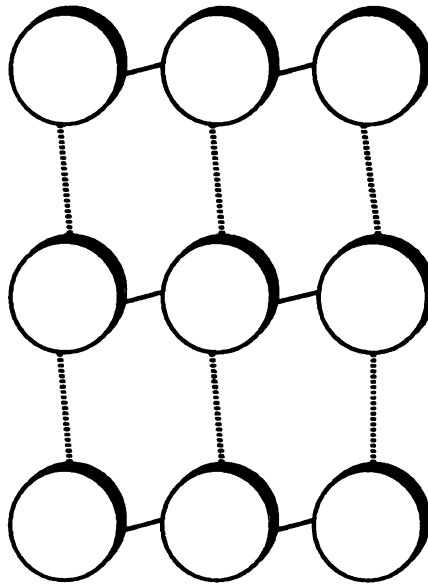


Figure (C)

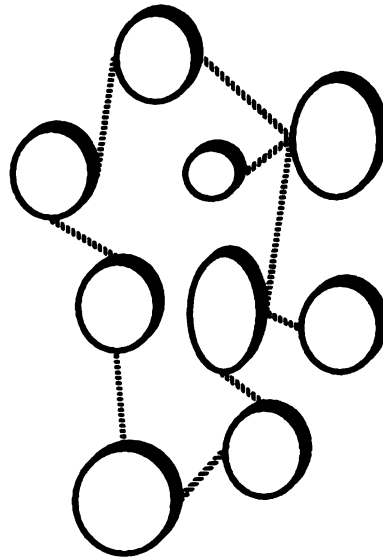


Figure (D)

Figure 5.1 Network Configurations

radiating out to lesser nodes around the core [Figure 5.1(A)]. In organizations with two very different sets of activities, one might assume two strong central cores [Figure 5.1(B)]. A matrix model has also been promulgated for hospitals (Neuhauser, 1972). Usually portrayed in a rectangular matrix format, it is drawn as a series of separate nodes that cross over each other both vertically and horizontally, based on the activity being carried out [Figure 5.1(C)]. But the configuration found in the Korsdale Clinic is none of the above. Instead, this configuration is one of rather separate nodes with weak links between them [Figure 5.1 (D)].

Network Configuration

Finding C.2. The configuration of the clinic network, i.e., the pattern of nodes and their linkages are a key factor in delivering patient care and teaching/learning. In this clinic, the nodes operate fairly independently of one another.

Defined in the previous chapter, “node” is used for separate sets of activities occurring within the clinic. Nodes are delineated when the activity is separated by a) physical space or distance, b) the amount of actor interactions, and c) professional training. In this chapter, we consider how the work moves from one node to the next. Do the actors move freely between nodes and carry out work with actors in other nodes, or do they complete their work by remaining within the node, interacting only with other actors in their own node? In this clinic, there appeared to be little movement of actors across nodes. Most stayed in their own nodes, and used linking actors to move the work from one node to the next.

Node Separation

The two ends of the clinic contain medical records and the Resident Work Room (RWR). See Figure 5.2. Medical records and the teaching/learning nodes operate with a fair amount of independence and little human interaction with anyone outside of their own nodes. With medical records, the only person who leaves the room is the Walker. Even there, he/she has very little discussion with other staff. The high staff turnover rate in medical records doesn't help matters either. No one knows who the people are except those who have some reason to enter the room. For the Medical records node, the filing, preparing charts, and pulling charts has to be accomplished where the charts and stacks are. Therefore, the physical location is important to the work and make it such that the staff do not leave the room.

Space continued to be problematic even after the move to this new clinic. The distance between medical records and the RWR is at least 250 feet. The corridors are long, with short diagonal corridors into the central lobby. This makes it difficult to see from one end to the other. At one point I asked if the faculty had considered grouping smaller numbers of residents and faculty into two teams at each end of the hall. Here is the response from one faculty member:

We thought about that and really the reason we're not is purely physical space. Just the way the physical space was there with that very long corridor. There's no way to have pods, or do anything else except... There's no other place on the other side where you could actually have a resident's conference room that works like it does. I think we'll be better in the future with it [IN13].

However, there are two nursing pods, one on each end of the long corridor. The faculty have a large room, similar in size to the RWR on the other end that is used as their work

room. An attending explained that because they had historically maintained two separate practices, keeping them the same in the new clinic required the least amount of change [IN06].

The nodes carry out very different activities. While they may have the same non-human actors, e.g., the CSBS, their human actors are different. The separation of the nodes into distant physical spaces also added to their isolation. In fact, where activities are carried out in proximal spaces (e.g., nursing triage and telephone/discharge) there is more interaction and even some crossover in activities. The high rates of staff turnover also make it difficult for some nodes to carry out their basic activities, much less interact with other nodes.

The professional differences in the work performed adds to the separation of the nodes. Where actors hold professional credentials, the interactions remain primarily segregated by occupational group—that is physicians interact mostly with other physicians and patients – then nurses. This is not too surprising when one considers that the major activity of both the resident and the attending is to address patient problems and care for patients. Therefore, it is expected that most of their time is devoted to these interactions. The physical distancing of the nurses' stations from the RWR also contributes to the isolation of the nursing staff from the attendings and residents. If the nursing stations had been intermingled with doctors' workspaces, perhaps the dynamic would have been different. At least the *opportunity* for informal sharing of patient issues and education

would have been able to be present, much as it was when the nurses sat next to the telephone staff.

The residents and faculty interact with discharge or medical records only when there is a problem or specific need. Almost one year after starting in the clinic, one of the residents still did not know who the Scheduler was, or where her office was located [OB67]. Nursing staff only interact with registration or medical records when there is a problem with a patient or a patient's chart.

Informally, who supervised who in each node often changed from day to day. At one point, there was a consultant in charge of medical records; at other points, both the Scheduler and the Nurse Manager were asked to "see what they could do" in medical records [OB99]. The Scheduler was charged with managing the telephone and discharge staff, but was not located in the same room with them. Therefore, when issues arose, she was unaware of them. Finally, the Office Manager placed some of the staff directly under her own supervision. The Office Manager spent a great deal of time making out new organizational charts. There were nine variants during the study period. By the end of the study period, a Medical Records Manager and an Operations Manager had been hired [OB114]. Both had managerial experience. They were from Rancom, the clinic with which KUI would be merging.

Some staff and faculty recognized the loose control over the work that went on inside the nodes.

Staff: There is no core—no center [OB120].
Attending: Nobody's responsible for anybody [OB53].
Staff: Everyone is very nice. They just get by doing everything their own way [OB58].
Staff: You see the whole circus here [OB56].

The general staff response is to talk about having more supervision. The Office Manager's response is to build more organizational charts. There is general consensus that there is a need to have a medical records manager [OB37] and an operations manager [OB81], but beyond that, no one is very clear about what to do. Funding is an issue, as each new position has to be justified. Requesting supervisory level people do not add anything to the capability of getting the work done. Therefore, it is even more difficult to justify managerial positions. For regular staff to work across nodes is almost unheard of. When somebody does cross over the nodes unexpectedly, the response is one of surprise, or perhaps even reluctance to be questioned about one's work. An attending noted: "It's like mice [in medical records]— they all scatter when you go in. Are they in training or something?" [OB27]

In sum, the work of the nodes is defined by their separation into different physical spaces, the type of work that they are doing, that is—are they primarily working with charts, computers, phones, or patients, and their professional status within the organization. Control of the work within the nodes is, for the most part, one of self-regulation. When control does exist, such as in the need to complete the encounter form, it comes from the outer networks in the form of regulations or laws.

The Relationship of Node Configuration to Patient Care/Teaching/Learning

What implications does the configuration of nodes have for patient care and teaching/learning? If things are working well, the nodes move the work from one node into the next. Patients are called on time, their chart is present, residents and faculty are present, and discharge gives them their next appointment when they want it, and makes certain

Table 5.1: Relationship of Node Configuration to Teaching/Learning/Patient Care

Organizational Issue #3	Work of the nodes does not always pass smoothly and efficiently from one to the next.
Network Element(s)	The node configuration is one of tightly knit separate nodes with no central core. There is a poor quality actor in the form of the CSBS.
Faculty Opportunities and Constraints	Faculty may do as they please, making up their own rules as they go along. However, working in separate nodes constrains the possibilities of accomplishing larger quantities of work, or moving innovations across nodes.
Resident Opportunities and Constraints	Residents have very little responsibility for their work, beyond seeing patients on their half day. The node separation makes it difficult to achieve continuity of care experiences, or any other longer-term relationships with staff or faculty.
Patient Care	Node separation makes it possible for patients to receive very individualized care, as there are few rules. However, this can be very inefficient, resulting in lost patients, lost charts, and lost paperwork or referrals.

(See Table 8.1 for Summary of Relationships)

they understand about their referrals. In this clinic, the separation of the nodes, both physically and socially makes this difficult.

The node configuration is important because it is within the nodes that all of the clinic work is carried out. If the scheduling has errors in it, or the charts are not prepared, or

the patients don't get their blood pressure taken, the work of the next node cannot go forth. In a more open style of clinic, with a less rigid configuration of nodes, it might be possible for more work to occur across nodes. For example, in the old clinic, staff noted that the medical records section was located directly behind the registration desk. When the patients entered, the registration staff went and got the chart. In the old clinic, medical records were not located in a separate physical location or manned by separate people [MT29]. Therefore, until the move, the issue of the absent patient chart was nonexistent. On the other hand, staff also noted that because the discharge staff had to both get the charts and do discharge in the old clinic, cleaning up the charts had suffered. Since this was a secondary activity to checking the patient in, it did not get the same level of attention as it did in the new clinic, where staff are assigned to make certain the charts have completed information.

By this node configuration, what is taught fairly clearly is a very subtle separation of the work of the residents and faculty from those of the nurses and other staff. In another clinic that I visited (unrelated to this study), the residents had individual carrels that were right next to the nursing station. The residents used the computers at the nursing station on a regular basis, and had regular discussions with the nurses about their patients. Whether this was genuine teamwork is unknown, but the point here is that the spatial configuration alone changes the social interactions, which also changes the work.

The Linkages

Finding C.3. The interactions or links between the nodes are critical to the ability of each node to function. However, there are few links and little linkage redundancy between nodes.

How does the work get from one node to the next? In order for the actors in the nodes to carry out their activities, there have to be connections with other nodes. For example, the patient cannot simply sit in the lobby. An actor from the registration node must somehow let an actor at the nursing station node know that the patient is present. Once the nursing station node actors have finished their work, they must notify the actors in the teaching/learning node (specifically in this case, the resident) that the patient is in the exam room and ready to be seen. But other linkages must also be present. Actors in medical records have to check the computer, pull the chart, prepare it, and physically transport it to the nursing station. The nurses must then enter the “vitals” and leave the chart on the exam room door for the resident. After the residents and faculty have finished with the chart, it has to get back to medical records so that medical records can complete its work, and prepare for the next visit.

In order for these things to happen, not only does the work have to happen within the nodes (e.g., the chart being prepared back in medical records), but the links have to be in place to trigger the appropriate actions of the patient, chart, encounter form, resident, faculty member and nurse, from one node to the next. The work of each node is dependent, to some extent, on its links to other nodes. All nodes are interconnected, but the number of links and the strength of those links vary considerably. In order to illustrate the linkages, they are diagrammed for the same nodes discussed in Chapter 4.

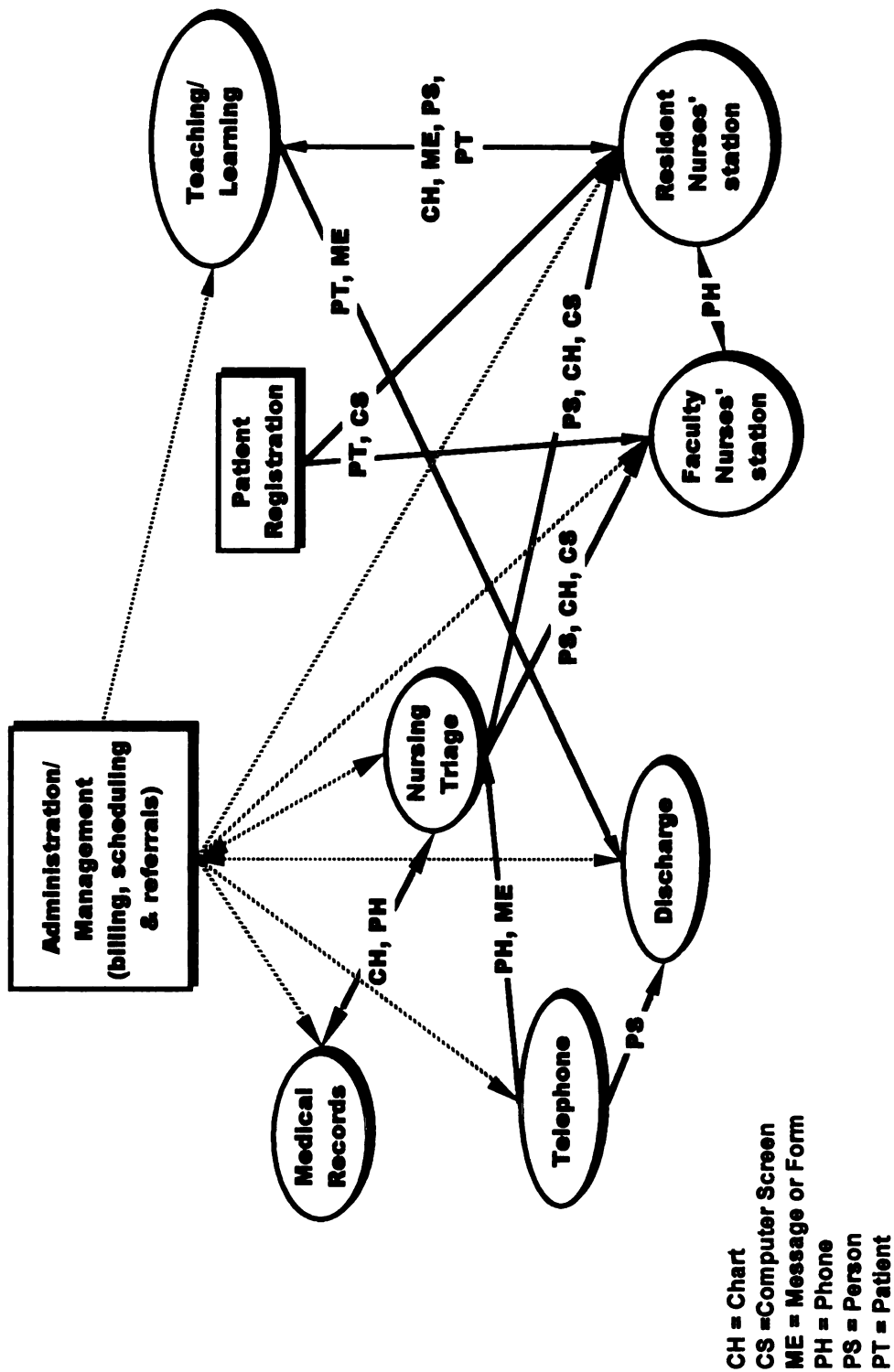


Figure 5.2: Clinic Nodes with Links
 (Administration/Management is loosely linked to all nodes except registration)

See Figure 5.2, Clinic Nodes with Links. This discussion includes who are the key linking actors, where are missing links, and the importance of the linkages.

Who/What Are The Key Actors That Link The Nodes?

Primarily, the networks are interrelated via the CSBS, telephone, charts and the encounter form. *When things are running normally*, these objects mediate almost all activity within the nodes. They also cross over and link the nodes together. They are ubiquitous throughout the clinic (with the exception of the encounter form). These four linkages are discussed based on the number of times they were interacted with, and the importance of those interactions. Staff and faculty concurred that CSBS, telephone and charts are three objects they interact with most (not necessarily in the same order) [DOC117]. Some of the human actors linking nodes were previously discussed in Chapter 4. Here, their roles as key links among the nodes are examined.

The CSBS system is available on at least one computer in every clinic room except the patient exam rooms and the lobby. Its role is perhaps the easiest to trace, because it is the keeper of all patient information. It embodies the patient when the patient is not present. It serves as the planner, in-clinic tracker, discharger and biller. Every patient who makes an appointment is somewhere along the set of CSBS computer screens in terms of their status. This may be displayed graphically as follows:

CSBS **CSBS** **CSBS** **CSBS**
Scheduler → Telephone & Triage → Registration → Nursing Station →
CSBS
Discharge → Billing

The CSBS makes it possible for staff to carry out their *within-node* activities, e.g., the telephone and triage nurses could carry out their scheduling, and the biller could carry out the billing. But as a linkage system, it serves as a trigger for the next node in the ordering process to start its work. For example, if a patient asks for an appointment, the staff first check the schedule screens to see if the time slot is available. Once agreement is reached with the patient, the staff go to a different screen and make the appointment. The registration desk staff enter the patient as present in the lobby (a different screen again). The CSBS screen pops up the patient's name at the nursing station on yet a different screen, and the nurses began their "vitaling" process. At the end of the day, the biller checks the encounter forms against the list of patients seen that day in the CSBS system. Engeström calls such systems "mediating objects" as the computer system literally serves to mediate and transition the work from one node to the other (1999). Instead of having direct human interactions transition the work: Human Actor → Human Actor, the actors construct a third element to mediate their actions: Human Actor → Non-Human Actor → Human Actor. While this can be enormously helpful when one acts at a distance, it also creates one more interaction where things can go wrong.

Unfortunately, the CSBS system is not very user-friendly. It does not permit modification at the user level in order to make the work and linkages flow smoothly. The CSBS was designed to be used in all of the clinics associated with the hospital. It had not been designed to handle a residency clinic, or more specifically, a clinic with over one hundred residents and seventeen faculty physicians. Comments were made

such as “There’s a lot of money being thrown away [on the system]” and “CSBS is someone’s toy at Korsdale UMC—that’s how it was explained to me” [OB36]. (This is an example of the control of the outer networks over the inner ones.) In addition to not being designed to meet the needs of a residency clinic, the system has “bugs” in it. For example, on one screen, the patient’s visits would be listed by date and physician, one line for each visit. For example, if the patient visited four times, there would be four lines. But the top of the screen read: Number of patient visits during last year: “1” [OB44]. Worse, on this same screen, the visits did not pull up in year-sequence. Instead, the 2000 visits are first, then the 2001 visits, and then the 1999 visits [OB44]. The staff have to scroll through all the 2000 visits to reach the 2001 visits. The system does not permit searching by birth date [OB44], making it difficult to find patient records. The resident’s name as Primary Care Provider is not present on the screen when the telephone schedulers pull up the patient. If the patient can’t remember which doctor they are supposed to see, the scheduler simply has to guess [OB54].

On the screen that shows at the nurses’ stations when the patient checks in, there are lots of empty columns, but no way to access them [OB20]. Once the patient enters the clinic, there is no way to track the patient’s movement through the clinic on the screen—i.e., are they registered, are they vitaled, have they seen the doctor, etc. The nurses at the nursing station invented an elaborate system of checks, zeros and highlighting that they use on their paper copy of the schedule to track where patients are while they are in the clinic. To make matters worse, there are two high-use buttons right next to each other on the keyboard. If you hit the wrong one, you can “delete” the patient from the

schedule. At first everyone thought they were just deleting the patient from that *screen*, but in fact it erased any record of that patient's entire *visit* [OB26]. This did get fixed after a few weeks, when the Clinic Director ruled that only discharge staff could delete the patient *after* they had an encounter form in hand.

Staff are continually finding ways to “work around” the computer system. Addresses for patients were hand written, as no one knew how to configure computerized printing for envelopes [OB67]. The patient demographics came up on the screen in alphabetical order, but not on the printer [OB71]. So after they are printed off, they are hand-alphabetized (over 100 per day). The CSBS assumes that physicians are present for all ten half-day sessions per week. The Scheduler has to go into the system and block out each faculty physician for the entire time period, then go back in and enter them on just the half-days they would be present [OB38].

In at least one case, the “work around” created even more problems. The residents' names are in the computer according to their PGY year. The Scheduler, who does the initial entry, needs them that way, as residents are assigned a certain number of patient slots per half day based on their status. That is, third year residents are expected to be able to see more patients in a half day than a first year resident. It is the responsibility of the medical records staff to make a hard copy of the schedule for each half day. They first print off the schedule, and then, by cutting each physician's section of patients for the day, separate the faculty appointments from the resident appointments. (The CSBS could not separate the residents from the faculty.) Medical records then pastes up two

lists—one for each side of the clinic. The problem with this is that the resident names on the list are in totally random order each time the list is made [DOC113]. In order for the nurses to find Dr. A's patient, they have to search through the entire list. If the list could have been printed out by the half-hour, it would have been easier to spot the no-show or late patients.

One day a nurse complained about this problem. I suggested that she should bring it up and talk about it—perhaps it could be fixed. She simply shrugged her shoulders and went on with her work [OB73]. It was easier to accept the status quo than to attempt an apparently insurmountable project. When I asked specifically about fixing the computer problems, staff noted that they had tried, but that some of the problems were due to the merger of two clinics, and others were because the organization that managed the system had gotten too large too fast [IN04].

The CSBS does not connect into the hospital billing system. Even though all of the patient's information is entered into the clinic system, in order for patients to have any lab work, x-rays, or other diagnostic work done, the information must be re-entered into the hospital system at every patient visit. The potential for errors in that process is enormous. Just one number off in a medical records number, or a zip code could create havoc.

On several occasions, I questioned whether anyone had addressed these issues with the system's programmers. The answer was that some of them had been discussed, but they

didn't get anywhere with it. The Clinic Director stated that it was not possible to make changes in the CSBS [OB73]. The Office Manager noted that she was constantly on email to the programmers about software glitches. She stated, "They [the programmers] are all understaffed and overextended" [OB81]. There are other hospital clinics using this system. Yet the computer problems remained unresolved during the entire study period.

While one can argue that the computer errors primarily impact the patient care ordering processes, they continually spilled over into the teaching/learning node as well. For example, if the telephone receptionist schedules the patient with the last provider rather than the resident who has seen the patient most frequently, there is very little of continuity of care. Part of the purpose of this clinic is to provide a continuity of care experience for the residents—yet the computer system's inability to list the Primary Care Provider directly circumscribes that opportunity.

The Telephone also serves dual purposes. It permits the work within nodes to be carried out, particularly as nursing staff, telephone receptionists, residents and faculty speak with patients, pharmacies, consultants, etc. But as a "between node link," it is crucial. The isolated nature of the physical location of the offices makes direct human interaction difficult. The two nursing stations cannot see each other. Medical records is at the far end of the hall. It is easier (and sometimes the only sensible way) to pick up the phone and call someone for the information needed. The phone is used to trigger action from the linked nodes in much the same manner as the computer system.

However, it also serves as a communication device to straighten out problems between the nodes.

All of the nodes are connected by phone. However, the places where it is used the most includes: a) triage nursing to medical records (to bring up a chart of a patient who needs a same day appointment), b) nursing station to medical records (to find a missing chart on a patient), and c) discharge to teaching/learning (to check on the written orders, or lack thereof for patients). The phone is an almost taken-for-granted way of communicating. One faculty member put this first on her list of things she interacted with, but for most of the others, it is just assumed that it is always present [IN19]. In fact, one day the phone out in the hall broke down. It is so critical to the operations, that the nursing staff called and got it fixed within one hour [OB15].

Charts The linking trajectory of the chart is much shorter. The charts serve as triggers for actions in the nodes, much as the computer system does. For example, the charts link nursing triage to medical records back to nursing triage. Without the chart, the nurses can not refill prescriptions or make same-day appointments. Charts are used as markers for patients. One day two nurses handed a couple of charts back and forth. They talked about who should take which patient chart. As the nurse took one chart, she said, “This one’s more difficult” [than the other]. That is, the patient’s problems were more difficult. However, it was translated into the chart being more difficult [OB16]. The chart “stood in” for the patient, embodying and representing all of the patient’s problems.

The charts also link medical records to the nursing station. This is more evident when a chart is NOT present. For example, a patient came in for an INR check. It is important with these checks to know the values and history of the previous INR checks. In each patient's chart there is a graph of the INR checks. The patient's chart could not be found. The nurse said: "Can't find the chart. Especially this person [because of the INR]. That's the bad part. I don't know about this place. It's hard to work without the charts" [OB17]. The historical information embedded in the chart is necessary for the current care.

The chart is also the link between the nursing station and the teaching/learning node. When the patient has been vitalized, the room prepped, and the patient is in the room, the chart is placed in a plastic folder on the door of the room. This is the final indicator to the resident that a patient is ready to be seen. The nurses use this as a signal as to where they are in their work cycle. One day a resident lifted the chart out of the door box and took it back to the RWR to look it over before seeing the patient. The nurse came into the RWR looking for him:

Nurse: Dr. Johnson [the resident], did you take Mrs. Jones' chart?

Resident: Yes.

Nurse: When there's no chart on the door, we don't know if you've seen the patient or not. You're confusing us! [OB33]

Finally, the chart hits the cart (occasionally literally!) in the RWR, indicating that the patient visit is complete, and the record up-to-date. One day the residents were tossing the charts into the wire-cart. One of the attendings also tossed a couple of charts into the

cart from about three feet away. He said, “ You show that cart who’s boss!” [OB69].

The Walker then returns the chart to medical records.

The Encounter Form links the reasons for the patient visit to billing. It stands as a place marker during its progress from medical records to the nursing station, to the teaching/learning node. Here is its trajectory:

Enc Form Enc Form Enc Form Enc Form
Medical Records → Nursing Station → Teach/Learn → Discharge → Billing

Once it reaches teaching/learning, it serves dual purposes as a tool for teaching/learning and as a record for billing purposes.¹ The resident must begin to code the visit correctly in order to capture the maximum billing amount. In discharge, the encounter forms are checked off against the schedule to make certain that there is one form for every patient.

Their absence at any point along the line triggers changes in the ordering processes.

One day a resident realized that he didn’t have an encounter form for a patient. He left the patient room, went to the nurse and asked for one. She went to discharge and got a blank one, then brought it back into the patient room [OB47]. Another day a nurse brought one of the attendings a chart with a new encounter form while the attending was precepting in the RWR. The attending had to look up the ICD-9 code and fill out the form a second time. She commented: “This really bothers me – I know I filled out the encounter form” [OB97]. Finally, the encounter forms are gathered and given to the biller, who uses them as the main billing sheet to various insurers, Medicaid and Medicare. This is the only link that physically leaves the clinic.

A blank referral form is stapled to the encounter form. The assumption is that everyone needs referrals. Everyone agreed that the referral form is helpful, but only about one

fifth of the patients needed one [OB35]. Therefore a great deal of time (and money) is wasted on copying and stapling the referral to the encounter form and then, at the discharge desk, ripping the form apart from the encounter form and throwing it away.

Human Actors. The patients serve as one of the most common human links. They move from registration to nursing station to teaching/learning and back to discharge. They carry their patient demographics form from registration to nursing where it is inserted in the chart. After they are seen, they carry their encounter forms and referral forms to the discharge desk. By their very presence, they cannot be ignored, therefore triggering the actions of the node they are in. Some of the staff also crossed nodes but with much less frequency. The nursing triage (RNs) crossed over to speak with faculty or residents about patients. Faculty noted they interacted most with patients, other physicians and nursing staff [DOC117]. One attending noted that she interacted very frequently with the referral coordinator [IN11]. Other than this one staff person, both observations and interviews confirmed that faculty rarely interacted with staff [DOC117].

The nursing stations also generate some human interactions with the teaching/learning node, but these are kept to a bare minimum. The MAs are expected to go back and call the residents when the patient is ready, even if the chart is on the door. This is less an “interaction” than someone hollering out “Dr. Kohl, you have a patient in room 5” [OB59]. There is usually no response from the resident unless they are waiting for a

patient. After the resident sees a patient, in about a third of the encounters, there is a need for further testing. Here is a typical encounter with the nursing staff:

Attending: You need a form to do pregnancy tests.

Resident to nurse: Who do we see?

Nurse: Just tell me and I'll do it [OB008].

Here is a case where not only is the interaction brief and to the point, but the nurse circumvented the use of the form that is supposed to be written up for nursing services.

The Clinic Director and Nursing Manager serve as informal links across nodes. When the Clinic Director is present, she questions everything and talks to everyone. However, this rarely results in any changes in the nodes. She does hold meetings of the staff in the administration node. However, these meetings were usually to bring her up to speed with the clinic issues. The problems that cut across nodes are more intransigent. The Nurse Manager moves easily across nursing nodes, triage and the nursing stations. She actively switches her nursing staff from one node to the next, depending on the need at the time. For a short period, she was assigned to oversee medical records. During that time she worked with the staff in medical records to improve chart retrieval and filing [OB101]. But this was a matter of improving the internal actions of the node rather than node linkages.

Finally the one other human being who is a critical link is the Walker. She not only walks the charts from location to location, but also helps find the charts from any number of places in the clinic. Here is an actor who, by her physical actions and very few words, takes care of finding the charts. When she is in action, she is bent over,

looking at the bottom of the carts, on shelves, and on faculty desks for the charts. It is not a job that requires a lot of talking, but it is a critical link between medical records and whatever node needs the chart.

Little Unmediated Human Interaction

In spite of the examples above, for the most part, unmediated interaction (both amount and type) between the nodes is minimal. There is very little to no interaction among the faculty and residents with the billing personnel, and not as much interaction as needed to happen with the Scheduler. Faculty and residents only go back into medical records when they are desperate to find a chart. They also speak to discharge only around specific scheduling or referral issues for certain patients. I did not observe any faculty or residents speak to anyone at the registration desk.

The same holds true for the registration desk and medical records staff. While they might talk on the phone, or use the computer to relay a message, they do not physically get up and walk to other nodes to talk to staff. Even between triage and the nursing stations, there is very little discourse. Occasionally the nursing stations become overwhelmed with work and call (or walk to the other nursing station) for one of the triage nurses to help them out.

The discharge staff has the most non-work-related discussions with other nodes. This is primarily due to their central location, and brief lulls in the work. As other staff pass by,

they might engage them in a few words here and there. However, for the most part, these are not conversations that link up the work of the nodes.

Absent or Breakdowns in the Links

We have seen how the links become triggers for the work of the next node. But if they are not present, or something happens so that they are not used, they change the work of the nodes. Now the actors in the nodes must either fix the problem or work around it. In the next chapter how these linking actors also change the ordering processes is discussed. This chapter focuses on how the linking actors change the node interactions.

The first example is when the chart is not present at the nursing station, and the patient is ready to be seen. On several different days, I observed the MAs go back into medical records and look for the chart themselves in order to have the chart ready by the time the patient arrived. At least temporarily, the work of the node itself now changes. First, the MA calls medical records to track it down. They do not respond, so she finally goes and hunts it down. This is all time away from her vitaling and testing work. But, sometimes the chart is still missing when the patient gets to the exam room. Patients get angry over this, and the nursing staff has to deal with the patient. One day three different people looked for a patient's chart. Finally the patient arrived, and they still didn't have her chart. One of the staff said, "Linda Smith [the patient] is out there kicking and screaming." The person responsible for finding the chart replied, "I can't find her chart, and I've been looking since this morning" [OB44]. On occasions like that, the resident

saw the patient without the chart and everyone had to apologize that the chart wasn't available. On a different day, a resident caught an attending's anger over a lost chart:

[The resident starts to present the patient to the attending. He has only progress notes in his hands.]

Attending: You don't have a chart? It's absolutely unacceptable to not have a chart!

[In a loud voice. She repeats this. Just at that moment, a nurse brings in the chart.]

Attending: Just as we were speaking about it.

Nurse: It was underneath the ROC's chart pile [OB52].

Another example is what happened when the registration staff forgot to trigger the computer link.

[Attending A walks into the RWR. He is furious.]

Attending A: I've had a patient waiting in the waiting room for an hour and a half, and they told me she [the patient] never got put into the [CSBS] system.

KVB: You can check on the schedule to see what time she was logged in.

Attending A: I'm just too angry. Here it is almost one o'clock and I have a meeting at one.

Attending B: Can somebody else see her for you?

Attending A: No—it's a whole family thing. Why can't they get it straightened out?

Attending B: I go out and call my own patients—they don't like it, but they can't do it either [OB116].

Not only had the patient waited for an hour and a half, but the attending was late to his meeting as well. Even if the visit succeeds in answering all of the patient's issues, the patient will remember the wait. Also, note the change in work for Attending B. Instead of having the nurses call his patients, he calls his own.

The staff and faculty are aware of the problems. They do not view them as linkage problems, but they are able to label them as "the scheduling problem" or "problems with the charts." Sometimes they aggregate them into "our information management problem" [OB18]. This includes not only missing charts but also the way information is kept on the inside of the chart.

However, even though they recognize these problems, there was little action to resolve them during the nine months of the study. They fixed the problem in the chart that was in front of them by moving forms around, taking out old forms or re-attaching papers. [OB11]. Or, they worked around the missing registration link by calling their own patients. The reasons why things don't work is rationalized away. Some faculty perceived the new clinic as being so much better organized than the two separate clinics. They did not see the current situation as a problem. They recognized there was more work to be done, but they told me that they had already come a long way [IN10;14]. To some extent, this is correct. By the end of the study period, two new managers were hired to oversee operations and medical records. While things had not yet changed, they could see that some progress was being made toward developing the needed managerial expertise.

When I asked directly about the solutions, faculty noted that there is insufficient time for them to deal with the issues [OB77], and/or insufficient help (which they thought would give them the time) [IN09], or there seemed to be no solutions.

Attending A who had been here several years: It's the same staff meeting we've been having since I came here [OB001].

Attending B: It's funny, I think we're all fairly easygoing and so we kind of adapt to it, but eventually some of these problems have to be solved to move forward with the other goals. It wastes too much time on silly stuff [IN14].

What happens however, is that no one takes responsibility. There are always reasons why it isn't feasible to resolve the problems.

How Do the Linkages Relate to Patient Care and Teaching/Learning?

The linkages and movement of staff, charts and patients through the nodes also permit opportunities for teaching/learning to occur. They “set-up” the patient, exam room, chart, and encounter form. Once these are all in place, the teaching/learning process can begin. If these are not in place, then opportunities for teaching/learning are deleted/revised/changed/shortened, depending on how the linkages came to be disordered. While the nodes are fairly well linked via computer and phone, they are minimally linked via human interaction. Latour termed these “associations” and noted that there are only weaker or stronger associations (1987). But in this case, there appears to be less of a continuum and more of a sharp delineation between the presence and absence of links. Also, the type of link is of some import.

Table 5.2: Relationship of Links to Teaching/Learning/Patient Care

Organizational Issue #4	It is difficult to move work from one node to the next, resulting in lost patients, charts, and scheduling errors.
Network Element(s)	There is an absence of links, or the links are of poor quality. Occasionally, there needs to be a redundancy in the number of different types of links.
Faculty Opportunities and Constraints	Breakdowns in links result in less teaching time, however, faculty could use the opportunity to discuss the organizational issue of repairing the links.
Resident Opportunities and Constraints	Residents can gain an opportunity to analyze and find creative solutions for an organizational problem. However, they lose learning time around patient care.
Patient Care	Patients mainly lose out on quality care if they are not called on time, their chart is missing, etc.

See Table 8.1 for Summary of Relationships

Almost all of the links, with the exception of patients, are non-human. There is also very little redundancy in terms of the number of node linkages. Take the case of the

patient who waited in the lobby for an hour and a half as an example. If there had been a hard copy of the schedule by half hour (i.e., a list of all patients to be seen at 8:30, 9:00, etc.) available at both the nursing station and the registration desk, both places could have checked to make certain they had did not miss anyone. Generating such a report out of CSBS is impossible, or at least no one on the staff knew how to do it. Not all of the linkages need to be human, but there have to be some built-in redundancies in order to avert continual breakdowns. If the patient who waited in the lobby had been a one-time occurrence, it might have been possible to ignore it. But this happened at least once a day, if not more frequently. One day, it even happened to the patient that I was following² [OB108]. Here is a network in which the human action on either end has been made more difficult by the mediating object. The computer screens are not able to provide information in a usable format. The nursing staff is already working around that with a badly designed hard copy, but neither solution helps out the registration desk who continually misses patients. It is insufficient to build in redundancy without considering its quality. The nursing staff can check off patients on their hard copy. But to even find the names on such a list is almost impossible. The work of getting a half-hour report out of the computer fell to someone outside of the two affected nodes, thereby diminishing the chances of a new report appearing.

The Clinic Director suggested moving to an electronic medical record—which is the obvious, ultimate solution to the problems of the charts. But those are only as good as the input, and must still be controlled and reviewed to make certain that everyone is

entering things the same way. This clinic is still struggling with just getting the papers into the chart. The electronic medical record is probably years away from happening.

Increasing the number of human linkages might be of some assistance in decreasing the disorders, as it would mean more face-to-face communication without the use of mediating objects. But redundancy in the linkages would probably mean more rules for staff to follow and/or more work. This clinic is overwhelmed with the current amount of work. To some extent, the very creation of these separate nodes makes it difficult for actors to cross over nodes and address larger problems. Yet almost all of the major issues in the clinic—scheduling, charts, patient no-shows and the computer system are problems that cross over several nodes. The issues also involve several different links between nodes. The historical actors and the current actors have constructed their own maze and cannot find their way out. Instead, as they work they bury themselves deeper in the twists and turns.

Changes in Links Across Two Nodes

When the new Nurse Manager started work, she reviewed the telephone messaging system. She then went back to her old clinic, took the form they were using, and modified it. She presented it at a staff meeting where both the Clinic Director and Office manager were present [OB46]. They agreed to have her pilot it with one telephone receptionist and one nurse. After a short period, it was so successful that she moved the whole system onto this new form. In this case, I believe her success was due to achieving support from both the Office Manager and Clinic Director *before* she

implemented the change. She was able to show that the form would result in better quality. But the form didn't have a duplicate. So once the telephone receptionist handed it off to the Nurse or the Walker, she had no way to retrieve what was written on the note if the patient called her back. Here is a case where one part of the problem got resolved, but it created a new problem. The telephone receptionist eventually solved this by getting up and going to the triage nurse or calling the Walker to get the information she needed.

A few weeks later there was a problem with one of the Clinic Director's own patients. One of the telephone receptionists had recorded an impossible dosage on the new form. The Clinic Director became very upset, and blamed the new form. When I asked the Nurse Manager, she noted that the nurse had been able to straighten out the patient request, and that in fact, the patient had received the correct dosage. They kept the form, but someone made a comment to the effect that the Clinic Director had a way of discouraging creativity by this kind of behavior [OB82].

Changes that crossed over into teaching/learning were much more difficult to institute, if for no other reason than the need to explain, and then enroll over one hundred physicians. The nurses had wanted to do more nursing education since they moved into the new clinic. The Nurse Manager supported their efforts. They decided to try offering diabetic education classes. When the word first surfaced (they had already set up a schedule), the Clinic Director stated that they couldn't start until she looked over the course materials. The Clinic Director also wanted to tie the classes into what the

residents were learning, but that never happened. After many months of discussion about these courses, a sign appeared stating that classes were available. On the last day I was there, a patient expressed interest in knowing more about her diabetes. But neither the resident nor the faculty member suggested the classes [OB119].

Many of these changes redefined the practices of patient care. Changing the nursing triage room, giving the patients a place to sit down while waiting for discharge, and getting reports in the charts redefined patient care practices. Not only did the actual service to the patient change slightly, but the work of producing that service also changed. In the case where change did not occur, the diabetes education classes were certainly designed in the spirit of making a difference in patient care, but that was insufficient to get them implemented. The classes could have had several impacts on teaching/learning. If residents had co-taught the courses with nurses, they could fill in their own knowledge gaps, and at the same time, improve their patient education skills.

In sum, many small changes occurred. Each changed the work of patient care and teaching/learning. Yet, taken together, they are not sufficiently important to address the larger problems of the clinic. Changes primarily occurred when they could be accomplished within one node. These changes did not require large numbers of links or cross over more than one node. The configuration of the nodes and the presence, absence, or changes in links continues the process of defining the limits around patient care and teaching/learning. The work of the nodes is fairly independent, yet the links are critical to move the work from one node to the next.

How Does This Finding on Links Concur With The Literature?

One of Callon and Law's principles is that "Entities are networks of heterogeneous materials" (1997, p. 168). They work by linking bits and pieces of both humans and non-humans together. In the examples above, the work both within and between nodes links humans to non-humans. If we ignore the non-human linkages, such as the computer link between the registration desk and the nursing station, we may have ignored the only link that exists. This study appears to corroborate this second principle of networks. In most of the Actor Network Theory work, there has been an assumption that the main network has a strong central core. The configuration of the network has not been discussed as an important element. Latour discusses enrolling and controlling actors, but usually this has been from one or more old networks into a new one. I argue here that the socio-spatial configuration of the work and the node linkages play important roles in the ability of the actors to carry out the net-work. The same actors, with a different socio-spatial node configuration and different or improved links, might have produced totally different interactions and subsequently, outcomes. Unfortunately, without further study of additional sites, it is impossible to say which configuration(s) produce the best outcomes.

Theorists' insights into distributed cognition also appear to hold in this study (Hutchins, 1993; Lave, 1988). No one actor holds all the knowledge or all the pieces. The knowledge is distributed across actors and time. What appears to be different in this situation is the importance placed on the links between the nodes. Since the actors do

not cross over to provide the knowledge from one node to the next, the non-human links must do that work. When links are missing, or do not work well, it is difficult to move the work along sufficiently for the next actor to act.

In his work on public schools, Weick recognized the importance of linkages between elements, (1976). He used the term “loose couplings” to describe the linkages between various parts of educational organizations, e.g., the counselor’s office is loosely coupled with the principal’s office. He developed two types of loose couplings: task induced (roles, actions, or technologies) and authority induced (responsibilities or office). In the clinic study, there are some examples of both types of loose couplings. Weick argued that educational work might be more effectively carried out with loose couplings.

Certification and regulations, associated with tight coupling, may interfere in the process of educating children. But the assumptions for his educational organizations are different than clinic linkages. In the school organization, he “coupled” nodes that were essentially independent from one another, e.g., classrooms. He noted that one element /node could be deleted without affecting the whole. The work of one of his elements (nodes) is independent from the work of the next. It is not a necessary part of the educational process to have children moving from one classroom to the next. This is not the case in this clinic. The work of one node is critical to the work of the other nodes, if not in terms of absolutes, than certainly in terms of quality. Without the medical records node, the chart is not present. While the patient may still be seen, the quality of both the patient’s care and the teaching/learning decrease. If the patient

doesn't arrive at discharge, they do not get another appointment, thereby further denigrating both the patient care experience, and the future opportunity for teaching/learning.

Weick also assumed a degree of professional supervision over each "element"/node. Schools consist of teachers who are all professionals in charge of each classroom. The principal and the counselor are also professionals. In the clinic, only the nursing nodes and patient care/teaching/learning node have professional staff. In the teaching/learning node, until an administrative attending was appointed, no one was in charge. If the nodes could be developed to operate more independently, Weick's work suggests the possibility of permitting loose linkages between the nodes. However, even in that situation both materials and humans (charts, forms, patients and residents) must still move across several nodes. Therefore, mechanisms need to be in place to enroll and control the actions of the actors across the nodes, in order for the ordering processes (discussed in Chapter 6) to flow and produce services/training/care.

In sum, the clinic actors have constructed a socio-spatial dimension of fairly distinct and separate nodes. They are separated in physical distance but also in social interactions. Professionalism appears to play some role in nodes where actors are credentialed. The nodes are linked, but with little built-in redundancy in the links. This arrangement changes the capabilities of the actors to deliver patient care and teaching/learning. It can also change the availability of opportunities for patients to receive care and for residents to see patients and learn from those experiences.

Control of the Net-Work

Finding C. 4. The actors assert minimal control of the “net-work” (both inside and between nodes). Control primarily surfaces when there are problems, and then as a blaming mechanism. This can also result in disorder, further limiting patient care/teaching/learning.

In Latour’s terms, control is about tying actors together and making them predictable (1987). In referring to scientific work, Star and Griesemer (1989) called it “cooperation.” But whether it is called cooperation or control, there is a need to have some set of mechanisms in place so that actors aren’t engaged in only random acts. That is what organizations are all about—actors carrying out sets of activities that accomplish generally acceptable goals or purposes. While these goals may not be the same for all the actors, nevertheless, some degree of certainty that the actors will perform within agreed-upon limits must be developed. In other words, patients do not come to the Korsdale Clinic expecting to have their teeth pulled or to purchase clothes. They know that when they come to the clinic they will register, get their blood pressure and temperature taken, and see a physician to discuss their medical problems. In order to carry out even basic acts in any type of organization, control or cooperation is needed. This “create(s) common understandings, ensure(s) reliability across domains, and...gather(s) information which retains its integrity across time, space and local contingencies” (Star & Griesemer, 1989, p. 387). The Korsdale clinic had two main mechanisms of internal control: direct human interaction, and indirect control mechanisms. In this section we shall look at how control methods are employed. Also, we will examine the control of actions within nodes and across nodes. I will discuss control issues across ordering processes in the next chapter.

Human Actors as Controllers

There is very little human control in the clinic. The Chair of the Internal Medicine Department did not enter the clinic during the study period. As previously noted, the Clinic Director is only present at best, one day a week. The Office Manager is behind closed doors most of the time. While physical presence is not necessary for control, it makes informal social interaction possible. It can provide additional opportunities to observe problem actions, and discuss their solutions in an informal manner.

Human control comes primarily from the Clinic Director, through memos or emails. During the entire study, the Office Manager gave only a few orders, and wrote only a few memos to the staff. Her more typical response is to tell one of the other members of the administration/management node to take care of the problem. At one point she told me she had fired someone, but in checking with several staff members, it turned out she was not even present when the staff member was fired [OB49]. She had delegated the firing to someone else.

As noted previously, supervisors shift by the week. It is not clear who is supervising whom. However, the new Nurse Manager does meet regularly with the nursing staff (both the triage nurses and the nursing station staff). She is constantly working with them, meeting with them and addressing nursing issues on a daily basis. By September, she had been given supervisory responsibility for referrals, pharmacy and all of the nursing staff—a total of 26 people, or about 80% of the total staff [OB114].³

One of the attendings noted that the faculty “was a democracy of seventeen” [MT06]. But in a democracy everyone participates in the decision-making, people vote, a decision is made, and everybody abides by it. Within organizations, participation in decision-making usually involves some degree of trying to reach consensus. In Senge’s learning organization, there is an emphasis on learning to listen and consider others’ opinions (1994). In the Korsdale Clinic, only the faculty and management staff participate in organizational discussions, but the Clinic Director and those to whom she reports make the decisions. Instead of democracy, I would call it a combination anarchy-dictatorship. Everyone goes off in different directions until a big problem appears. Then one of the dictators steps in and makes a new rule or a decision about the how to resolve the problem. This makes life and work in the clinic easy. Since nobody in the clinic has to make decisions, they can play the victim or the martyr, depending on what happens each day.

There is minimal knowledge about how to manage effectively. There are no assignments of responsibilities and follow-through to make certain things had been done. For example, there was a problem with people coming to the clinic who had no insurance (called “self-pays”). These patients were being seen, and walking out without anyone asking for any money. When the staff billed the patients, their rate of non-payment was considerably higher than those with insurance. In February, the Clinic Director met with the administration/management staff and asked two members to draft a self-pay policy. Immediately following this request she stated, “Here’s what it should

say:....” [OB54]. She then reeled off several detailed statements that essentially became the policy. That was the end of the discussion. No timetable was set for review of the draft policy or policy implementation. There was also no recognition of the need to take care of issues that would make it easier to identify these patients. For example, changes on the encounter form or to the computer program were not discussed. The word did get to the registration desk that they should be checking for a blank space in the insurance box (this would indicate that the patient had no insurance). The self-pay issue never again surfaced at a meeting. There was no follow-up on the issue, and an actual policy was never formulated or implemented. At the end of the study, the same problem was starting to resurface, as nothing had been done to more effectively control the actions of the actors.

The Clinic Director’s response to a problem is to become immediately and directly involved in the minute details of fixing it. Toward the end of my stay, there was a scheduling problem with one of the physicians. The physician only saw certain types of patients. But a new staff person did not know this and scheduled the physician to see regular patients. The Clinic Director’s response was to write a five-page single spaced memo on exactly how each phase of the scheduling should proceed [DOC63]. There was so much detail that it was impossible to follow. She assigned the Office Manager responsibility over scheduling, and gave the memo to the Scheduler, neither of whom had created the problem. No mention was made of training the staff who created the problem.

Before I arrived, the nurses had tried to creatively solve a problem they were having. Their work was made doubly difficult if the physicians did not complete the problem and medication lists in the patient charts. If a patient called in for a refill on a prescription, the nurses had to read through the recent progress notes and sometimes guess, because the doctors did not keep the medication and problem lists up to date. There was an accreditation survey coming up, so the nurses wrote a memo to the doctors and explained that this was a requirement for accreditation. For a few days, the doctors started to keep more complete records. But the Clinic Director told the nurses that all such edicts had to come from her or other faculty. She reprimanded the nurses for usurping her authority [OB58]. Within a short period of time, the doctors stopped filling out the lists. A year later, at the last meeting I attended, the Clinic Director noted that she wanted the physicians to start filling them out “in order to improve communication” [OB115]. This “stop-start-looseness-in-between” style makes it difficult for change to occur. If someone takes it upon him/herself to change something during one of the “looseness-in-between” stages, he/she might get a start on it, but without the Clinic Director’s full approval, the support does not last. The word quickly makes the rounds that this is how the clinic works. New initiatives or creativity are not encouraged; only those changes that are within a node or so minimal as to be below some unknown noticeable threshold are possible. The lack of control leaves many clinic problems unsolved, and many others unaddressed.

The Clinic Director does not act in this manner alone. A very elderly patient died in the clinic during the study [OB64]. It was the first patient who had ever died in the clinic.

The patient came in with a very low pulse and it continued to get weaker for the first few minutes of her visit. Her family was present. In the end, everything worked out just fine, as both the patient and the family had wanted her to die peacefully. But from the clinic's point of view, it initially caused quite an uproar. The nurse went to get the oxygen tank, and discovered it was empty. They had to run over to Rancom to grab one from them. The emergency cart had been removed from the clinic per hospital requirements. The faculty were up in arms that they did not have emergency equipment ready to go. As someone said, in this case, things worked out fine, but what if it had been a twenty-year old patient with a severe asthma attack? The Nurse Manager resolved the issue of the missing oxygen tanks, but after a flurry of emails from the faculty, the whole issue died down. It was not discussed at any of the faculty meetings I attended. One year later, I asked if any policy changes had been made to address this issue. The answer was a simple and direct "No" [OB120].

There is very little network oversight. Only one person, the Clinic Director, has an understanding of the inner and outer networks' configurations and how interrelated they are. The Clinic Director noted that three different office managers had called her a micro-manager [OB114]. The Office Manager is rarely present. This void at the top makes problems difficult to discuss, much less resolve.

Even when solutions are provided, the ability to see what it would take to implement these solutions is not present. In order to create a network-wide change, one needs to envision how many different nodes the change would have to cross, the linkages

required to connect the node work, and what the changes might mean for those in other nodes and networks. After I had been there several months, I decided to offer a suggestion that I perceived would simplify the activities. I did this to be more of a participant. But more importantly, I wanted to see if injecting a suggested change from the outside would make any difference in the clinic activities [OB46].

I noticed that around two hundred and fifty to three hundred pieces of paper each day were being hole-punched individually in order to put into them into the patient charts. This included over one hundred lab reports, over fifty fax communications, and another one hundred patient demographic forms per day. Hole-punching was taking a good couple of hours of staff time every day. I asked the woman who was in charge of medical records if they had ever considered buying two-hole-punched paper for the printers. She said no—that was a really excellent idea. It would save considerable time if all those forms didn't have to be hole-punched individually. She even brought it up at the next staff meeting. Everyone liked the idea, but no one was assigned to look into its feasibility [OB46].

It never happened. Why? This change crossed over more than one node. The Scheduler (who has nothing to do with medical records or the hole-punching staff) is the person in charge of ordering supplies. The paper would have to be special ordered, and probably would cost more money, as the charts have a strange two-hole punch arrangement. The Office Manager would have to justify the extra supply cost against the labor saving. This in and of itself is probably too complicated and beyond the scope

of the information available to her. The hole-punchers, i.e., the staff who did the actual work, were never consulted. The issue was not discussed again at a staff meeting. It is simpler to let the status quo be. The strength of current networks and their organizing processes outweigh all the changes and developments of new links that would have had to be made to address such an issue.

Indirect Control Mechanisms

Normally when people are not present to gather information on their own, there are systems in place such as meetings, reports, or audits to provide information. But these are missing in the Korsdale Clinic as well. There is no system of faculty evaluation regarding the clinic. The Office Manager evaluates all of the staff, but has no information because she is not on the floor. There are no staff meetings. The Clinic Director meets with the faculty separately from the staff in the administration/management node. None of these people (except the Nurse Manager) technically supervise anybody. In cases where there is an outside inspection or outside report, any necessary changes are handled by one or two individuals, but are not discussed among the staff members. Not having staff meetings makes it difficult to gain participation in changes.

This clinic has very few rules. There is no operations manual. When I asked to see the rules for how to put a chart together, I was told that they hadn't been updated in a while. There were two loose sets of "demo" charts, but almost half the documents that staff was putting in the charts were not in the demos [DOC44]. After a few months, the Scheduler

came in and helped medical records put together a new “demo” list. I asked one of the discharge staff how they know what the rules are. She brought out a clipboard with a stack of paper two inches high. It contained all the memos that had come out about different issues over the past several years. They were primarily from the Office Manager and the Clinic Director. The staff person’s comment was: “They [the rules] change everyday” [OB62].

There are some reports that come into the clinic. The registration desk conducts a patient survey where the answers are mailed to someone in the hospital directly [DOC51]. A report is sent back to the clinic. That happened once during my stay, but no one ever saw the report, nor was it ever discussed. The Office Manager also receives daily telephone reports with detailed information of how many phone calls are answered, how many seconds it took for them to be answered, etc. In this case, the report is information overload, as each day is one full page of numbers. There are no monthly aggregates, nor are the attempts to change the number of people on the phones accurately synchronized with the number of calls answered [DOC56].

The monthly expense reports are also problematic. Because the clinics had been merged in the middle of the year, there had originally been two separate budgets [DOC114]. When the clinics merged, the two budgets were *not* merged into one. Therefore, there were two separate expense reports each month, with arbitrary divisions of all expenditures. The alleged shortfall of funding was never discussed at the faculty or staff meetings. Even if the issue had been raised, the dual expenditure reports would

have made it impossible to provide accurate numbers. In addition, according to the Clinic Director, someone in the Internal Medicine Department had shifted approximately \$300,000 of the Chief Residents' salaries onto the clinic payroll even though the residents did not work in the clinic⁴ [IN04]. An accurate portrayal of the costs of the clinic is almost impossible. The lack of indicators, such as an accurate expense report, or patients seen per month report, makes it very difficult, as Latour would say, to control and enroll the actors from a distance.

Control Within Nodes

Control of the work within the nodes tends to be rather informal. For example, when it is close to the end of the half-day, patients tend to line up at discharge. The discharge staff then turns to the telephone staff and asks them to help out. The same informal asking for help occurred at the nursing stations, and in medical records. However, it did not happen in the administrative/managerial node. There are no on-floor supervisors for medical records, discharge/telephone and the nursing stations. While the informal system works fine to manage back-ups, it is insufficient in terms of overseeing whether all of the work is being done. For example, the nursing staff is all loosely responsible for making certain that the patient exam rooms are stocked with equipment and supplies such as patient gowns, bandages, etc. But every week there are at least two new temps at the nursing station. The temps are unaware of the need to stock the patient exam rooms. When they do stock, they have not been trained as to where each item should be placed. Consequently, only some of the items are stocked in any room at any given time, and then they are always in different places. The effort that goes into maintaining

order and routines in the face of this high turnover rate is enormous. Stocking the rooms is a lower priority than making certain patients are being vitaled correctly.

Control Across Nodes

Control across nodes is even more difficult to achieve, as it requires actors who can cross the nodes. There is a form generated by the registration desk out of the CSBS that holds all of the patient's demographic information on it – name, address, insurance, company, etc. The patient looks it over, makes any corrections on it and returns it to the registration staff. The staff collects these and sends them to medical records at the end of the day. Medical records then alphabetizes all one hundred forms and files them in the charts for that day. The idea was to file them before the charts went back on the shelves. But during the busy winter months, they fell behind with the filing and never caught up. The filing piles continued to grow until the patient numbers started to diminish in the early summer. In the meantime, somewhere between two and three weeks worth of forms (about 1500 forms) needing filing, and the charts had been re-shelved.

At one of the leadership meetings where the Clinic Director was not present, this issue was discussed. I made my only other suggestion. If the patients carried the forms to the nursing station, the nurses could put the forms into the chart, saving everyone from filing them. The staff liked this idea and told the registration desk to send the forms back to the nurses with the patient. I assumed, rather naively in retrospect, that the nurses would open the chart and clip the form into the chart. But no one told the nurses to do this. Consequently, the forms remained loose in the chart during the entire visit. By the

time the chart was back in medical records, a number of forms were missing, and some were wrinkled or torn. No one explained to the residents and faculty what was happening, so they sometimes tossed the form as being erroneously provided [OB46;114].

Informal Control

One day, after a faculty-resident party, a silly little game appeared in the RWR. It had been a gag gift at the party. The game consisted of a miniature basketball hoop with a ball attached to an elastic string. The object was to “ping” a springboard with your finger and make a basket. This became the big hit of the spring as contests were held to see who could make the most baskets. It also caused considerable dissension in the clinic. Some faculty viewed it as unprofessional. The noise alone became very annoying as some residents would sit and “ping” for 10 to 15 minutes at a time. One afternoon, one of the attendings “pinged” on and off almost all afternoon (when not precepting) [OB97]. Another day one of the attendings moved the game to the top of the filing cabinet, but it was back down by the next day [OB43]. Another day, a different attending looked up and said, “That’s very annoying.” On a different day, the same person said, “I’m hoping that one day that disappears” [OB59;67]. Another attending commented that it was sort of a love/hate relationship with the game [OB97]. When I returned in the fall it was gone [OB119]. But for several months, none of the faculty did anything about removing it. This was also one of the few places where gender surfaced, as it was primarily male residents and male attendings who played the game. The women would try it out, and play it occasionally, but the men played it over longer

periods of time and more frequently. Even for those attendings who found the game very annoying, they refused to exercise any informal control and remove the game.

How Does Staff View Control?

The isolation of the key administrative staff from the people who work in the clinic on a day-to-day basis leads to a general perception that no one is in charge. There are almost constant comments about the lack of control and the amount of disorder. Here is just a sampling:

Attending: I've created a new word for it -- Chaos-City [OB119].

Staff: I've learned that you don't have to take responsibility for anything. You can just let it go [until it comes up again] [OB58].

Staff: It [a rule] is not enforced. Like everything else around here [OB73].

Staff: There are times when I just let them [the emails] go because I know there won't be any follow-up [OB104].

Staff: I have the authority but not the power. They hold me responsible but tie my hands [OB91].

Staff: I have the responsibility with no authority [OB114].

Staff [talking about her lack of control over medical records] It's good when you can have more control [OB30].

Faculty: I'm convinced it will never work. There are over 100 physicians here—you'll never get them all to fill out all this paperwork correctly! Signatures in the right place, correct codes, etc. It'll never work! [OB116]

Both the staff and faculty recognize the disorder. Some even recognize the need for more control. A few recognize how control might happen, i.e., by having people in

leadership positions. Apparently faculty had done some of this work in the past. Now, they do not view it as their responsibility.

Faculty: I think one of the things that is really helpful is that you have some clear and committed people in leadership positions. By that I mean the Office Manager and Nurse Manager. That I think is really helpful. Those are roles that physicians have had in the past that I just don't think we were able to handle those tasks very effectively. We weren't really trained in them and didn't really have the time to spend on them [IN08].

In a separate interview:

KVB: *How much responsibility or interaction do you have, or feel that you need to have, in terms of making the clinic run smoothly?*

Faculty: A lot. I think we have not had good leadership in that way. I don't know that the physicians, because there are so many of us, can really provide that. I think the Office Manager who's our administrative person is really an excellent person and has a lot of crises she's had to deal with. It's just getting people into place that are going to help her make that happen more. It's a huge piece. Ideally...the other piece that I think is missing is how we're set up. I'd see us have a physician who has a big presence over here. That could be a leader in the administrative...how the office runs, how things go, and we do not have that person. A number of us could do that, except that there's nobody's designated that that's going to be the thing that they do. Unfortunately in our specific case the people who would be most capable of having the relationships with people who could make it happen, have other jobs. I mean I could do it, but I'm not over here much. [The Associate Residency Director] could do it, but he's running the program. The Clinic Director could do it, but she's got so many other responsibilities and there isn't another person who can fill in that main physician piece over there. I think a lot of the staff don't get as much of a cohesive sense that they could get about what our goals are, and what we're trying to do. We all have our own personalities, so they've got fifteen different people giving their fifteen different takes on the situation [IN13].

Some faculty see it as frustrating, but have no opinions on what can be done to improve it. They can state some goals, e.g., better continuity; but they see the answer as one of needing more education.

Faculty: There's like fifteen different systems [we both laugh] that need tweaking, that need looking at. I think continuity is a big issue. A lot of patients don't have continuity.... I don't think we do that [continuity] very well and I think we need to

educate us, the residents, the staff, and the patients about continuity. I think some of our triaging system doesn't work well [IN09].

Faculty: And that's just more of a problem with being so big. And we're working at it, but I think we need to do a better job of getting the patient, either, having a nurse in the office that they relate to, or doing a better job of getting a hold of the patient's doctor [IN13].

The lack of control over the work of the nodes remains a continuing issue. The faculty are only present in the clinic (even counting seeing their own patients) between one and three days a week, for about 30 weeks out of the year. Even for those with the *most* clinic hours, less than half their time is spent in the clinic. Their other administrative and teaching responsibilities and their inpatient schedules are more interesting and less problematic. When they are in clinic, their own responsibilities are full of either seeing their own patients or precepting the residents. As someone said, "Clinic time is residue – people have other obligations to inpatient and teaching. [The clinic is] leftover time" [OB103]. Also, the Clinic Director's strong need to be involved in the organizational details makes it easy for faculty to let her handle administrative problems. One of the faculty told a staff member that the Clinic Director had stated that she did not want other faculty to take on responsibilities in the clinic [OB65].

In this clinic, the quality of the care delivered is very high. Interviewed patients rated the care very highly [NR77;79]. The resident survey indicated that most residents found the quality of teaching/learning to be very good [DOC115]. How can this be when virtually everyone recognizes the disorder? More importantly, how can the clinic continue to function and exist? I concluded that there are several reasons:

- The actors know what quality standards should be. They come to assume that part of their work is to do things for themselves in order to meet those standards. Everyone has to work that much harder to make it happen. They retrieve charts and clean them out themselves; they leave patient rooms to find supplies.
- Since the clinic still fulfills its two main purposes of providing very good patient care and teaching/learning, everyone excuses the chaos of how it is delivered.
- This clinic is very low priority for the hospital, the Internal Medicine department, and even for a number of the faculty. It is the residual. It is what happens after everyone takes care of their hospital duties and the teaching or administrative departmental duties.
- It is easier for everyone to let the status quo be. Everyone's lives are extremely busy, hectic and harried. Having breaks from patient care provides time to do catch up on either personal or work-related matters. There are no outside pressures to see more patients in the residency clinic. There is also flexibility for both residents and faculty around their clinic schedules. If they need to come in late or leave early, or even switch days, this can be arranged.
- There is little long-term responsibility in the teaching/learning node, except for making certain that the patients are getting good care on any given day, and signing the patient charts. The faculty have only an immediate, same-day responsibility for resident learning, as do the residents for learning. Where the faculty do take time is in caring for their own patients' needs. Several faculty noted that they return to the clinic for an additional eight to ten hours per week to work on paperwork connected to their own patients.

- No one would have their pay increased for straightening out the clinic's problems.

In fact, when people did try to change the networks, they ran into all sorts of barriers.

The ties within the current networks and nodes, as strange as they might appear, are very strong. Since jobs are already very full-time, taking on extra responsibility for changes without any kind of moral or monetary support is not something people choose to do.

In the absence of doing anything about the problems themselves, a certain non-behavior becomes the norm for both staff and physicians. By the very fact that they do NOT take responsibility for what is happening, they continue to reconstruct the clinic in the same manner. But this seemingly balanced state cannot last. Some indications of larger

Table 5.3: Relationship of Control to Teaching/Learning/Patient Care

Organizational Issue #5	There are no rules; no one takes responsibility for anything; there is chaos.
Network Element(s)	There is a lack of strong enrollment of local actors in clinic, a lack of intermediating reports, and a lack of other mechanisms for reporting actions.
Faculty Opportunities and Constraints	The lack of rules permits faculty to do as they please, so long as they are fulfilling their primary responsibilities toward patient care and teaching/learning. Long-term responsibilities for the clinic setting are not present; nor can long-term relationships with residents develop from this setting. .
Resident Opportunities and Constraints	The lack of control permits residents to fulfill their clinic training requirement with a minimum of effort. Residents lose the opportunity to develop long-term relationships with patients and faculty. Residents also learn how to obtain things for themselves while in the clinic.
Patient Care	This results in uneven patient care, because quality standards are not maintained at the same level at all times. It permits patients who are more vocal with complaints to be attended to more rapidly than those who are less assertive.

See Table 8.1 for Summary of Relationships

problems already loom over the clinic. The residents leaving at the end of the year, the high staff turnover, and the high no show rate for patients indicate that people have created other ways to avoid the clinic when they are not satisfied. Most importantly, the clinic is still losing money. These inefficiencies create inflated expenditures that will only be tolerated for a certain length of time.

If more control mechanisms were in place, the clinic actors could assure that a certain level of quality is provided to patients through more regular work patterns. Controls could assure that a) the same services at the same level of quality are provided or offered to each patient, c) the same equipment and tests are available, d) the tests are provided with the same high degree of accuracy [the need to re-do them decreases], e) the same high levels of human kindness and courtesy are extended, f) there are minimal wait times, and g) the charts are always present with up to date information in them. Instead, the current situation is such that patients who “kick and scream” receive more attention than those who wait passively [OB44].

For residents, controls could produce long-term relationships with small groups of faculty, regular evaluation mechanisms, a continuity panel that would grow over the three years, and a model for patient care organization. Controls permit the actors to move through their clinic responsibilities and know that they will not have to take on added duties or double check behind those who do the work. One of the women faculty members explained that she likes to have all of the instruments for the gynecological exam laid out correctly [OB116]. This makes the exam less time consuming, and

(presumably) less difficult for the patient. Another attending noted that it can take 15 minutes longer per visit (when she is doing a gynecological exam) if things are not stocked properly [OB61]. The same holds for teaching/learning. If supplies are in the room, the resident does not need to leave the room. This saves her time that can be better spent in talking with the patient, gathering more information, or learning about the case.

In the absence of this kind of control, residents and staff are also learning. They are learning that the way to handle an unstocked room is to go and grab something from another room. They are learning that it is all right to not have a patient's chart. They are learning that it is not their responsibility to tell anyone when a piece of equipment is broken. They can continue to complain about it, but there is no need to say anything. They are learning that the computer system cannot be fixed, and that they need to find ways to work around it. Whether control exists or not, they learn to work. Because the amount of time is fixed, the questions then become: How much work? and, What is the work?

In sum, organizations need rules. When there are no systematic controls or indicators in place to determine how well those rules are being followed, there are large disincentives for actors to follow the rules. It becomes a system in which individual people develop individual mechanisms to "work around." It's a form of organized chaos. In this clinic, a lack of human managers, accountability, management actions and follow-through all contribute to the organizational disorder. Indirect control indicators such as reports,

reviewed committee reports, and evaluation measures are also missing. Where reports are available, they are not discussed openly. Crossover links such as staff meetings and chart audits are not present. This lack of control over the inner network makes the daily work more difficult and less efficient. Because of the fixed amount of time available, most of the actors' actions go into maintaining the minimum standards. Time is unavailable to address larger patient care and teaching/learning issues. While control mechanisms do not ensure quality patient care or teaching/learning, such mechanisms do make it possible to ensure that the same opportunities are available to all patients and all residents, on a regular basis. Later, I will argue that this lack of inner control leads to a certain degree of *laissez faire* that permits more external control from the outer networks.

How Does This Finding on Control Concur With The Literature?

Several of the action theorists have noted how representations—texts, rules, and indicators can stand in for other actors. Mulcahy noted that by having a “technology of representation” it permits the “manipulation of objects and events at a spatial and temporal distance”(Mulcahy, 1999). She used an example of the development of a standard set of competencies and a curriculum for use in adult vocational training in England. She further noted that representations move—they are embodied here in text, there in a machine, over here in a body. They permit the translation of work from one place to the next. She assumed such representation is always present. In her study, it *guided* the work of the actors. This study brings into question what happens when those representations are weak or absent.

In a study of the preservation of nature in a museum, Starr and Griesemer suggested that boundary objects are produced as representations of nature (1989). These included the specimens, field notes, museums, and maps. In the clinic, the chart serves as a boundary object. It is continually re-produced as a representation of the clinic work—from the patient's name and change of insurance, to her blood pressure, discussion of her illness and plan for the future. Such objects are also control methods—as they permit common communication across different groups, they convey standard information from one person to the next. The value of the chart could have been enhanced in this clinic by recognizing the importance of its role as a boundary object.

Engeström used mediating artifacts somewhat differently. He argued that “deliberately constructed novel rules or scripts seem to be crucial” in the development of what he termed trajectory innovations—those that move over a certain space (Engeström, 1995, p. 350). In this clinic setting, the normal rules are missing. Do they need to be in place first—before novel ones can be constructed? On the other hand, it may be the reverse—novel rules are outside the normal bounds, making it easier to consider them as possible innovations.

In the organizational literature, teamwork is continually being championed as the method by which one gets to a “learning organization” (Senge, 1990). It takes the control away from the “managers.” It is supposed to empower everyone in the organization to work together, be creative, solve problems as a team, monitor their implementation, and continually revise the solutions until all is well in the organization.

Teamwork studies have been done ad infinitum in business and industries (Ouchi, 1992; Wenger, McDermott, & Snyder, 2002) and higher education (Bensimon & Neumann, 1993). However, several studies over the past ten years have noted that Weber's iron cage of rational control is always with us. In one study, a bonus system developed by the team fermented hostility toward management (Ezzamel, 1998). In another, the teams further constrained the work, rather than liberating it, tightening the bars of their own iron cage (Barker, 1993). The potential for team development in this clinic is discussed in Chapter 9. I suggest it here as one *alternative* to the current control mechanisms which appear to be inadequate. Perhaps it could shake up the status quo. Even if teams construct their own iron cage, there may be more of a sense of personal empowerment than there is with the current situation. This might lead to less control from the outer networks, as the teams empower themselves to address larger network issues.

However, it may not be possible to find the perfect set of control mechanisms that will work over a period of time. In one of the few studies using interactional methods to study health care organizations, the authors noted: "Interactional strategies,...measurements, and organizational routines are but some of the tools, always inadequate to achieve [control]...health workers are constantly striving to control all these elements—but their control is never complete; it keeps slipping away" (Casper & Berg, 1995, p.402). Other studies have addressed billing issues by providing detailed reports to physicians on their coding (McConville et al., 2001; Miller & Getsey, 2001). It appears that the subject of which control mechanisms work best, and how to use them

is still open to debate. The disorder of this clinic at least points out a few methods that have not proven to be very effective or efficient.

In a recent study of dental schools, Ismail (1999) typified them as being ‘closed systems’ i.e., “emphasizes stability, group loyalty, security, clear boundaries, and tight controls”(p. 328). He went on to note that these systems don’t change easily, if at all, and then usually from the top-down. Open systems by comparison were characterized as encouraging “self-critique, dialogue, and disputation,”(p. 328) that permitted rapid response to challenges and self-development. Closed systems do not respond well to change. Some aspects of the Kersdale clinic resemble a closed system. The faculty is very stable and there are fairly clear boundaries between the clinic and other parts of the hospital. The tight controls came from without, not from within. On the other hand, the system is not an open system. There is no self-critique or dialogue. This study would indicate that a dichotomy may be too limiting. Examining various network configurations and how those configurations are linked may provide more information on which to base one’s analysis of an organization’s effectiveness in regard to teaching, learning, and patient care.

Chapter Summary

How do the networks’ configurations and linkages delimit teaching/learning and patient care? This is a very compartmentalized organization. The physical arrangement of the space combined with the lack of social interaction across work activities, makes for very separate nodes in which the work occurs. Within each node, the staff interact with

patients and/or each other around the specifics of their individual jobs. These rather independent nodes are linked together via the CSBS, phone and patient charts. The encounter form plays a more limited role as a linking object. With the exception of the staff in the discharge/telephone node, there is little unmediated human interaction across nodes. Control is informal within the nodes, and sporadic across the nodes. Control, when present, is usually in the form of actions from one of the outer networks. These are mandates of new regulations or decisions to hire new staff. There are no reports or other indicators (e.g., quality assurance measures) that act as external control mediators. Small changes that can take place within one node are fairly frequent. But larger changes that require crossing over nodes and enrolling actors in other nodes are very difficult, if not impossible to enact. Because the inner network is seemingly unable to respond to larger problems, the configuration of the inner network (i.e., separate nodes, few links and minimal control) provides opportunities for more control from the outer networks. Its fragmentation makes it difficult for any one internal actor to exert the type of control needed to effect change in the inner network. A large number of actors in separate nodes and a large number of node links would have to be 'controlled' in order to effect across-node or organization-wide network changes. The resources for this type of effort lay primarily outside the inner network. However, this concept would require further study in a much larger number of clinics.

Why is the configuration of the clinic so important to patient care/teaching/learning?

The configuration of the socio-spatial divisions of the work define the ways in which the work is carried out. I would argue that work equals time. There is a fixed amount of

time in each day. If time is being spent doing one activity, then it is not being spent doing something else. Therefore, how one sets up the social and spatial interactions directly affects how efficiently or inefficiently the work is carried out. In addition, it determines, at least to some degree, which types of work receive higher priority than others. For example, with Medical Records at the far end of the clinic, if the chart is missing and the nurse is spending time going and looking for the chart, that is time taken away from some other direct patient care activity. If the same chart is still missing when the resident enters the patient room, then the resident is spending time re-asking all of the same questions of the patient that she asked at the last visit, rather than moving forward, discussing prevention, etc. If the faculty are spending time talking about the missing charts, that is time they are not teaching. The work configurations can also expand the opportunities for patient care and teaching/learning. If the new diabetic classes ever start, they will be a new service offered to patients and be a source of new knowledge for the residents as well.

There are also strong indirect messages relayed by the configuration of the network. The message is sent to the staff that it is okay to take time away from one's regular duties to go and hunt down a chart. The message is sent to the residents that hunting down equipment and supplies is their own responsibility. The silent message is: Don't bother to tell anyone about this issue. It will not get taken care of anyhow. Everyone continues to learn and work in this network. The questions become: What are they learning and how are they working?

The actors have configured the network such that choices about how the work will be performed continue to be raised with every issue. The question of efficient use of time has not been brought to the forefront. These choices have, for the most part, decreased the opportunities and capabilities of the network for patient care and teaching/learning. However, there are some cases where expansion of opportunities and capabilities is also noted. The configuration must be taken into consideration as it has positive *and* negative effects on patient care and teaching/learning.

Endnotes

¹ In one recent study, residents perceived that faculty took too much time documenting for billing purposes when they should be teaching. Apparently, the residents did not perceive the billing activity as part of what they should be learning (McConville, Rubin, Humphrey, & Carson, 2001).

² It was clear when this incident happened, that my presence was no longer affecting the work of the clinic. I would be able to see the clinic in action without cover-ups. In this instance, I had made myself known to the registration desk staff and was standing by the desk to take the next patient in random order. I was taking notes on what the staff were saying. The next patient appeared, registered, and I went and sat down with the patient. I obtained consent and waited with the patient. The patient was never called, became angry and got up and left. I went up to the registration desk and told them he had left. I then went back to the nursing station, and the nurse showed me on her computer screen that the registration staff had entered the patient into the system as having arrived just two minutes previously. The patient and I had waited over one half hour. He was not registered until I brought it to their attention that he had left [OB108].

³ Over the summer, the pharmacy and laboratory staff were added on to the original 20 clinic staff.

⁴ The Chief Residents did work in the hospital, and therefore, their work could be considered part of the larger work of the General Internal Medicine faculty. In fact, the clinic was considered a Medical Service Provider (MSP) just as any other of the various subspecialty clinics were in the Department.

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**CONSTRUCTING CLINIC OPPORTUNITY SETS:
TOWARD ACHIEVING QUALITY RESIDENT EDUCATION
AND PATIENT CARE**

VOLUME II

By

Karen V. Busch

A DISSERTATION

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

DOCTOR OF PHILOSOPHY

Department of Educational Administration

2002

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CHAPTER SIX: THE ORDERING OPPORTUNITY SET

“It’s just that sometimes it’s hard to embrace the mystery. You wish you had some idea as to what is happening” *Attending* [OB100].

Introduction

The previous chapter discussed how actors construct socio-spatial interactions. Chapter Six focuses on an additional dimension that orders the clinic work: the temporal dimension. This has been termed the Ordering Opportunity Set. How do the actors order their work over time? How do the actors prioritize their actions? Which actions precede others? While the work within nodes also occurs over time, the time frames are usually considerably shorter. This chapter explores ordering processes that span days or months. These ordering processes also cross over many nodes. The ordering processes can also change the socio-spatial interactions and visa versa. Therefore, a dotted line has been drawn between the two Opportunity Sets in Figure 1.2, p. 45.

Law defined ordering as “precarious and partial accomplishments that can be overturned” (1994, p. 2). Orderings are short-lived—better viewed as verbs, rather than nouns. Orders are the means by which relationships are formed among actors—both human and non-human. Throughout this section, the terms “organizing” and “ordering” are used interchangeably. In most cases, the process of organizing involves some sort of prioritization of actions so that an order for accomplishing activities is achieved.

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In general, the ordering in the clinic is not linear but cyclical. There is an expectation on the part of both physicians and patients that patients will return for more visits. Return visits produce both “maintenance checks” on sugar levels, blood pressure, etc., and an opportunity to address new problems. The primary focus of organizational studies has been on manufacturing processes where there is a definite product or outcome and processes are for the most part, linear.

Unlike manufacturing processes, there are no clear-cut indications of satisfaction on the part of patients as customers. Indicators such as the number of cars sold, or computers purchased are missing. A patient who returns time and again is in one sense, a satisfied customer. However, in today’s managed care outer networks, that same patient’s return visit may be counted as an indicator of poor management. This cyclical nature of the process is part of the reason why it is so important for residents to have a “continuity of care” experience—seeing the same patients over and over, so that they become familiar with how to treat patients on a long-term basis. There is an expectation on the part of almost all the human actors in the clinic that this is a cycle. Not everything needs be taken care of in one visit—another visit is expected, and usually planned for upon leaving the clinic.

In the Ordering Opportunity Set, there are two key processes that occur over time. They both order the clinic work. First, the scheduling process sets up the plan for how patient care and teaching/learning will be carried out. Then the patient care/teaching/learning (PCTL) process carries out the actual work. Both processes have a socio-spatial

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dimension, i.e., they take place in finite spaces at somewhat fixed times and with actors who interact around the work. These were discussed in the previous chapters. In this chapter, the focus is on how these processes are enacted *over time*. The actors and their actions changed the work of the clinic *over time*.

Findings

The findings discussed in this chapter are as follows:

Finding D: *The Ordering Opportunity Set. The actors construct and reconstruct the processes by which activities are ordered so that patient care is not separated from teaching/learning. The Ordering Opportunity Set further constrains implementable patient services and resident experiences.*

Finding D.1. *The Ordering Opportunity Set: Scheduling. One of the key ordering processes in this residency clinic is scheduling. It is the prelude to the patient care/teaching/learning ordering process and thereby delimits actors' actions in later ordering processes.*

Finding D.2. *The Ordering Opportunity Set: Patient Care/Teaching/Learning (PCTL) is the second major ordering process. How patient care and teaching/learning are ordered can further change the availability of both service and training.*

Finding D.3. *There are at least three characteristics of the ordering processes: a) actors and actions are distributed across processes, b) patients play a major role, and c) other missing or absent actors change the ordering processes as well.*

Finding D.4. *Changes in the ordering processes may increase or decrease the organizational capabilities and opportunities for service/training provision.*

The Ordering Opportunity Set's First Ordering Process: Scheduling

Finding D.1. *The Ordering Opportunity Set: Scheduling. One of the key ordering processes in this residency clinic is scheduling. It is the prelude to the patient care/teaching/learning ordering process and thereby delimits actors' actions in later ordering processes.*

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The cyclical nature of scheduling is evident throughout the process. Scheduling sets up for registration, which sets up for patient care and teaching/learning, which, in the after-care phase, sets up for scheduling once again.

Interactions with the outer networks also show their hand in the scheduling process. For both faculty and residents, the clinic is viewed as the last component of their schedule to be determined. It comes after patient service and other out rotations. In addition, the computer scheduling program is controlled from the software company. Alterations could not be made at the clinic level. The faculty and the Clinic Director limit their own schedules. For example, some faculty see only return patients and take no new patients. So before anyone has so much as set foot in the clinic door, an entire series of actions have taken place that dictate who will spend time in the clinic, how much time they will spend, who they will see as patients, and how it will be displayed on the computer screens. For both scheduling and patient care/teaching/learning, the normal actions and orderings are explored first. Then disorders are discussed, and finally the relationship of each process to patient care and teaching/learning is examined.

Why is scheduling so important? Scheduling controls the physical times when each actor must be present in a specific location. The schedule also permits the actors to plan ahead with patient care. A patient can be told to come back in a certain number of weeks when a particular physician will be present, so that the patient (and resident) can be assured of having continuity. Scheduling also sets up the work of several additional nodes. It tells medical records which charts to pull. It tells registration which patients

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will be present on a given half day. It tells the nursing staff, residents and faculty who is coming in when, and how many patients will be present. Finally, it permits patients to schedule follow-up appointments, thereby starting the whole cycle all over.

There are three phases to the Scheduling Process. The process begins by scheduling A) faculty and residents; B) staff and patients; and C) retrieving the charts. See Figure 6.1, The Scheduling Process, next page, for an overview of the process.

Phase A. Scheduling Faculty and Residents

How does the Schedule come into being? Planning for begins in February, with an expected start date of July 1 [OB27]. Three factors enter into decisions about faculty clinic teaching time. (The order in which these decisions are made is somewhat unclear.) The first decision: Will the faculty member work full-time or part-time? This varied from 20% to 80%. Second decision: e decisions are made is somewhat unclear.) The first decision: Will the faculty member work full-time or part-time? This varied from 20% to 80%. Second decision: How much time will be allocated for faculty responsibilities for teaching/administration in the medical school and residency program? Third decision: How many weeks of hospital inpatient service will the faculty member do? Before any decisions can be made about faculty teaching time in the clinic, these considerations from other networks have to be determined. Actions about who will teach in the clinic are almost a residual—it is the *last* set of actions taken, not the first. Discussions about the need for the best teachers (or the best ambulatory care physicians) to spend more hours in the clinic are nonexistent.

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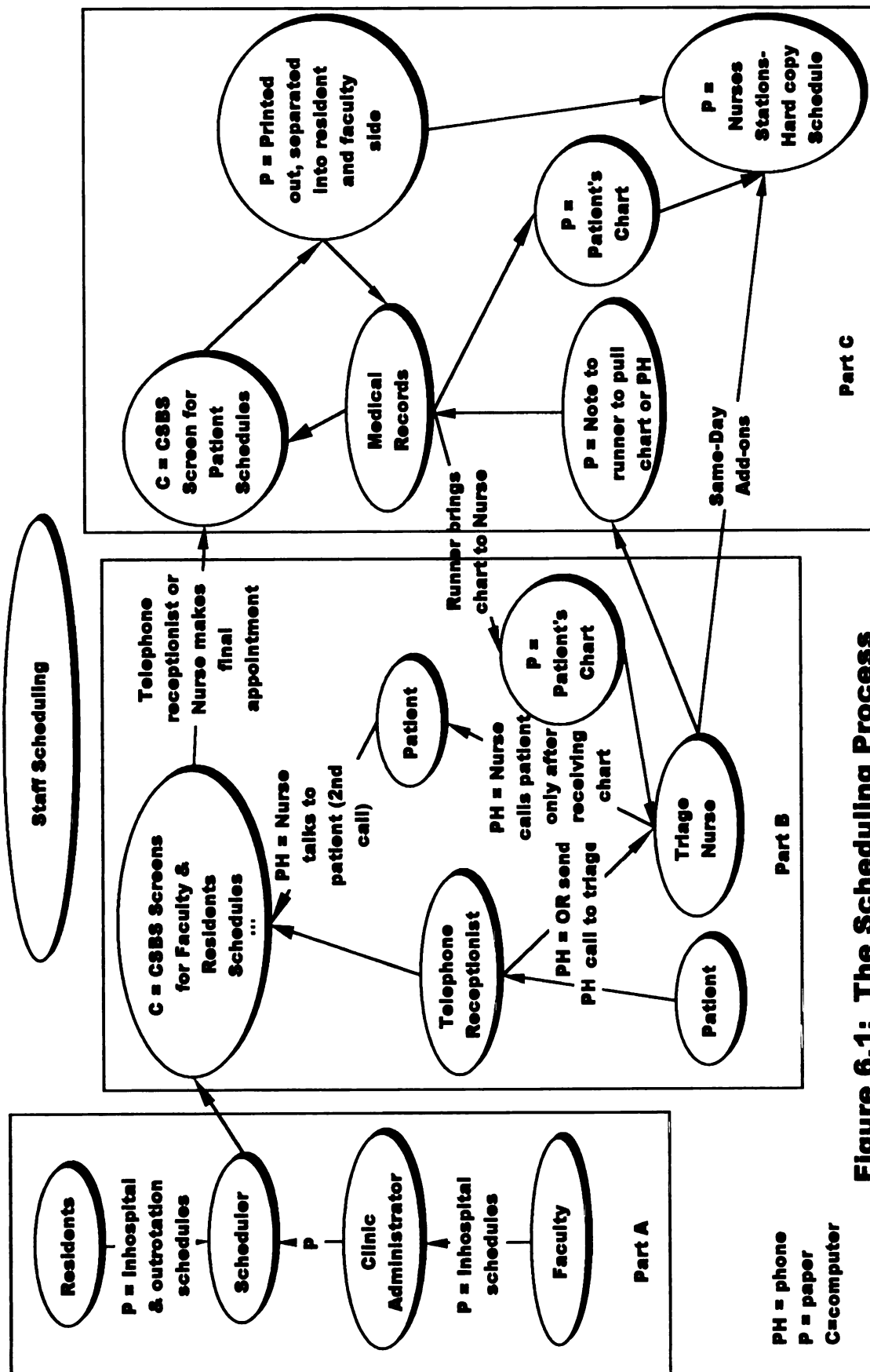


Figure 6.1: The Scheduling Process

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It is the Clinic Director's responsibility to draw up the faculty schedule. Each month she revises this to reflect conference attendance, vacations, and illness where known.

Deciding who will cover for whom provides the Clinic Director with direct interaction with the faculty and gives her knowledge of all of their whereabouts. It also serves as a control to make certain that the clinic is covered at all times. When decisions cannot be made about the roles faculty will play in the outer networks, the clinic schedule cannot move forward.

In May, the faculty rotation schedule for the in-hospital services had yet to be finalized. The administrators had to put the clinic schedule on hold. That is, they did not make any appointments for after July 1. They told the patients to call back a few weeks later to schedule. The number of patients scheduled in the first few weeks of July is relatively light by comparison to the month of June. Because of the Fourth of July holiday and a general lightening of the load during the summer due to vacations, it is difficult to determine the effect that this scheduling hold had on patient volume. Nevertheless, this hold changed the ordering of the clinic work, as patients who would have made an appointment on the way out the door had to call in to be rescheduled.

The variants on who gets scheduled for how much time and with what type of patient are almost as numerous as the number of physicians. Over the summer, it got so confusing that the Clinic Director wrote out a four-page single-spaced set of scheduling "rules" with eleven pages of appendices [DOC63:1]. Here are just a few of the rules for the faculty:

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- “Each attending has two half-days that are assigned for seeing patients when on service....Appointments on these days are designated as ‘MD request’, which means that they can only be filled at the request of the respective attending.”
- Certain physicians [list provided] see only certain types of patients [listed].
- Certain physicians [list provided] are not taking new patients.

The residents’ rotation schedules (both hospital and out-of hospital rotations) were completed in June for the entire upcoming training year (July-June). Residents have some say in which clinic or preceptor they use for their ambulatory continuity training. In a meeting I attended on June 27, the Clinic Director noted that the resident rotation schedule is still not available from the Chief Residents. As of that date there were no patient appointments scheduled for July for the residents [OB103].

Scheduling is a very complicated process for residents. They are on four-week rotations that end at various times during the month, so scheduling for the month of February, for example, may involve changing residents’ scheduling mid-month. For a few specific rotations, for example, the ER, residents are automatically excused from clinic. The residents also do a certain number of rotations at South Bay. During these rotations, they are excused two out of the four weeks of the rotation, but must tell the Scheduler which two weeks they are excused [OB38]. A myriad of additional problems occur when scheduling 100 residents. They get sick, go on vacation, have family problems, present papers, etc. For all of these reasons, residents are supposed to receive permission from the Associate Residency Director. But how these decisions reach the Scheduler remains an everyday source of frustration. While the responsibility lay with

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Phase B: Scheduling

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individual physicians, oftentimes the Scheduler heard of changes through others, or didn't hear at all. If the resident remains on the schedule and then doesn't show, it is always viewed as the Scheduler's error (by both staff and faculty), even though the resident is the one responsible for telling the Scheduler [OB13;67].

Once the written schedules are drawn up, they are turned over to the Scheduler. Her major job is to take these hand-typed schedules and enter them into the CSBS computer scheduling system, for all 100 residents and seventeen faculty. The CSBS assumes doctors are in the clinic the entire week, rather than for only a few half days per week or month. This requires the Scheduler to go into the system, block OUT the physician for the entire month, and then re-enter the dates as to when the physician will be present.

Phase B: Scheduling Staff and Patients

Once residents and faculty are scheduled, the nursing staff can be scheduled. The nursing schedule is complicated by additional clinic needs to have someone on "triage" both early in the morning and until closing at night. Also, several of the women faculty see mostly female patients, and consequently do a lot more gynecological exams. These take longer and require nursing assistance. This necessitates having a nurse present until the last patient leaves at night. The number of nurses have to be sufficient to cover the triage calls *and* have at least one "floor floater." On Monday mornings, for example, one additional nurse is scheduled for triage as the call volume is so heavy. There also has to be a sufficient number of LPNs or MAs to cover the patient volume on the floor. With the constant turnover that ensued in this area, scheduling is a continual problem.

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On at least one occasion the Office Manager (a nurse) worked on the floor [OB23]. As for the remaining staff, they have rather set hours. Their responsibilities, except for the discharge area, are less dependent on patient volume. Therefore their schedules are completed in a fairly routine manner.

One would assume that the process of scheduling patients for an appointment would be fairly straightforward, but this is not the case. The telephone receptionists are permitted to schedule regular follow-up appointments or new patient visits. Discharge may also schedule patients for follow-up visits. Their work is made more difficult by the complexities of the CSBS.

There is no place on the computer screen used for scheduling where the primary care provider is listed.¹ Therefore, it is almost impossible to tell whom the patient is seeing as their primary care doctor. The computer screen lists the physician(s) the patient saw over the last few visits. While the patient's primary care doctor may be Physician X, the patient has seen three different doctors in the interim. The schedulers play a guessing game—which doctor has the patient seen most frequently? Or, who is the original physician they saw? The rules on what to do were constantly changing [OB57;67].

There are also *patient* reasons why scheduling is so difficult. The patient cannot come on certain days because he works. The resident doctor he has been seeing switched to being present in the clinic only on Thursday afternoon. Or, the patient can't come in today, or possibly even tomorrow, because the mobile medical car service she uses

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requires 24-hour notice, and it is now 4:00 pm [OB43]. Or, the patient's sister has to drive the patient, but she works, so the visit has to be scheduled around the sister's work schedule [OB16].

If the patient expresses a need for a more urgent appointment, the call is turned over to one of the triage nurses to determine what should be done. Usually, the nurse speaks briefly to the patient, and either sends her to the ER, or tells her that a nurse will call back as soon as the patient's chart is pulled. The nurse then writes up a little pink slip and puts it in a special file. Approximately every fifteen minutes the Walker from medical records picks up the slips, takes them back to medical records, pulls the charts and brings them to the triage station. If the nurse needs the chart more immediately, she calls back to medical records, and they bring her the chart [OB39;OB74]. The nurses have permission to enter the patient into certain slots that are maintained each day for urgent care. The doctors too, may override "the system" and enter patients into their MD request slots, or other emergency slots. However, this process takes time. The nurse might call back and find that the patient isn't home. Or, if the patient calls in too late in the day, the matter waits for the next day.

The nurses make decisions as to *who* needs to be seen and *when* by the descriptions that they receive over the phone from a patient. There are no visible signs or symptoms to be observed. Some patients can explain their illnesses quite well, while others have great difficulty explaining. Some patients use family members to speak for them. In addition to this, the phone keeps ringing. Due to the lag time before they receive the chart, the

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nurse might speak with ten more patients. This creates difficulty in trying to remember what each patient's original problem is about. They also have to determine who is the patient's primary doctor. To make matters worse, the CSBS system can only bring up the screen doctor by doctor, so if the patient states that she needs to come in on Wednesday afternoon, it is not possible to look at all open appointments for Wednesday afternoon on one screen. The nurses have to search by each doctor present on Wednesday afternoon (as many as 15 potential screens).

Phase C: Chart Retrieval

Two days before patients are due to be seen, medical records prints out the schedule, physician by physician, and begins pulling the patient charts. Because the charts are filed alphabetically by patient, this is a time-consuming process. The CSBS cannot print out the schedule alphabetically by patient, thereby making this a very random process for the "chart puller" [OB73]. Once the one hundred or so charts are pulled, each chart must be opened to find the patient's type of insurance. Then the correct blank lab forms are inserted. Toward the end of the study, one staff person began to "chart screen" by reading the progress notes and checking to make certain lab and other reports are present in the chart [OB110]. During most of the study period however, this was not happening.

The night before, the blank encounter forms are printed out with the patient's name and medical records number. Because the charts are pulled two days earlier, there are always extra encounter forms that have no charts. These are the patients added-on to the schedule in that last two days. This causes a last minute flurry to find the charts. Charts

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are separated into faculty and resident side, and then separated by physician. They are wheeled in large carts to the nursing stations. This entire process involves at least five or six staff. One of the MAs also helps out at least one afternoon each week. Because the process cycles over several days, there are always at least three to four hundred unshelved charts. There are no “out guides” to note where the charts belong on the shelves, making it even more difficult to re-shelve.

The Schedule in Daily Action

The Schedule appears first as printed-out tables on paper. The information on these sheets is entered into the computer, resulting in a schedule now available on several computer screens in the CSBS system. Finally the computer printout is hand-copied and collated. It then turns into a multi-colored, scratched out, highlighted, sometimes even crumpled piece of paper as patients are added on, cancellations marked off, etc. during the day. It is never finalized until it goes into the trash at the end of the day. Finally, the schedule has faculty, residents, staff and patients aligned to arrive at specific appointment times.

The schedule printouts are cut into sections by resident or faculty member, separated into resident and faculty sides, and pasted together in a random fashion. The schedule is not alphabetized by physician’s last name. This is a source of contention for at least one of the MAs. The nurses often talk about residents by their last name. In order to find residents on the list, they have to search four or five pages of printout to find the resident’s name.

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Nursing staff: I wish they would print up the resident's names in alphabetical order.

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Nursing staff: Nothing I realize is done with any kind of order at all. There is no order [OB73].

Here the lack of order on the schedule is viewed as a symptom of a larger problem—the general lack of order throughout the clinic.

The schedule begins the morning as a clean piece of computer printout, the result of many hours of computer input from a host of players. Listed under each doctor are the times and names of each patient visit. It also contains information on the reason for the visit (follow-up, new patient, or follow-up from ER), the length of the visit scheduled, and the patients' medical record number. As the day goes on, patients call in with urgent reasons to be seen. Two additional categories emerge: add-on new patient, or add-on follow-up. The nurses handwrite these on the printout only at the nurses' station, making it necessary for residents to continually check at the nurses' station to see if they have been given any "add-ons."

There is only one copy of the schedule printed out for each side, each day. On the faculty side, it is posted on the wall of the nursing station. But on the resident side, it lay next to the computer. The resident schedule has a tendency to wander. The nurses and other staff are constantly writing down the "add-ons," or cancellations. There is very little room to write at the nursing station, so they would take the schedule someplace else to write on it. When they returned the schedule, they laid it down wherever they

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could find a space. This is the subject of constant discussion, “Who took the schedule now? Where is that schedule?” “She’s walking around with it again” [OB73].

In the morning on the residents’ side, the nursing staff take the schedule and write the room numbers they assign to each resident next to the resident’s name on the schedule. As the patients register at the front desk, the patient’s name shows up on the computer screen at the nurses’ station. The nurse first determines from the computer screen which resident is seeing the patient, then finds the resident and patient on the schedule hard-copy. She then highlights through the patient’s name. There is no further mechanism on the computer screen to track where the patients are in the process. Have they been vitaled? Are they waiting back in the waiting room or in a patient room? Are they waiting for a further test, or are they in an exam room? The nurses devised a series of little checks, colored highlighters and lines as a means of keeping track of patients while they are in the clinic [DOC113].

From the residents’ perspective, the only accurate way to determine if they have patients is to walk to the nurses’ station and check the handwritten schedule. Because of the large number of no-shows on any given day (average of 31%) [DOC113], it is not unusual for residents to assume that they can take a little longer with patients. But when they discover that other patients have been added on, and are waiting in the lobby, they are not very pleased. Here is an example where the attending makes a teaching point in affirming how scheduling works in this clinic.

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Resident: They gotta let me know. [That they have added on a patient.]
Attending: No, that's not the way it works.
Resident: Like I took 45 minutes with this patient because I thought I had an open slot.
Attending: Because you had an open slot, you don't take longer with one patient.
Resident: The bottom line is they should let you know.
Attending: When you're in your own practice, you can specify how you want it to work, but that's how it works here. [OB27]

The CSBS system has a screen that is used at the registration desk and at the nurses' station to tell everyone which patients are checked in. In the RWR, both faculty and residents have the ability to bring up this same computer screen. However, this screen only provides information on who is already sitting in the lobby—not who is scheduled for the day. The screen has no information on the “add-ons.” They are tracked only on the handwritten additions to the hard-copy schedule. On a few occasions, faculty encouraged the residents to check the computer screen from the RWR. The faculty showed the residents how to access and upload this screen, but within a very short time, the screen is “minimized,” replaced by other computer screens. There were no occasions where I saw the screen “return” [OB99]. The residents find it easier to go out to the nurses' station and check the hard-copy schedule, which is more accurate. On observation days at the nurses' station, there were often as many as three or four residents crowding around in a very narrow passage in the hall, trying to check the one hard copy of the schedule [OB17; 66]. Because their names appeared on any page on any given day, residents constantly leaf through the schedule to try to find their names.

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Disorders in the Scheduling Ordering Process

The Schedule is one of the two most discussed issues among staff, faculty and residents (the charts are the other).² While there are supposedly rules, they are so complicated, so loosely enforced, and so individualized, that one staff summed it up nicely:

Attending: The patient can come in - in new patient slot.

Staff: Have you talked with the Scheduler about that?

Attending: I don't know what the rule is.

Staff: Dr. C, *You are the rule.* [emphasis added] [OB62]

Attendings can override, change their schedules, or even slot patients in with residents while they are precepting [OB53]. Attendings control the schedule to suit their own needs. They also continued to raise the issue of loose scheduling.

Faculty: "The logistics of how we schedule residents is not good" [OB111].

Faculty: MD request slots -- all my times are filled up. These are not patients I requested. So now I have no open slots and I'm going on service on Friday.

Clinic Director's response: We haven't been able to have the pieces together.....[This is an example of a type of error.] One of the faculty called me; she had a full schedule of patients and is supposed to be in the hospital [OB 115].

Faculty: I think the other thing I'd like to see in terms of an approach to patient care, is--I think we've really got to solve some problems with regards to when patients want to be scheduled [IN08].

Faculty: If the person making appointments goofs up and puts a new patient appointment for 20 minutes, then that's the critical piece of that interaction. It's not the way it's supposed to be because somebody scheduled it wrong [IN13].

Faculty: Depending on the time of day – rules [for scheduling and seeing patients] shift, too [OB53].

Note that some faculty perceived the dis-orders as resting with the staff. Seven of the thirteen faculty interviewed mentioned it as an issue with the provision of patient care [DOC117]. One attending noted: "They're a lot of issues related to trying to maintain

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that continuity when you want it, to multiple different schedules. And I think that's where you run into a lot of problems. We're not here all the time... It's a huge challenge..."[IN11].

Faculty view the Schedule as one of the key processes to improving clinic efficiency. This is defined as getting patients scheduled to see the same doctors (i.e., continuity of care), and lowering the "no-show" rate. Yet how to accomplish this differed across actors.

Staff: "I think the whole scheduling is very difficult to understand. I think that they don't know how to schedule patients at the front desk because they don't have any guidelines. So nobody is really sure how to schedule a patient" [IN20].

Scheduler: Basically, I try to convey [to the residents] that everything revolves around communication because if they don't communicate to me what's going on with their schedules, they mess up everything. *I mean everything revolves around the schedules* [emphasis added]. So I try to just let them know--be courteous about it--let me know ahead of time, your plans. Because if I don't know your plans, the schedules are very messed up and that is not good patient care. Because counseling and rescheduling patients because you're not going to be here--when you knew way in advance. That's not good patient care [IN22].

Scheduler [on a different occasion]: Scheduling is difficult. You have to check to see if they were with Dr. Jones (one of the faculty members.) Then she can't do it. So you check to see which residents saw them more recently. Then if they can't do it, move to next open slot [OB46].

The conclusions varied from more guidelines, to better communication, to trying harder. Note that the scheduler also understood the importance of scheduling to good patient care.

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How Does Scheduling Relate to Patient Care and Teaching/Learning?

This one organizing process takes on critical importance in terms of patient care, resident learning, staff organization, and faculty life. Patient care may or not be given depending on the schedule. Who gives the patient care is dependent on the schedule. Residents who do not have patients are denied opportunities to learn. Faculty (and many staff) are governed by the schedule. The process controls where people are physically but it also controls what people do when. If doctors do not have patients, or the patient scheduling gets all bunched up right before the end of the session, then their work and

Table 6.1: Relationship of Scheduling to Teaching/Learning/Patient Care

Organizational Issue #6	There is a lack of continuity of care. Patients are late so may be seen by another physician.
Network Element(s)	The scheduling processes are broken down. The CSBS is of poor quality. The rules and control mechanisms are loose. Actors cannot connect up, i.e., patients are not available at the same times that residents are available.
Faculty Opportunities and Constraints	The lack of continuity provides more variation in patient cases, as the same attending sees the same patients only infrequently. However, this lack does not permit the establishment of long-term relationships or the ability to address long-term problems.
Resident Opportunities and Constraints	Residents see a wider variety of patient problems if they are always seeing different patients. However, they lose the opportunity to establish long-term relationships and/or address long-term problems with the same patients.
Patient Care	Patients may benefit from having different physician's opinions. Again, they lose the ability to establish long-term relationships or address long-term problems.

See Table 8.1 for Summary of Relationships

the quality of patient care can be changed. Staff also live by the schedule—more so in terms of “busy” periods to the day, e.g. near the end of the half-day session. But more

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importantly for them are the frustrations of trying to schedule patients with their primary care doctor who may only be available a few half days per week. If the patient sees a resident, the difficulty is compounded because the resident is only present one half day per week.

A critical goal of the clinic, continuity of care, is most affected by the scheduling process. The scheduling process is key to continuity of care. The concept of having the same physicians see the same patients over time is important for both patient care and resident learning. Patients and residents develop a relationship that permits them to address problems in months and years, not minutes or days. Patients do not have to repeat their whole history each time, and residents become involved in all aspects of the patient's care. It also permits residents to see what happens with various medications and/or treatments over time. It aids the faculty as well, as they come to know the same patients and can assist the resident in follow-up visits with the patient.

The primary actor that is troublesome in the scheduling process is the CSBS. Because of the inability of the system to track one's primary care provider, the staff have to juggle to determine which physician should see which patient. Adding to this problem are the looseness of the rules and the inability of patients to come to clinic at the limited times residents are available. There is also no place in the chart where the PCP (primary care provider) is listed. Faculty talked about adding the PCP to the chart, but this did not happen during the study. It is very difficult for the faculty and residents to keep track of who is the patient's doctor. They have to look through the progress notes in the chart

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and then guess. There is no orientation to the clinic. Nobody sat the patients down and said, “Here is who your primary care provider is. She is only here on Wednesday mornings, so we really want you to make certain you can come on Wednesday mornings.”

If continuity of care is the desired goal, the ultimate solution is to have residents present in clinic more frequently. Barring that, having a computer system that can provide schedulers with better information, and developing mechanisms to keep to the rules might make continuity of care a greater possibility. Other orderings might alleviate some of the staff questions and issues. For example, residents could schedule their own patients while the patient is still in the exam room. However, this requires a computer system that is available to all residents all the time in all exam rooms—not a very likely possibility in this clinic. As with many other problems, developing creative solutions is not a part of the administration and management response.

How Does This Finding on Scheduling Concur With The Literature?

Xakellis and Bennet (2001) have previously noted the importance of scheduling in terms of cost and efficiency. In the clinic they studied, only 2.2 patients were being seen per exam room per half day. In the Kordsdale Clinic, the average number of patients seen per resident per half day is considerably higher—4.88. (Each resident is assigned one exam room.) Nevertheless, by comparison to faculty who are seeing between 8 and 12 patients per half day per exam room, the cost of resident exam rooms is higher. As cost efficiency becomes a leading criterion of effectiveness, underutilization will come under

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even more scrutiny. One residency program changed the residents' schedules by using shorter clinic sessions. In order to provide them with the same amount of clinic time as previously, they increased the number of days residents were in clinic. This improved the amount of continuity considerably, dependent upon the resident's years of experience (Neher, Kelsberg, & Oliveira, 2001). Note the change in the ordering process. This residency program did not change the actors, the physical space, or any other socio-spatial aspects. Instead, they simply changed the scheduling ordering process.

Scheduling Summary

The schedule is an outcome or product of the interactions of both people and things and the complexity of scheduling net-work. This ordering process starts with decisions about faculty time and activities that are related to the strength of the ties of actors to outer networks. Those decisions get translated first into tables in a word processing program, then to the computer program, and finally back to a hard copy printout. Even as the schedule works its way through the day, it continues to change via highlighters, pens and the input of sometimes as many 7 or 8 different people. The schedulers each have control over certain activities during their own small part of the work, but no one person controls the overall process. Ultimately, even patients have some control over the schedule, by their very presence/absence or lateness/earliness. From the patients scheduled to be seen, residents learn or don't learn about caring for different types of patients. Faculty and resident lives are also controlled by whether patients show up on time, don't show at all, or show five minutes before the end of a session [OB41;53;67].

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Rather than any individual actor becoming the controller, the Schedule itself takes on the controlling role. It controls the actions and interactions of most of the human actors in the clinic, but most particularly the care givers, i.e., the doctors, residents and MAs. It provides both a sense of power (“I have a patient waiting”) and a sense of powerlessness (At almost 1:00 pm: “You can’t make predictions about when clinic’s going to end” OB61). The Schedule is also the scapegoat for whatever is wrong in the clinic. Yet its construction has been distributed over a host of actors all working with partial knowledge and incomplete control. The schedule further refines and expands or limits opportunities for patient care and teaching/learning.

The scheduling ordering process controls the actions of a wide range of actors in what is rightly termed a “planning stage.” It is the prelude for the actual work of seeing patients. This work will follow, once patients, residents, faculty and MAs all come together at the right time, in the right place. Yet already, actions made months in advance as well as same-day actions about who will be seen by whom and at what time have pre-determined what will be possible on any given day. Therefore, the opportunities and availability of both patient care and teaching/learning have already been circumscribed. They are not completely delineated at this time—that will only happen during the next process—patient care/teaching/learning. Yet how the schedule comes to be ordered has already “ruled-in” certain patients, residents and faculty coming together. It has also “ruled-out” other patient/resident/faculty combinations. It plays a critical role in shaping the potential for opportunities.

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The Ordering Opportunity Set's Second Ordering Process:

Patient Care/Teaching/Learning (PCTL)

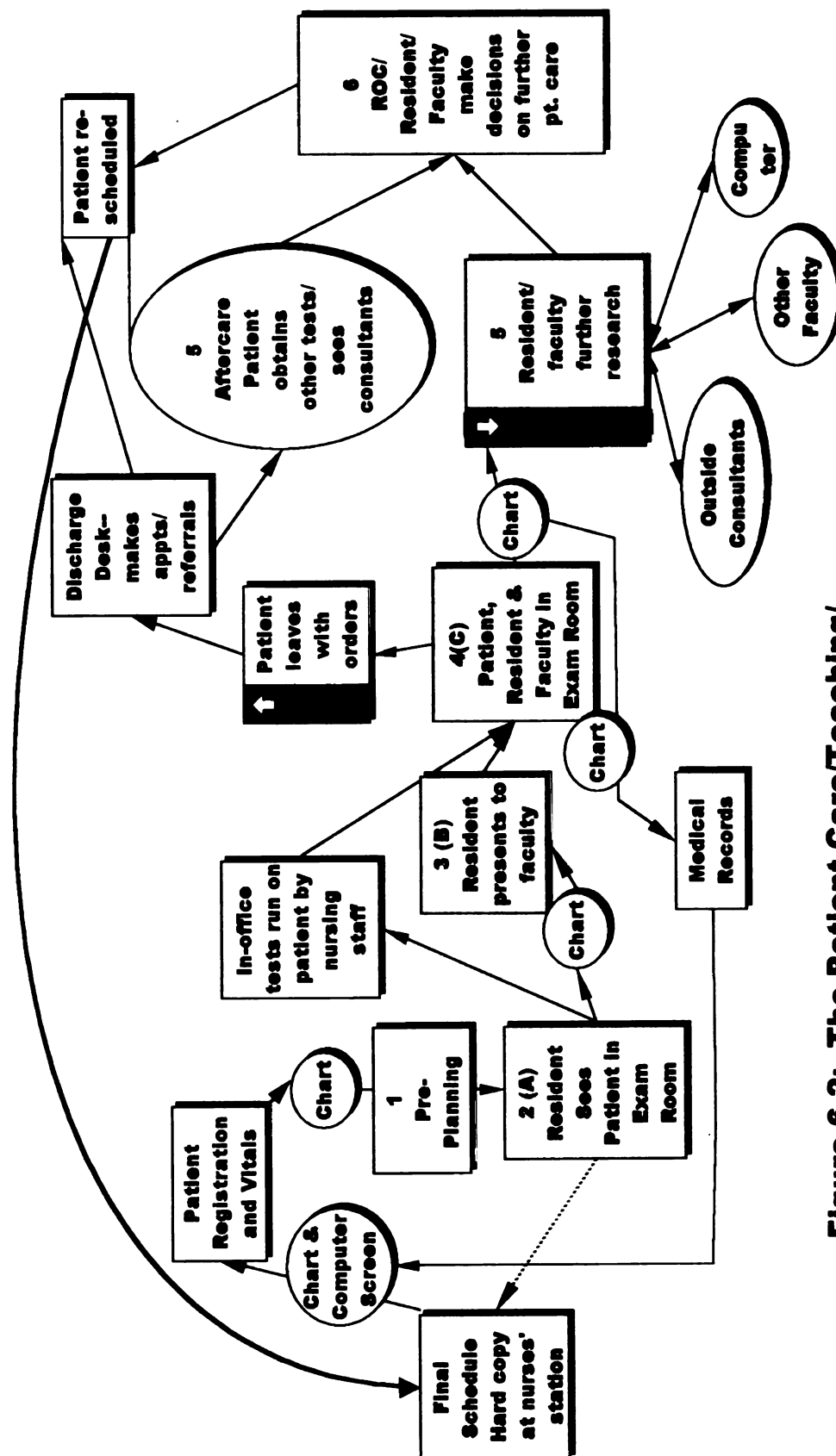
Finding D.2. The Ordering Opportunity Set: Patient Care/Teaching/Learning (PCTL) is the second major ordering process. How patient care and teaching/learning are ordered can further change the availability of both service and training.

The second ordering process in the Ordering Opportunity Set follows the scheduling ordering process. The PCTL ordering process incorporates the activities after the patient has registered, through the end of the patient's visit, to planning and preparing for the next visit. This process is perhaps the most critical as there are several junctures where the two sets of activities-- patient care and teaching/learning-- are essentially con-joined. The focus of this section is how the various activities of patient care and teaching/learning are ordered to enact the dual missions of the clinic. Note they are viewed as one process rather than two separate processes. The next section will discuss how this comes to be.

There is one general ordering process that is used in almost every patient care encounter involving a resident. The general encounter consisted of six phases:

- #1. Pre-planning
- #2. (A) Resident sees patient in exam room
- #3. (B) Resident presents patient case to faculty
- #4. (C) Resident/patient/faculty complete plan in exam room
- #5 Further research and aftercare
- #6 Review of tests—further decisions

There are three components to the patient encounter. They are labeled A,B, and C because of their importance to the ordering process and to the final implementation of both patient care and teaching/learning. However, as they are also part of the six-step



**Figure 6.2: The Patient Care/Teaching/
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total ordering process, those numbers appear in parentheses. A, B, and C are only briefly summarized here, as they form the major elements of the In-Action Opportunity Set, discussed in the next chapter. In this chapter, it is the ordering that is of import—in the next chapter, the internal interactions of the three phases are examined in greater detail. See Figure 6.2 for an overview of this process.

#1. Pre-Planning

During the pre-planning phase, direct patient care is the primary concern. While the patient is being vitaled by one of the nursing staff, the resident (and occasionally the attending) is reviewing the patient's chart, and reading the note from the last visit. If there are test results to be discussed, residents find those either in the chart or on the computer and study them before they see the patient.

Frequently, there is also prior physician-to-physician communication. This occurs when a physician outside the clinic calls the patient's clinic physician *prior* to a patient's visit. Usually it is done to alert the clinic physician to a potential problem, an abnormal lab result, etc. In one case, the hospital attending had started a patient on glucophage (a drug used to control diabetes). The attending called the clinic patient's resident and alerted her to the need for some diabetic patient education.

Resident: The hospital started him on glucophage. I got a call from Dr. Y when they discharged him.

Faculty: That's good. At least they called you [OB83].

In another case, an attending is speaking with a rheumatologist about patient A. The rheumatologist asked the attending to relay a message to Patient B's physician. Patient B

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had been tested in the rheumatologist's office and had a low white blood cell count [OB119]. The physician-to-physician communication can also be reversed. Residents and attendings also speak to consultants before patient visits.

#2 (A) Resident Sees Patient in Exam Room

The nurse or medical assistant must first complete their vitaling work on the patient. Once the resident's room is open and cleaned, the patient is called and placed in the room. Then the nursing staff person goes to the RWR and calls out the resident's name. The resident now knows that she has a patient waiting in her room.

For returning patients, the resident begins by entering the exam room and greeting the patient. She then gathers information about the patients' problem. For example, where is the pain, how long does it last, how does it change, etc. The resident also reviews the patient's history, and results of previous lab tests or consultant reports. The resident then conducts a physical examination appropriate to the visit.³ New patients receive a much more thorough history taking and physical exam. The details of what happens between the patient and resident are discussed in the next chapter.

During this phase of the interview, faculty does not observe residents. There are two ways faculty or residents know how well they do. Sometimes the resident asks for help. Resident: "I can't figure it out. I hope you [the attending] can get farther" [OB53]. Or, sometimes the resident admits she didn't ask the patient [OB04;OB55].

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#3 (B) Resident Presents to Faculty

After interviewing the patient and conducting a physical exam, the resident returns to the RWR. She has three choices: write up her notes in the chart, look up needed information on the computer, or immediately find an attending. Selecting an attending is a fairly random process. The resident usually selected whichever one is free. Selecting an attending is something that new interns have to learn. Upon our return to the RWR from seeing an intern's first patient, the intern turned to me and asked: "So we just grab any attending? How does this work?" [OB116]. In several cases, residents waited for another attending, particularly if the attending had previously seen the patient with them [OB43; 52]. This eliminated a great deal of repetition on the residents' part. It also helped both residents and attendings have some continuity around the patient's issues. The patients too, liked seeing the same residents and attendings so they could get to know them better [OB51;60;108]. The details of how residents present cases and the attendings' varied responses are discussed in the next chapter.

#4 (C) Resident/Patient/Faculty Complete Plan in Exam Room

After the resident presents the case to an attending, almost every time, the attending goes to the exam room to see the patient. When and how the attending chooses to do this depends on what the resident presents. This is discussed in considerable detail in the next chapter, therefore only a brief summary is presented here.

The reasons why the attending decides to see the patient vary considerably. Sometimes, it is necessary to verify physical findings (an unusual rash, lump, sore, etc.). Sometimes it is necessary to assist the resident with further fact finding, or negotiating a treatment

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plan. Sometimes the patient is someone the attendings know, and they like to maintain social contact. The primary objective of this phase is to reach agreement with the patient over a treatment plan. In cases where insufficient information is available, the “treatment” becomes one of seeking information via consultants, lab tests, X-rays, etc.

#5 Further Research and After Care

On many patient issues, follow-up information is needed. If the resident tries calling a specialist when the patient is present, the specialist might not return the call until later in the day. There are also questions about drugs. For example, did the resident give the correct asthma drug to a pregnant patient? One of the faculty spent most of one afternoon on the computer looking this up to determine which asthma drugs pregnant patients could take safely. He then shared this information with everyone present that afternoon. [OB88] Mammograms of an urgent nature are particularly difficult to arrange as there is a shortage of mammography machines in the city [OB79]. Residents are expected to “act as advocates” for their patients and follow-up with these issues. However, there are times when attendings help out, simply by virtue of their being in the RWR when the consultant calls back. Or, if the resident has a particularly heavy load of patients, the attending might call the specialist [OB43].

In the meantime, patients are expected to be doing their part to obtain needed tests, or see specialists that residents referred them to. However, the system for keeping track of whether the patient actually obtains the referrals is rather ambiguous. As the reports come in, the ROC (see below) reviews them, takes any needed action, and then puts report copies in the residents’ mailboxes. Without looking at the chart, it is difficult for

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the resident who saw the patient to determine exactly what the ROC decided for his/her patient. A list of outstanding referrals is unavailable, so the residents are sometimes caught letting things slip through the cracks. Here is an example:

[The resident presented to an attending about a patient with some sort of mass.]
Attending to Resident: You should keep a red flag list, I know some of you guys have Palm Pilots, but here's a patient that didn't come in for 11 months. You need to check up on patients like this. I'd get back in the habit of saying what size a mass looks like so you can document any changes. [The Resident didn't have the size information] [OB11].

#6 Review of Tests—Further Decisions

There are hundreds of lab, x-ray, and consultant reports that are faxed or mailed into the clinic every day. Since faculty and residents are only in clinic on an occasional basis, an ordering is developed to review the reports. The nurses first reviewed them, and requested medical records to pull charts on all reports with "abnormals." Then the nurses took the charts, with reports attached to the ROC, the "Resident on Call."

The faculty resolved the problem of who should review the labs and other reports by creating the ROC position. The ROC is excused from seeing patients on their assigned half day. Since there are between eight and twelve residents per half-day clinic, the task is cycled so that most residents do the ROC job only about once in two to three months. During most of the study period, there is confusion over whose records the ROC should be reviewing. Should they review only other residents' patients? Or, should they review the faculty's patients as well? Also, what are they supposed to do with the myriad different forms, and all of the "gray areas" in patient care? Discussions mainly ensued over which papers the ROC versus faculty should be overseeing [OB03; 19; 65].

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Attendings and residents could not produce a shared understanding of exactly what the ROC is supposed to do. For example, there are patients who have slightly abnormal values—not enough to warrant immediate attention, but values that someone should certainly remain aware of. The ROC did not know when the patient’s PCP would return to review the paperwork—or when the patient is scheduled for another visit. Almost every day discussions ensued between attendings and ROCs on how to handle patient results [OB06;16;19;27].

The learning value of being the ROC is also an open question. One resident noted that there is a lot to learn by doing it, as you can see a lot of different cases in one short period of time [OB64]. But another resident indicated differently.

Resident: I don’t learn much of anything [being the ROC]. You’re just seeing the labs. There’s nothing clinical. Except I dealt with a patient who had a new insurance card in the mail. Her medicines were getting denied. So all I had to do is make a few phone calls. I feel like a social worker. [A few minutes later.] By the way, the thing about the ROC. I don’t think it’s educational, but I do think it’s necessary. There are a lot of things we do that are part of work and this is one of them [OB66].

Here the resident has narrowly defined learning as being anything “clinical.” Also—this is considered the “work” of the physician—but it is not viewed as part of “learning.” Perhaps without realizing it, residents are learning about the larger system issues of medicine and how to deal with those issues.

Summary of PCTL Ordering Process

In sum, the general ordering of the patient care/teaching/learning network has first, a planning phase to “set-up” for the patient visit, and then a patient interview phase. Next

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a teaching/learning encounter ensues that can or cannot involve developing a treatment plan for the patient as part of a joint attending/resident interaction. Finally, there are two aftercare phases: further research or finding of resources, and review of test results.

Disorders in the PCTL Ordering Process

When the PCTL process works as described above, i.e., all of the actors are present and execute their work at the correct times; the clinic is at its best. Both patient care and teaching/learning are being carried out to the maximum quality and efficiency that these actors are capable of producing. However, this is a very complex chain of events. It involves many actors that must be present at the correct times and in the right places. Furthermore, they must execute their actions and interactions according to the norms constructed by themselves (including historical actors and the outer networks). There are many occasions and times when it is not possible to bring together such a coordinated effort. This section discusses what happens during some of the various disorders that occur.

These dis-orders impact the *efficiency and quality* of activities or lack of activities on the PCTL organizing processes . To some lesser extent, they also impact the efficiency and effectiveness of the registration and administration/management nodes as well. All of the dis-orders do not impact the quality of teaching/learning OR the quality of patient care all the time. However, for this clinic, organizing processes are established to meet the purposes of the clinic, by the organization itself. If the actors are unable to act, then as we have seen above, there are a myriad of other reactions. From within the

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organization the dis-orders are viewed as less efficient and/or less quality. In fact, these dis-orders may provide, from time to time, better care or more learning. These dis-orders are not a comprehensive list, but for this clinic, they are the dis-orders that were discussed with the most frequency.

“Normal-ness” is not always present. Things break down, people are absent, charts don’t show up, patients don’t show up, exam room objects don’t work, there are mix-ups with scheduling, etc. How do the actors act when those things happen? Some researchers have suggested that it is only in the surprises, the breakdowns or the changes that one can observe the inner workings of a network. The absence of activity or actions, i.e., passivity, must also be carefully attended to (Callon & Law, 1997; 1996). By observing the dis-orders and absences, it is possible to find the contradictions in the work processes. Hasu and Engeström define these dis-orders as “*deviations from this scripted procedure* [that is, the standard, or normal work/actions/procedures]” (2000, p.65).

It is in the process of observing the dis-orders, absences and changes in the networks that one becomes aware of the value of the individual actors in the networks. When one actor isn’t working, is absent, or changes directions, what do the other actors do? How can they interact if there is nothing there for them to interact with? Several things become clearer by observing these breakdowns, absences and changes. First, one can begin to understand what the actors perceive as normal, as part of their everyday activities. Second, one can observe how they act during these times. Do they try to

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“right the apple cart” so to speak, do they ignore, or do they have an alternative set of actions? Finally, in the process of observing the dis-orders and changes, the intertwined nature of multiple, overlapping activities becomes much more clearly delineated. Changes in one “ordering” impacts others and internal node work as well. It is possible to observe some of the intertwining when the networks are running normally. However, it is much easier to see the intertwinings during the dis-orders and changes.

This section focuses on places where processes break down, are absent or changed. Here we are no longer looking at the ROUTINE organizing processes, but what happens when the ordering processes are NOT followed. I have termed the breakdowns or absences “dis-orders” (although disruption would be just as applicable). The term “dis-order” is used to connote a difference from what is perceived as “order.” In many cases this is simply an absence of the normal ordering process, as when a chart is missing for a patient visit. In other cases, it is a breakdown of the normal ordering process, as when reports are misfiled in the patient’s chart, thereby making it difficult to find them. These dis-orders, key discussion items in the clinic, are provided by staff, faculty, and to a lesser extent, residents. They are ordered here simply to permit some continuity to the discussion. No one item is viewed as more important than any other.

How Does The PCTL Ordering Process Relate To Patient Care And Teaching/Learning?

As in the scheduling process, and the Socio-Spatial Opportunity Set, this Patient Care/Teaching/Learning (PCTL) ordering process further delimits or expands

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Organizational Issue #7
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opportunities and capabilities for patient care and teaching/learning. It begins with how the actors have constructed the process. Then for each disorder discussed above, the actors' reactions further defines what can be implemented in the way of both patient care and teaching/learning. While all orderings are related, some stand out as particularly important to either patient care and/or teaching/learning.

Table 6.2: Relationship of PCTL Ordering Process to Teaching/Learning/Patient Care

Organizational Issue #7	Most teaching occurs outside the exam room.
Network Element(s)	The order of the PCTL process does not permit faculty observations in the exam room.
Faculty Opportunities and Constraints	When the patient is not present, it is easier for the attending to discuss certain issues with residents, and to do more teaching. However, the attending loses the opportunity to observe the resident while the resident is interviewing or doing physical exam skills.
Resident Opportunities and Constraints	Residents gain more self-assurance in conducting interviews and physical exams with patients by themselves, but they lose the opportunity for feedback.
Patient Care	This is one area where there is probably little difference, as attendings usually go back in at the end of the visit to make certain they have seen the patient.

See Table 8.1 for Summary of Relationships

The ordering is such that only the nurses know ahead of time (by virtue of the hard-copy schedule) which residents see which patients. The faculty do not speak with residents before patients are in exam rooms. Nor do they follow residents into exam rooms and observe residents during the interviews or physical exams. In this clinic, the ordering is such that residents present cases *after* they have interviewed patients and conducted physical exams. Therefore, there is very little that attendings can comment on. They can discuss treatment plans, or pick up missed information when they enter the exam

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room at the end. The *ordering* of the teaching/learning process limits the amount of information available to the attending for evaluation of residents' skills. Lesky and Hershman (1995) noted the need to have greater observation of learners examining or talking to patients. This provides opportunities for immediate feedback that are currently missing.

There is one attending who had the resident present in front of the patient without doing any preliminaries in the RWR. (Note the change in order here. The resident and attending eliminated the RWR step and went directly to the patient exam room.) She did this on several occasions [OB14], and it worked just fine for the patients and resident. However, she is working with a fairly senior resident who made clear-cut diagnoses and had correct treatment plans. This teaching style is outside the "expected" presentation protocol for this clinic. It makes it more difficult for her to insist on using it. The residents do not know what to expect. Will she insist on returning to the patient's room or not? (She did not do it all the time.) However, the patients like it because it gives them more time with two attentive physicians [OB14].

With this resident, the attending did not have to "correct" the resident in front of the patient. Correcting the resident in front of the patient is one of many reasons that other attendings gave for *not* doing this. The belief is that questioning the resident in front of the patient will destroy the doctor-patient relationship. The patient will realize that the resident is still learning and thus have less confidence in the resident's decisions. Time

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Table 6.3:

**Organizational
Issue #8**

**Network
Element(s)**

**Faculty
Opportunities
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**Resident
Opportunities
Constraints**

Patient Care

constraints and frustration with not getting the right answer quickly enough are also considerations [IN11].

By virtue of the ordering, attendings do not have an opportunity to speak with residents *before* they see patients. “Goal setting” is important, because it permits residents to concentrate on skills they have yet to learn (Ferenchick, Simpson, Blackman, DaRosa, & Dunnington, 1997). More importantly, faculty are not “in-the-loop” to view residents during this early, critical phase. Residents miss an opportunity for someone to provide feedback on their interviewing and physical exam skills. Does this ordering change patient care? It is difficult to say, since most attendings did go in to see patients and

Table 6.3: Relationship of Random Selection to Teaching/Learning/Patient Care

Organizational Issue #8	There is random selection of attendings by residents when presenting.
Network Element(s)	The PCTL ordering process makes random selection the only choice. There was a historic decision to not have smaller teams.
Faculty Opportunities and Constraints	Faculty may switch their half days with any other attending if they have something else they need to do. Responsibility ends at the end of the half-day. This makes it difficult for attendings to follow-up with patients or residents.
Resident Opportunities and Constraints	Residents may switch their half days if need be. They have no further responsibility for patients past the time in clinic. They have a diversity of attending opinions. Residents lose follow-up and longer-term relationships with attendings.
Patient Care	Patients receive opinions and confirmations from more than one attending. They lose an opportunity to get to know a smaller team more intimately.

See Table 8.1 for Summary of Relationships

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Table 6.4:

Organizational Issue #9
Network Element(s)
Faculty and Resident Opportunities Constraints
Patient Care

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reviewed their problems at the end of the visit. It probably does not have much effect on patient care, within this clinic. However, by using this ordering, the long-term abilities of residents to interview and conduct physical exams cannot be evaluated. Random selection has both pluses and minuses. Residents are able to have a diversity of attendings' opinions, even on the same patient, if the patient returns frequently. However, continuity around the patient's care may be lost. In addition, it makes it very difficult for residents to be evaluated for their clinic work, as no one attending knows any resident very well.

There had been no evaluation of residents' clinic skills until the study year. The faculty decided to provide an evaluation for each resident, using the standard evaluation form that they used for all rotations. Each faculty member is assigned to three or four residents to evaluate, based on the days they were regularly assigned to clinic. An attending and a resident permitted me to sit in on one resident's evaluation [OB68]. The

Table 6.4: Relationship of ROC Aftercare to Teaching/Learning/Patient Care

Organizational Issue #9	ROC follows up with aftercare, not resident who saw the patient.
Network Element(s)	Ordering process; communication back to resident who saw patient is absent.
Faculty and Resident Opportunities and Constraints	Both faculty and residents do not have to worry about following-up with their own patients. However, if they do want to know, this process makes it difficult.
Patient Care	Quicker and faster patient care, however, treatment may not be what is decided during patient visit.

See Table 8.1 for Summary of Relationships

entire discussion lasted no more than ten minutes. It focused on fairly standard issues of communication skills, clinical knowledge and diagnostic abilities. The attending had not

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observed the resident doing any interviewing or physical exam skills. Therefore, the attending is only able to discuss those skills when the attending had discovered something upon re-examining or questioning patients at the ends of the visits.

Again, this ordering has both pluses and minuses. In most cases, it makes for much smoother patient care. Patients are able to obtain lab reports, changes in medications, or even referrals to consultants in a timely manner. But there was at least one occasion when a ROC called a patient in the morning with one lab report, and a second ROC called with a different lab report the next day. One report was positive; the other negative. A third ROC was left to discuss with the patient what needed to be done next. Contradictory advice. The patient appeared angry on the phone [OB79].

For residents seeing patients, the ROC makes their work easier, as they do not have to worry about coming back to the clinic during the week to check up on all their reports. However, the residents also lose opportunities to make decisions about what treatments their patients receive. Faculty are also saved the work, but lose the sense of continuity over patient care. Training in the long-term nature of patient care is substituted for the expedience of taking care of the patient.

The next section reviews some of the dis-orders, and how those relate to patient care and teaching/learning. Most of the time, “working around” the dis-orders becomes a part of the ordering processes. They are separated from the normal processes as they were pointed out to me as parts of the clinic that need fixing. Some of these dis-orders have

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Table 6.5 R
Organizational
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Patient Care

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been routinized, other have not. The same dis-order may have different routines for different actors. For example, on the issue of no-shows, the MAs have a set routine for handing the charts to the discharge staff, who then call the patients. Yet for the residents, the absence of the patients produces a much larger range of responses. It includes everything from playing the basketball game, to reading texts, to using the computer. However, going outside the RWR is not considered a part of the routine. In other words, they don't go down to triage and help the nurses out with phone calls, or go to medical records and help file.

Table 6.5 Relationship of Resident Absences to Teaching/Learning/Patient Care

Organizational Issue #10	There are unscheduled absences of ROC and/or other resident.
Network Element(s)	The actors are absent and/or the scheduling process is not followed.
Faculty Opportunities and Constraints	Faculty have the ability to review charts and see what residents have been doing with their patients. Seeing the absent residents' patients may cut into teaching time for residents who are present.
Resident Opportunities and Constraints	If residents see more patients, they gain more experience—the same could be said for the ROC's paperwork. Even if they are very busy, they gain experience in handling rushed time. They lose out on more teaching/learning time from attendings however.
Patient Care	For those patients whose resident is absent, they lose continuity of care. They gain another opinion from another physician however.

See Table 8.1 for Summary of Relationships

For one reason or another, ROCs and/or other residents would be on vacation, or other rotations where they do not have to be present in the clinic. This should not happen, as the Scheduler maintains the residents' schedules. Yet it continues to happen. There are

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two different reactions from faculty: one is to ask all the residents in that half-day session to share the work of seeing patients, or reviewing charts. The second reactions is for faculty to do it themselves. The faculty do not question the dis-orders in the scheduling.

When this occurs, residents and attendings have more work to do, as they must either see the missing resident's patients, or do the paperwork for the ROC. This is an opportunity for residents to see more patients, and to learn to see them quickly. Another resident's patients may be very different than one's own. For example, the med-psych residents tended to have more patients with psychosocial issues. Doing the work for others is also a constraint on residents, as they have less time with their own patients. Because patients are not seeing their regular physicians, both the patient and the absent resident lose an opportunity for continuity of care. Faculty work is not changed on this issue, unless they decide to see some of the patients or do the ROC work themselves. Even here there is a positive side. If attendings do the work, they can review what residents have done previously.

Both residents and patients must now cover the same number of issues in less time. This may be an excellent learning experience for a resident, as it is important to learn how to manage more patients in shorter amounts of time. However, depending on the complexity of the problem, and the resident's own level of experience, this can also be a very difficult situation in which not much is learned (or taught). Faculty teaching time is usually cut short. Oftentimes the solution is to handle only the most urgent problem and

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ask the patient to return for another visit. Even the outer networks are implicated when patients have problems with the bus system or the disability van system.

A more serious absence occurred, when ten residents decided to find other clinics for the upcoming training year. (This had always been an option, but this was the first year that so many residents had taken advantage of it.) When asked about the reasons for dissatisfaction, no one understood it. Faculty decided to do a study of the residents who were going to stay—not those who left and shared the results. Areas of concern included a lack of formal teaching on ambulatory topics, the need for faculty development of preceptors, “social calls” by preceptors are a waste of time, scheduling, continuity of care, patient no-shows, and inadequate care of medical records [DOC115].

When the nursing staff are very busy, there are occasions when they cannot keep up with getting the patients into the rooms fast enough for the residents. At those times, residents often clean the rooms themselves, go out into the lobby, and call their own patients. They “vital” patients themselves. If residents choose to clean up their own exam rooms and vital their patients, they get done with the work more quickly, and patients are seen faster. But this is “busy work” for the resident. In general, it is not time spent in learning.

Late arrivals change the entire PCTL ordering process. Now the nurses have to “squeeze in” the patient’s vital signs between the regular appointments. Residents now

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Table 6.

Organiz Issue #1
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Sometimes the patient arrives at the very end of the session and the doctor has already

Table 6.6: Relationship of Late Patients to Teaching/Learning/Patient Care

Organizational Issue #11	Patients are late.
Network Element(s)	Actor (patient) is not in correct place at correct time.
Faculty Opportunities and Constraints	Faculty can model how to work at “rushed” times, e.g., addressing only current problem with patient. Faculty lose ability to discuss longer-term issues, or to teach longer or more involved “scripts.”
Resident Opportunities and Constraints	Residents learn how to work in rushed circumstances, but lose teaching time.
Patient Care	Quality patient care is provided, but on a more limited number of issues.

See Table 8.1 for Summary of Relationships

left, making it necessary for the M.A. to find another physician who can see the patient.

Late patients are often given to a senior resident, or an attending, in order to complete the session on time [OB83]. One day a resident turned a patient away, because the patient arrived at the very end of the session. The Clinic Director chastised the entire faculty for turning away patients when the no-show rate is so high [OB53].

How Does The PCTL Ordering Process Concur With The Literature?

Xakellis and Bennet (2001) found that patients who arrive late wait less than those who arrive on time. While I did not specifically measure patient wait times, most of the faculty were almost always out the door within a few minutes of the end of their session. This would indicate that patients who arrive late wait less than others. While wait time may be an outcome, it would seem that the more important outcome would be the

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amount of time the patient has with a physician. Again, it is possible to only note anecdotally that this time is shortened if everyone is seen and the session is completed on time.

In one study, specific scripts are provided to medical students to use at patient intake and a separate one for the patient visit (Regan-Smith, Young, & Keller, 2002). These clearly lay out the expectations for the learner. Scheduling is changed so that attendings and students see patients together, after the students have completed the initial scripted questions and activities. This considerably decreased patient waiting time, and increased the amount of time students spent with patients. It also increased the amount of teaching time for physicians. By changing the ordering process and improving the work of the node through the development of scripts, teaching and learning time were improved and patients had less wait time. Long made an even more drastic suggestion to change the ordering process. He claimed that residents should complete their training when they are able to demonstrate certain competencies, rather than a fixed number of years (2000). Imagine what that would do to the scheduling and ordering processes if every resident had a different schedule and different requirements!

Characteristics of the Ordering Processes

In the previous two sections, we have examined in detail the two major ordering processes in the clinic: Scheduling and Patient Care/Teaching/Learning (PCTL). In this section some characteristics of both ordering processes are explored. These include the distribution of actors across processes, the role of patients as actors, and how missing actors can change the ordering processes.

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Finding D. 3. There are at least three characteristics of the ordering processes: a) actors and actions are distributed across processes, b) patients play a major role, and c) other missing or absent actors change the ordering processes.

Distribution of Actors

D.3.(a) Different actors and actions are distributed across the processes. No one actor acts across an entire process, or even has access to an entire process.

In both the scheduling and PCTL processes, the number of actors is very large.

Furthermore, each is responsible for one small part of the process. These actions have to be conducted in the correct place, in an acceptable manner (to other actors), and at the correct moment. Throughout, no one actor has access to the entire process. In fact, most actors are not even aware of all the actions that others must carry out in order for the process to be completed. Note how everyone blamed someone different for the problems with scheduling, for example. There is no one actor who has access to the entire process. This includes the Clinic Director, who is quite knowledgeable about the process. Recall that she wrote a long document detailing how scheduling should work. Yet because she does not enact all parts of the processes herself, she does not have knowledge of the many variants or the minute details.

The PCTL is complicated by the large number of residents, faculty and patients who enact the process daily. Even if a few actors try to re-order the process, having that same order transfer over into all parts of the clinic and on all days in the clinic is quite a feat. As one of the attendings noted: “The issue is, can we all come to the same conclusions to be consistent across all of us?....Like herding the cats, we’ve never been able to do it [OB84].

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How Does This Finding Concur With The Literature?

In a very different kind of study, Timmerman and Berg (1997) studied the implementation of standard, universal medical protocols for Cardio Pulmonary Resuscitation (CPR) and Advanced Cardiac Life Support (ACLS). They concluded that the work involved in performing these protocols is distributed and situated within the locality. Because the work is distributed, the processes by which the protocols come to be administered must be negotiated and renegotiated. This suggests that even the processes do not remain the same. We see this same sort of negotiation particularly in the scheduling area, and again in the teaching/learning encounters as residents and attendings negotiate both with consultants and patients as well as with each other as to what is the best way to proceed. Not only is the work distributed, but the knowledge is distributed across a large number of actors.

One of Callon and Law's principles (1997) is that distributed entities are also points. In the clinic network, each of the key players acts as both a distributed entity and a point. The patient herself brings her family or comes by Medi-Cab. She has a certain type of insurance, and only remembers to bring half her pill bottles with her. She has a chart in the clinic that represents her social and medical past, but today she is also a point as she seeks relief for a new leg pain. The resident becomes a point when he calls the consultant. He represents the entire clinic and the distributed wisdom of the faculty, and to a lesser extent the staff. The charts themselves represent complicated histories of the patients, yet they become points, or more accurately "waiting patient indicators," when they get placed on the resident's door. In sum, the clinic network is more complex than

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I originally anticipated. The teaching/learning aspects cannot be clearly separated from the patient care aspects; they are inextricably intertwined. This is discussed in more detail in the next chapter. The learning “environment” also cannot be separated from the actual patient care and resident outcomes. Each of the distributed points must arrive and act in the clinic at the correct moment with the expected actions. When that does not happen, the outcomes are considerably reduced, or unable to be produced at all.

Role of Patients

FindingD.3 (b) Patients are one of the key actors in terms of producing changes in the ordering processes and the within-node interactions. When patients do not show up at all, the work inside the nodes changes. Patients’ absences provide breaks for faculty and residents which change the actors’ actions *within* nodes. However, when patients are late, or are found to be waiting in the lobby for hours, this changes the *ordering* for the resident, at least one attending, and the residents’ remaining patients. Particularly in cases when it is close to the end of the session, other residents or occasional attendings would see patients in order for everyone to leave on time. This also changes the work.

No shows The patients themselves have a great deal of control in this system. By their very presence or absence, the entire workload of staff, faculty, and residents changes.

The no-show rate in this clinic quite high, averaging 30.8%.⁴ Same-day patients, because of the urgent nature of their illnesses have an average 4.9 % no show rate. For five weeks, a temporary staff person called every patient the day before the visit to remind them of the visit. The no-show rate during that time is 28.2%. For the next five

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weeks, no calls were made, and the no-show rate increased to 32.7%. This high no-show rate is a tremendous expense to the clinic—to plan for a visit, pull the chart (often twice), have a nurse or receptionist help make the appointment, and then not have anyone show up. This also impacted patient care as the patient would then wait until he/she is so sick that they needed a same-day appointment. Moreover, this made for very uneven teaching/learning opportunities.

Before the patient visit can start, there has to be a patient. When there aren't any patients, the entire set of activities that residents are involved in change. Instead of seeing patients, they read texts, work on their inpatient hospital work, and surf the internet. One resident even paid her bills on line [OB83]. Since they are required to be physically present in the clinic, most found productive ways to spend this time, making it look like they are working, even if they aren't. With a no-show rate of 30%, residents expect that one to two of their patients will not show up every session. One session, one resident had four patients scheduled, and none showed up [OB84].

From the patients' perspective, missing the appointments means losing an opportunity for much-needed continuity of care. If they now reschedule for a different day, they will not see their assigned primary care provider. There is anecdotal evidence that there is less general health maintenance on patients like this, as they only arrive when they really need urgent care. Furthermore, they tend (again, anecdotally) to use the ER more. In general, these are the patients who never see the same doctor twice.

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From the perspective of the floor nurses and discharge staff, on any given day, they view patient absences as less work. It gave them breaks in their very busy and hectic schedules. However, from the perspective of the triage nurses, this means second or third phone calls to the same patient over the same issue. The nurses' perception is that these patients will be calling for a triage appointment when they run out of their medications, or are in a tremendous amount of pain. Medical records also has more work. The chart has to be put away and then pulled again when the patient makes another appointment. When one looks at the effort and time involved of the telephone receptionist, a triage nurse, medical records staff and even a floor nurse just to get ready for a patient appointment, the amount of staff time and dollars that go into one appointment is considerable. For every lost appointment, making a second appointment for the patient doubles the cost. Moore et al noted the average charge per patient visit for scheduled appointments at \$64.03, but the walk-in charges were \$57.29 (2001, p. 525). In the Korsdale Clinic, situated in an urban area with fairly high wages, one can assume the charges and costs are even higher.

How does the staff act when this dis-order occurs? The dis-order has become so much a part of the daily order, they have developed a process for handling this. At the end of the morning, the floor nurse gathers up all the charts of the "no-shows" and hands them to discharge. It is up to the staff there to call the "no-shows" and try to reschedule the appointments. How much of this actually occurred, it is difficult to say, because of the sporadic manner in which they tried to fit in the phone calls with their other duties. From limited observations, a guesstimate might be that under a third of the no-shows were

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actually reached on any given day. Many patients were not home or have no phones.

Many were not called at all, if the clinic is busy.

What is the Relationship Between No-Show Rates and Teaching/Learning/Patient Care?

Sometimes residents use the “free time” by taking longer periods of time with other patients. This could get them into trouble however, as there would be occasions when a same-day patient or a walk-in would be scheduled into a no-show slot. Since the only accurate listing of who is scheduled is located at the nurses’ station, the resident has to physically check this list to stay up-to-the minute. If a resident is in the exam room with a patient when this happens, he might simply stay longer in the exam room. Then he could easily miss that a patient has been “added-on” to his schedule. In the resident survey, this is one of the aspects of clinic that residents liked least. Here are a few quotes from the residents: “Many residents are turned away from primary care based on their [continuity of care] experiences at KUI.” “The add-on patients are probably an unavoidable part of clinic, but it seems like an awful lot of them end up on my schedule.” “Patients are added-on to your schedule without consulting you first” [DOC115]. The inability to control the add-ons and the need to physically check at the nursing station make it difficult for residents to plan their time.

As for the faculty, they are so busy precepting other residents, that having short breaks are welcome. Most faculty brought charts with them from their faculty practice and used this time to catch up on paperwork. Internet look-ups are also popular and some

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Table 6.7: Relationship of Patient Absences to Teaching/Learning/Patient Care

Organizational Issue #12	Patients do not show up for appointments when scheduled.
Network Element(s)	The actors are absent. The processes for minimizing no-shows are missing.
Faculty Opportunities and Constraints	This “time-off” provides faculty with an opportunity to spend longer times with other residents and other patients, or catch up on their own work or personal lives.
Resident Opportunities and Constraints	Residents can spend longer with patients who are present, but lose the opportunity for more continuity of care.
Patient Care	Patients may need to receive care and do not obtain it.

See Table 8.1 for Summary of Relationships

volume was so low, that one of the faculty remarked that with so few patients scheduled for the entire afternoon, she would be giving a lecture [OB85]. Other than that day, no attempts were made to provide other assignments, readings, or discussions about ambulatory topics.

The missed opportunities for teaching/learning are tremendous. The medical education literature abounds with lists of competencies that residents are supposed to learn in ambulatory settings. (See Chapter 2). Yet the faculty made no systematic attempt in the year I is present to fill some of this time with additional learning activities. More importantly, there are no attempts to involve residents (or faculty for the most part) in resolving clinic problems. Why not give the “no-show” problem to a group of residents and let them research it? What have others done in the past? What works and what

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Instead, these issues are not even discussed.

How Does This No-Show Rate Concur With The Literature?

The Korsdale Clinic no-show rate is consistent with the literature. Studies with various forms of surveys have shown rates as low as 6%, but many averaging in the mid-twenties (Moore et al., 2001; Xakellis & Bennett, 2001). In a survey of Family Medicine clinics, over one-third of them had rates higher than 21% (Hixon, Chapman, & Nuovo, 1999). Jain and Chou (2000) began with a no-show rate of 45%, but lowered it by implementing an orientation clinic to 18%. Hixon (1999) used three different reminder systems, but even the use of a reminder system did not appear to make a statistical difference in the show rates. Failed appointments are highest on Thursdays and lowest on Wednesday, but the difference is not significant (Moore et al., 2001). Direct observations about what happens to both patient care and teaching/learning when patients don't show up has not been discussed. In the Korsdale clinic, residents and faculty use the no-show time to do hospital or other work not directly related to the clinic. Given the 30% rate, one can assume that approximately 30% of the time spent in the ambulatory setting is lost for teaching/learning.

Many studies have noted the importance of satisfying patients and providing good quality organizational management, in addition to providing quality patient care.⁵

However, the direct relationship of patients to changes in the ordering processes has not been examined. In a recent survey of low-income women, four organizational variables

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were linked to satisfaction for service. After financial issues, patients felt it is important for the office to be open nights and weekends, get through on the phone, spend an adequate amount of time with the doctor, and have minimal wait time for appointments (O'Malley & Forrest, 2002). All of these issues have some component of ordering to them. Once the patient is in the building, the above study corroborates the need to pay attention to the order, so that patients have minimal wait times and sufficient time with a physician.

Other Absent Actors

Finding D.3(c) Other missing or absent actors changes the work of the nodes and the ordering processes.

This section looks primarily at two sets of missing objects: patient charts and exam room objects. The issues surrounding these object-actors have been touched upon previously. Here the focus is on the dis-orders they present.

Patient Chart Dis-Orders

For patient charts, there are at least four general dis-orders: a) a chart can not be found, b) the information needed is not in the chart, c) the information is in the chart, but is filed in the wrong section, or d) information in the chart is not maintained.

Chart Cannot be Found. At any given point in time, a chart can be on the shelf where it belongs in the medical records room, somewhere in the medical records work room being worked on, on a physician's desk awaiting signatures, at the nursing triage station for patients waiting to speak with a nurse, in the cart at the nurses' station

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awaiting a patient visit, in a patient room with the resident, or in the RWR, waiting for faculty and resident notes. It can be in the cart that the Walker rolls around the halls all day. The chart can also be sitting on the Office Manager's or Nurse Manager's desk, if there is a patient complaint. The sheer number of places to begin to look for missing charts makes this a not-so-fun game of hide-and-seek. Even within the medical records shelves, there are at least four places where it can be filed: in the main files, in the "charts pulled for tomorrow" section, in the "charts back from today" section, or in the "to be worked on" section (for charts where the covers, binders, etc. are broken, or the chart is overstuffed.)

There is one young woman who is very good at finding charts. Everyone would always say, "Go ask Anne." Usually within fifteen minutes or so, she would bring back the chart. But if the chart can not be found, the problems begin. For the triage nurses, it means that the patient will probably call back again before the chart is found. The nurse has to explain to the patient that they are still looking for his chart.⁶ It delays care and makes it difficult for the triage nurse to decide on whether the patient needs an appointment. Sometimes the chart is still missing on the day of the appointment. One patient explained that he had been here four times so there was definitely a chart somewhere [OB36]. On several different days, the MAs went back into medical records and looked for the chart themselves in order to have it ready by the time the patient arrives [OB21;36;42]. But, sometimes the chart is still missing when the patient gets to the exam room⁷ [OB42].

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Table 6.8: Relationship of Absent Charts to Teaching/Learning/Patient Care

Organizational Issue #13	Patient charts are not present for patient visits.
Network Element(s)	The chart, as actor, is absent. Previous ordering processes and dis-orders in the node work produce the absence.
Faculty Opportunities and Constraints	Faculty have an opportunity to discuss organizational issues about medical records with residents but have less time to teach about medical care, as time is spent in re-gathering the patient's history.
Resident Opportunities and Constraints	Resident receives extra practice in re-interviewing patient to re-construct the patient's history, but this is time spent re-doing work already done. The resident also loses back-up information to determine if the problem has been correctly treated.
Patient Care	The patient gains an opportunity to re-tell her history, but may lose longer-term history of care in terms of back-up lab reports, etc.

See Table 8.1 for Summary of Relationships

Information Not in Chart. Missing charts are such a frequent occurrence that the medical records staff devised a system to get around some of the issues. When paperwork needed to be filed, they had hard red plastic files that they put the patient's name on. Any loose reports would be put into one of these binders and placed on the shelf where the chart should be until the patient's chart reappeared.

Unfortunately, it got so bad that some patients had TWO red plastic binders. One day one of the residents came in and showed the attending two red binders. He explained to the attending that the staff couldn't find the patient's first chart so he had started a second chart. Now that chart too is missing. The resident then stated that he had talked to the Office Manager and hadn't gotten anywhere. The attending stated, "OK, I'll talk

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to her.” [OB27].⁸ These incidents both shorten teaching/learning interactions and lengthen patient visits, as residents must spend more time reviewing previous history.

Table 6.9: Relationship of Missing Chart Information to Teaching/Learning/Patient Care

Organizational Issue #14	The patient chart has missing information, e.g., lab tests, consultant reports or X-ray results.
Network Element(s)	The actor in the form of the missing reports is absent. Previous ordering processes and dis-orders in the node work produce the absence.
Faculty Opportunities and Constraints	Faculty gain an opportunity to teach about how to access reports through the computer or speak to consultants, but have less time to teach about patient results. Also, all patient results are not present on computer. Then the opportunity to teach and learn about the results is totally lost.
Resident Opportunities and Constraints	Residents learn a secondary route to accessing results through computer software systems, and calling consultants. They have less time with patients and, if results are not found, they cannot make decisions about what to do next with the patient
Patient Care	If the results are found, the patient has only had to wait longer, but if the results are not found, the patient must return, or at the least, call back in for further decisions on care.

See Table 8.1 for Summary of Relationships

As noted earlier, the filing is so far behind that it made it difficult for all concerned. Lab reports and consultant reports were not in the files. When the patient calls and asks about test results, the nurse manager pulls the chart, only to discover the information is not present. The ROC’s work obviates some of this need, but nevertheless, there are constant patient issues to be communicated. In some cases, the physician told the patient to call and get a prescription change after their lab results came back. Without the lab results, it is difficult to provide the prescription. If the nurse took it to the ROC,

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they could then look it up on the hospital lab system, but nevertheless, this added extra steps for all concerned. Sometimes the reports were simply not available. They had been faxed or sent and ended up in the medical records pile to file.

Information Misfiled in Chart. When the new Nurse Manager came, she asked the Medical Records staff to “loose file” the reports into the charts (without attaching them). This at least places the reports in the charts for the next patient visit. Then, when the chart is pulled for the visit, during the “stuffing, stamping and reversing process,” reports can be filed at the same time. The reports began to appear loose in the charts, but the second step of getting them attached to the file didn’t happen for several months [OB29]. The faculty questioned why all of these papers were loose in the chart. Finally one of them asked and told the other faculty that this is an “interim solution” to at least get the paperwork into the chart [OB103]. It is a typical example of the breakdown in communication that is often present in resolving issues in this clinic.

There are two sets of tab systems in the charts. One is a four-tab system, the other – eight tabs. The medical records staff had to remember that in one case the Pap smear here are two sets of tab systems in the charts—one a four-tab system, and the other, report might be under “miscellaneous,” but in the other system it might be under “reports” [OB114]. Also, because the charts from one of the previous clinics are being reversed, the lab reports from that same clinic also have to be reversed. This had been accomplished in some cases but not in others. One day I selected a chart at random. Here is the order of the lab reports: (top to bottom) 9/14; 9/20; 2/08; 2/08. Then, after

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the yellow hospital lab reports, there were more outpatient reports from top to bottom: 9/02/01; 08/02/01; 12/02/01; 12/02/01; 12/02/01; 16/02/01; 16/02/01. Not only were the reports not in correct date order, the day and month were reversed on some of the reports [OB79].

It is a constant struggle to figure out what is in the charts and what isn't. There were many comments from both faculty and residents about the seriousness of the problem. An attending stated: "There's a patient care problem waiting to happen because of medical records" [OB38].

There are also times when the charts make it to the RWR without the progress notes being reversed or with lots of old, extraneous information in the chart. While the resident is presenting the patient's case, the faculty member takes the chart and cleans it out, rearranging the pages, clearing out old forms, etc. [OB09;11;23]. This is time spent doing clerical work rather than teaching, however the attendings are modeling some sense of responsibility for the charts.

Information in Chart Not Maintained. Another dis-order dealing with the charts is the absence of any uniform record of what is happening to the patient. There are three forms on the left side of the chart, a problem list, a medication list, and a preventive maintenance check sheet. They were not being filled out when I arrived. In fact, some faculty stated that the forms are inadequate. One attending noted: "The biggest reason why we don't do it-- we don't agree on what constitutes basic care and

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preventative health. Lack of consensus” [OB18]. The assumption is that all the physicians should write very thorough progress notes in which all of those items are covered. In the cases where the physician does write good progress notes, it is possible to find the information needed. But it often took considerably longer than necessary, as it meant going through pages and pages of handwritten progress notes.

Unfortunately, with a large number of the charts, the progress notes were insufficient to tell what medications the patient is on, or the nature of the patient’s past medical problems. Because of the fairly random assignment of patients to residents, the resident is often seeing someone else’s patient and is essentially starting all over. In a number of cases there were times when the medications that the patient is on are either unknown or unclear [OB47;56]. Oftentimes, the patient could tell the resident, but in some cases the patient is instructed to call back with the names of the medications. But (usually) neither the faculty nor the resident who saw the patient will be present at the time of the call-back. There is no assurance that the correct people will receive the message and correct the problem. Again this impacts both patient care as well as opportunities for teaching/learning around medication issues.

There is no record of preventive health maintenance. That is, the forms in the charts are blank. The faculty are always asking the resident where the person stood in terms of a large list of health maintenance items. While this is certainly a positive, i.e., to be checking to make certain residents have covered these items with patients, there are times, for example on urgent visits, when it is unnecessary. Without a system in place,

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the health maintenance items faculty selected are at the whim of the preceptor (some covered more than others). The resident could often answer that she is planning on waiting until the next visit to do such and such. There is no visible record of when these items actually are addressed.

I may have had some influence over the use of these standard forms. My rather persistent questions about why these forms weren't a part of the standard chart may have made at least a partial impact. When I returned for my last faculty meeting in September, one of the attendings presented new forms. One of the faculty asked why they were doing this. The Clinic Director answered: "For quality of care" [OB115].

Sometimes the lack of a note from a previous visit caught up with the resident. They realized themselves the importance of writing good notes. One resident noted that he had not completed the medication list and that he also didn't complete his last note. The patient had not brought her medications so he is having difficulty figuring out which ones she is on because the patient couldn't remember [OB23]. Again we see the chart as a stand-in for the patient, but with only limited use if notes are not complete and the medication list isn't up to date.

At least one of the faculty began to show the interns how to complete the old forms, and insisted that the new interns at least complete the medication list. In the chart I looked at that afternoon, the medication list had not been touched since 1999 [OB117]. However, by the third day the interns were in the clinic, none of the attendings were making any

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mention of using the medication form. This points out just how difficult it is to effect any kind of long-lasting change.

Exam Room Objects Missing

One of the key problems that continues to surface during the information-gathering phase is the lack of supplies in the exam rooms. This is such a general theme, that for all practical purposes, hunting down objects becomes a routine part of the normal ordering processes. Each exam room is supposed to be equipped with the same supplies and equipment in the same places. But in fact, that is not the case. There are different pieces of equipment and different supplies in each exam room. What is present, is never in the

Table 6.10: Relationship of Absent Exam Room Objects to Teaching/Learning/Patient Care

Organizational Issue #15	Objects such as gowns, supplies, test kits, portable lights, and otoscopes are missing in the exam rooms.
Network Element(s)	The actors in the form of exam room objects are missing. The current process for supplying the rooms has no checks or links. The actors who supply the rooms are essentially un-enrolled in the process.
Faculty Opportunities and Constraints	Faculty gain an opportunity to teach residents where to find the objects, or how to substitute one object for another. They lose teaching time about patient care issues.
Resident Opportunities and Constraints	Residents learn where to find objects on their own. They lose time that could be spent examining or talking to the patient or attending.
Patient Care	The patient's perception becomes one of seeing the clinic as disorganized, or seeing the resident as disorganized. Patients also lose time to talk with the resident if the resident is out in the halls searching for objects.

See Table 8.1 for Summary of Relationships

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same place from room to room. In almost every instance where a resident needs to do a procedure, gown the patient, or use a supply, there would be at least a few minutes where the resident has to hunt through all the drawers and cabinets, only to finally leave the room to obtain the needed instrument, sample kit, etc. This became almost a “given” in the clinic. For example, one day a resident asked a patient to put on a gown. He couldn’t find any in the room, so he handed the patient two sheets and told her to cover herself with the sheets [OB23]. On another day, a different resident couldn’t find a gown. She left, went to another room, and got a gown for her patient [OB28].

The residents, and faculty see this as a part of what they do to get the patient examined. There is an expectation that this what they have to do. One resident commented that you always have to search for the lights [hand held lights used for certain types of exams]: “They are like random, could be anywhere, and then the light doesn’t work” [OB79]. Everyone knew what the policy is: “Tell the nurses.” Yet no one ever told the nurses. But even when the nurses are told, things still don’t get fixed. The nurse manager attended a faculty meeting and explained she had been over this issue of stocking the rooms properly with the nurses just the day before [OB115]. Yet the next day, the gowns were missing again, and the resident had to use a sheet [OB116]. In the end, everyone learns quickly that the way to work the system is to raid another exam room.

The otoscope cone holder was off the wall in one of the exam rooms during the entire study. While it still had some cones in it, the holder remained on the counter, but after it was emptied out, the holder got placed in a drawer. Every resident who walked into that

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room, and many of the faculty as well, had to step out and go to another exam room in order to obtain a clean cone.

Resident: So the guy comes. There are no cones to look in his nose.

KVB- Resident: Is there somebody you're supposed to tell?

Resident: There's all these people you're supposed to tell, but nobody listens.

Faculty: Nursing staff.

Resident: And then the table keeps going down, so I finally said let's just stand up and examine your belly [OB43].

During my last full week in the clinic, I decided to show this to the nurses. The two nurses told me that nobody had ever told them about this [OB118]. Three months later, when I returned, the cone holder still had not been put up on the wall and the table was still broken [OB120]. Even when the problem is known, it doesn't get fixed.

On a different day, the attending walked into an exam room. The resident had already warned him that the light in the otoscope isn't very bright. The attending said, "I'm told this light isn't very bright, so why don't we move to a different exam room?" We all went down the corridor to another exam room, the attending examined the patient's ear, and then we all went back [OB09]. On a different day in the same room, one of the residents told the patient "my light doesn't work" and then skipped the ear and nose part of the exam [OB02]. In the first case, the interactions of the patient, resident and attending were all changed, simply due to the light. But in the second case, the missing actor literally changed what the resident provided the patient in terms of an exam, and what the patient received in the way of a physical exam. The patient originally presented with hand and arm pain, so it is questionable as to why the resident was checking the ears, nose and throat in the first place. Nevertheless, once the resident

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spoke about the broken object, it brought to the attention of the patient that certain components of the exam would be missing. Comments about the lack of objects were often done in front of the patients. In the room without the otoscope cones, a resident said, “I hate this room—no tips” and walked out to get a cone [OB28].

Furthermore, the cramped, tight rooms made physical exam skills difficult. One resident explained that the rooms are incorrectly set up. Physicians are taught in medical school to always be on the right side of patients when they examine them (presumably to better use their right hands). But because of the way the exam tables are squeezed in up to the walls, they can’t get around to the other side of the table, and have to do the exam “backward.”[OB07].

How Does This Finding of Missing Objects

Concur With The Literature?

There have essentially been no observations about the relationships of missing objects to either patient care or teaching/learning. Irby’s (1995) review of ambulatory clinics noted very little time when preceptors engaged in observing learners doing physical exam skills. This held in the Korsdale Clinic as well. If the procedure is a little unusual, the attending would usually “assist” the resident, but for general physical exam skills, this happened rarely, except for the new interns. This makes it difficult for attendings to determine the impact of missing objects –for both patient care and teaching/learning.

Changes in Ordering Processes

Finding D.4 Changes in the ordering processes may increase or decrease the organizational capabilities and opportunities for service/training provision.

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A few months into the study period, a resident refused to see a patient because she had come to clinic too late in the session. But instead of the resident speaking to the patient himself, the resident let the nurses handle it.

The Clinic Director at a faculty meeting: “The policy for patients arriving late – “Have we really lost our soul?” One of nurses went to The lady [patient] came in a wheelchair and in a snowstorm. She’s now been told she’s a half hour late and has to be rescheduled. No resident is allowed to make that decision. We can’t train them to be late [patients]. Nurses are never to ask a resident – needs to go to an attending [OB 53].

The Clinic Director then developed a new policy. She appointed an Administrative Attending (AA) (and a back-up) for each half-day session [OB53]. This is one of the regular attendings scheduled for precepting that half day. The Administrative Attending’s responsibility is to be the one person nurses can go to for decisions about scheduling problems, including the need to see patients close to session ends. The AA list is provided to the nurses, and it did seem to help on a few occasions. But the list is not posted in the RWR. Residents and many faculty weren’t really certain who the AA is on any given day [OB118]. After the policy went into effect, all of the attendings paid more attention to making certain that all patients were seen. This changed the ordering for residents and attendings, but did not address issues of patients being late.

Chapter Summary: The Ordering Opportunity Set’s Critical Role

The importance of the ordering processes cannot be overlooked. Prioritizing certain actions, or changing the order of actions changes both teaching/learning and patient care. This chapter explored two temporal processes: scheduling and patient care/teaching/

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learning (PCTL). The scheduling process is the prelude for the PCTL process.

Scheduling arranges the attendings, residents, nursing and administrative staff to be present at the same time as the patient is present. It controls the placement of all the human actors both before, and during, the patient's visit. The actions and actors who develop the schedule are distributed across several nodes. While explicit rules for scheduling exist, there are almost as many variants in use for overruling the rules. The CSBS must also be "worked around" in order to move the scheduling process along. Delays in scheduling, such as the lack of a rotation schedule for residents until almost the end of June, hold up the appointment process for patients. The order has to be adhered to, or all of the actors do not come together at the same time.

In this clinic, the PCTL ordering process has six phases: 1) Pre-Planning (conversation with other physicians, review of test results); 2) Resident sees patient in exam room; 3) Resident presents to faculty; 4) Resident/patient/faculty complete plan in exam room; 5) Further research and patient obtains additional information;, and 6) Review of tests—further decisions. Details of Phases Two through Four, the resident-patient-faculty encounter are discussed in the next chapter.

Endnotes

¹ The patient chart also has no placeholder for the primary care provider.

² The schedule came in first in numbers of coded pieces of conversation at 149. Not all of these were negative comments. Charts came in second at 126 pieces of coded conversations.

³ Most residents conduct fairly extensive physicals—more than would be expected if the patient has, for example, twisted an arm or crushed a finger.

⁴ From April 1 through June 30, the nursing staff collected the daily schedules at the end of each half-day session. There were a possible 128 half day sessions (the clinic is closed on Memorial Day.) Data is available for 124 of them. The four missing printouts were for different half days. For the resident side

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only, the total number of visits scheduled is 4379 with a total number of patients not showing of 1,378. This produced a no-show rate of 30.78%.

⁵ See for example, Purtilo (1996) and Leebov (1989). Providing patient care in managed care organizations is also well researched (Escarce, Shea, & Chen, 1997) (Hosek & Marquis 1990). An entire journal, *Health Affairs*, is devoted to studies of service provision.

⁶ One day, a patient was so angry that the nurse held the phone at arms length from her ear. I was sitting about three feet away and heard every word the patient was screaming [OB56].

⁷ On this day alone, I observed residents seeing two patients without charts.

⁸ I was unable to follow-up on this incident to see if the charts were ever found.

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CHAPTER SEVEN: IN-ACTION OPPORTUNITY SET AND THE INTERTWINING OF PATIENT CARE/TEACHING/LEARNING

Introduction

In the previous chapters, we have seen how the actors shape what is possible to implement, first through the outer networks and previous history, and second, through their own actions in constructing their socio-spatial interactions, and their ordering of those interactions. This brings us to the moments in which the resident, patient and faculty interact around the issues of direct patient care. While their actions in this moment cannot be separated from all that has previously shaped them, the actors still have choices available to them in their moment-by-moment responses. I have termed this the “In-Action Opportunity Set.” It consists of the three middle phases of the six-step PCTL ordering process discussed in Chapter 6. These three phases are: A) Resident Sees Patient in Exam Room, B) Resident Presents to Faculty, and C) Resident/Patient/Faculty Complete Plan in Exam Room.

Phase B, the resident-faculty interaction, has been the most studied in medical education. Because this study focused on how the overall clinic organization related to patient care and teaching/learning, the methods were not designed to focus solely on these interactions. Nevertheless, several comparisons may be made, and it will be shown that various network components are related to what happens during this time.

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In addition, the problem of the separation (or inseparability) of patient care and teaching/learning is summarized. This is the final result of all of the various “Opportunity Sets.” However, even here, there are times when the actors maintain separate constructions of activities, and other times when they are so inseparable that they are essentially one.

Findings

The findings discussed in this chapter are as follows:

Finding E: *The In-Action Opportunity Set provides the last opportunity to shape or direct opportunities and capabilities for patient care and teaching/learning. This is created by actions of residents, patients, faculty and other actors during the patients’ visits.*

Finding F: *Avoided actors also play a role in shaping what is not provided in services or training.*

Finding G: *The actors intertwine both patient care and teaching/learning to become interdependent and inseparable: one is not provided without the other and vice versa.*

The In-Action Opportunity Set

Finding E: *The In-Action Opportunity Set provides the last opportunity to shape or direct opportunities and capabilities for patient care and teaching/learning. This is created by actions of residents, patients, faculty and other actors during the patients’ visits.*

Phase A: Resident Sees Patient In Exam Room

In this phase, the patient has usually been vitaled and awaits the arrival of the physician in the exam room. This part of the encounter occurs only between the patient and the physicians, unless of course, there are family members present as well. There are two major components to this phase: interviewing the patient to determine what the problem or problems may be, and conducting an appropriate physical exam.

In the 165 encounters observed between patients and residents, several areas during the information-gathering phase are of interest: 1) residents exhibit good communication skills, 2) residents generally include health maintenance questions without prompting by faculty, 3) residents view time as a non-issue unless the encounter is close to noon or closing time, and 4) residents make decisions on what to tell the patient.

Good Communication Skills

In general, residents have very well honed communication skills with patients. They are exceptionally good at interviewing patients. It is apparent that even interns have had considerable training and experience on interviewing skills. For example, there is a standard protocol for questions on lifestyle issues. The questions are supposed to be as open-ended as possible, i.e., “How much do you smoke?” Not: “Do you smoke?” Only rarely did someone ask the more closed-ended version. However, residents continue to work on remembering to ask more questions and gather information directly related to specific problems. The faculty would ask about something that a resident had not asked the patient, or that the resident had forgotten to check. For example:

Resident: The patient has a history of chronic back pain. He’s on a phantom patch.

Faculty: Does he go to the pain clinic?

Resident: I don’t know, I didn’t ask him [OB55].

The interaction section below will discuss how the faculty responds to the resident’s admission of not knowing, and how residents also learn to gather more information.

General Health Maintenance

Both faculty and residents check regularly to see that health maintenance issues have been covered. Within the first week of clinic, the faculty begin questioning new

residents on where their patients are with health maintenance issues such as mammograms for women and prostate exams for men. In general, if residents don't mention it in their presentations, faculty ask. One day a new patient came in—a 25-year-old nursing student who had switched insurance companies. She needed a referral to her dermatologist for an acne problem. After a brief discussion about the dermatology referral, this conversation took place:

Faculty: When's her last pap?

Resident: She's not gonna come back to us. I told her about breast exams [OB55].

In at least a quarter of the presentations to faculty, residents mentioned health maintenance issues. This could range from “I did some health maintenance on her” [OB47] to “pap and pelvic next time” [OB50] or “health maintenance –mammogram, ophthalmologist, colonoscopy this summer” [OB53]. However, the health maintenance checklist in the chart is rarely completed. Both residents and faculty have to search through progress notes and lab test sections of the chart to determine when patients have had tests. Even without the checklist, faculty as a key part of clinic teaching views health maintenance.

Faculty: “[...What's typically called health maintenance or preventive medicine which is screening for disease in the asymptomatic stage, providing counseling with regards to health life style, helping people change health behaviors that are not healthy. Providing advice with regard to immunization, injury prevention. What I consider ... preventing disease before it occurs, in the asymptomatic phase. So that's one of the values that I have--is [to teach] a lot of knowledge that residents have to gain that they don't necessarily learn in a hospital setting [IN08].

This is relayed to residents on a regular basis. However, as noted in the resident quotes above, there is considerable variation on how thoroughly residents follow-through on

health maintenance items. During the last month of the study, a small group of faculty were in the process of re-designing the health maintenance checklist [OB115].

Time

Because of the rather low volume of patients (residents averaged 4.88 patients in a four hour time block [DOC113]), the amount of time that residents take with patients is never much of an issue. Most of the time there are a sufficient number of no-shows, so that if a resident needs an hour with a patient, he/she could take it. The only occasions when time becomes problematic are close to noon or 5:00 pm. Technically, the residents are supposed to stay until 12:30 or 5:30 pm. But many residents believed that the sessions ended at noon or 5:00 pm [OB66; 73]. Even the faculty are uncertain about the session ending times. Faculty and residents noted that patients should not be scheduled after 11:30 or 4:30 [OB53; 75]. The staff tries not to schedule later appointments. The problems arise when a same-day patient is scheduled for 11:30 or 4:30. Then the resident rushes through the interview with the patient in order to leave before noon. In some cases, the faculty see patients for residents in order to “help” residents finish by noon [OB83]. The morning residents are more concerned than the afternoon residents. Even though they are excused from noon conference on clinic days, residents constantly discuss how important it was for them to attend the lectures. For example: “Something must be done to allow us to make noon conference” [DOC115]. Since the lectures start promptly at noon in the hospital, the residents have to leave clinic by 11:50 in order to be there on time.

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Telling the Patient

In a number of cases, at the end of the information gathering, residents indicated to patients what they believed to be the problem (or treatment plan). Telling patients before checking with an attending appeared to be based on resident experience. The PGY-1's often tell patients what they think is the issue. When attendings examine patients, residents learn that they misdiagnosed—or at least did not develop the correct treatment plan. The PGY-2's are less likely to give diagnoses and tell patients anything before checking with attendings. But the PGY-3s, particularly toward the end of the year, essentially treat patients on their own, with only a quick check after the fact with an attending. As residents move through their training, they go from certainty to uncertainty back to certainty.

Phase B: Resident Presents to Faculty

During this Phase, the resident returns to the RWR, finds an attending and presents the case. After the resident presents, the faculty have several responses. These are discussed in detail below. Before returning to the exam room, a tentative agreement on “treatment” in the broadest sense is reached between the attending and the resident. Treatment may involve sending the patient to the laboratory for further tests, or to see a consultant if insufficient information can be gathered during the patient visit.

Connecting With the Case

Residents first select an attending to present to. The randomness of this process was previously discussed. As the resident begins to present, attendings try to “place” the patient, i.e., to remember if they have seen the patient previously. A large number of

conversations started out by an attending saying, “I don’t think I know him,” or “Oh yeah, we know this patient from the hospital” [OB69;42]. A resident presented one day. The attending said, “Oh, yeah, I remember her.” A little later the attending added “I remember her [the patient’s] niece. She like, goes to high school and then comes back and checks on [the patient] after school” [OB23]. One of the faculty explained that they are better able to remember the particulars of a patient’s history if they have a face and name to put with it [OB72].

On days when the clinic is very busy, there are a number of times when the attendings are busy hearing other residents present, or seeing other residents’ patients. Many attendings make a point of seeing every single patient, no matter what the problem. On busy days, residents (and their patients) have to wait to present their cases. They fill their waiting time by writing in charts, checking on the computer for labs, or consultant reports, chatting, or looking at things on the Internet [MT02;28].

Resident-Faculty Interactions

The faculty-resident teaching/learning encounters revolve primarily around discourses that address a) What is the problem—what issues of the patient must be addressed today? and what issues did the patient NOT bring, but that still must be addressed? b) What information is available or needed to determine the issues or make a diagnosis? and c) What are the treatment options? These are explained in more depth here, as this is the heart of the teaching/learning process.

a) What is the problem? Oftentimes the resident is able to clearly address this issue. “The patient has a bump or lump in the inguinal region” [OB45]. But when the resident cannot figure out the problem, the attending’s response is: “Is there something that is most significant?”[OB53] or, “OK, so the reason she’s here today is....?” [OB72]. Usually there is more than one problem. Sometimes the lab results from a previous visit also have to be addressed.

b) What information is available or needed? In some cases, this is simply a matter of the attending re-examining the patient and confirming the resident’s diagnosis. However, at other times, it requires looking for more information.

[Resident presents case to Attending.]

Faculty: Does he have food sticking?

Resident: Didn’t ask.

Faculty: So it sounds like three problems, headache, GI [gastroenterology] and depression. [Faculty went and looked him up on hospital computer system.]

Faculty: All his records from hospital within last year, lab. It turns out he has iron deficiency, anemic, and he had tubular adenoma removed, it was benign (polyp) pretty big [OB04].

Here is a case where a senior resident did not ask or obtain all of the information that the attending thought might be relevant. It is also a case where the computer system provided a lot of information that would be helpful in addressing the patient’s problems.

When the computer systems could not supply the answers, residents often turned to books. This is an example of some evidence-based medicine being discussed. On which book does one base advice to the patient?

Resident: She said she's never been sexually active. What's the recommendation for pap smear?

Attending A: Oh – good – that's something we gotta look up – get the blue book.

Attending B: That's a good question.
[Attending A takes Resident over to shelves – gets three books out. One is clinical preventive services – one primary care for women.]

KVB - Attending A: Can you get cervical cancer without being sexually active?

Attending A: Yeah you can.

Resident: [Reads out of book] Just the opposite – “women who are not sexually active are not at risk for cervical cancer.”

Attending A: [Reads out of another book.] Squamous cell – 95%, adeno carcinoma - 5%.

Resident: This book [blue book] says no.

Attending A: Blue book is based on statistics, most women won't get cancer [OB79].

Most conversations relate directly to the care of particular patients and/or the specific illnesses they have. In approximately a third to half the cases, either the attending or resident brings up some mention of general health maintenance. In general, there is a fairly heavy emphasis on making certain that the patient is up to date on general health maintenance—sometimes to the detriment of expediting the resident's visit with the patient. In some cases, the patient presented with an acute problem—yet the attending brought up issues of health maintenance.

Attending: Not a smoker?

Resident: I didn't ask. It looks like last time she had a full exam so I just focused on the high blood pressure. Is that right?

Attending: Right [OB116].

Resident: I want to give her antibiotics [for an ear infection].

Attending: OK – any other issues?

Attending: (still holding her chart) Problem is lady hasn't been here since September so we've got to catch up. Looking through chart – mammogram, colon cancer screening [OB100].

Once the problems have been determined, it is time to move on to treatment.

c) What are the treatment options? Sometimes the issues are not very clear, as noted above in the case of opposing recommendations from different books. On several occasions, two or three attendings got involved in a discussion about what to do with a particular patient. This is one of the more positive aspects of this style of clinic. Because the attendings “float” around the RWR, a free and open collegial atmosphere is promoted with respect to solving patient problems. In the case below, two attendings discuss treatment options with the resident. In this case, they were able to ground their decision in the literature. Unfortunately, using the literature to ground the decision-making was not the norm.

Attending A: [Taking chart.] Why did he have an ultrasound?

Resident: We heard a murmur.

Attending A: What are recommendations for asymptomatic carotid stenosis?

Resident: 90% (closure on carotid artery). 60% - if they're symptomatic.

Attending A – Attending B (first name): Had an ultrasound, more than 90% but asymptomatic.

Attending B: Still gets referred. He's already had a lipid panel? He may have symptoms and not know it. (Bypass) is how old?

Attending A: Four years. I have the article.

Attending B: Yeah, we'll pull it up [OB100].

The interaction between the resident and attending during the resident's presentation is a key intersection between patient care and teaching/learning. It can (and does) change the remainder of the PCTL ordering process. The decisions faculty make at this juncture are probably the most difficult and complex of anything they do. They have to determine which questions to ask, what points to teach, and what the resident already knows. Yet at the same time, they have to maintain a high quality level of patient care. The resident has to be moved [borrowing from Lave & Wenger's term (1991)] from the periphery to the center over a three year time span, based on one half day per week in the clinic.

However, unlike Lave's tailors' clothing pieces, patients do not present in any logical order from simple to more complex, or even with the same general set of problems. Their problems are often multiple and may have multiplier effects, making them very complex. In order to envision this three-year process, I have attempted an analogy. The ceiling is the high standard of quality patient care. The floor is the resident on Day One—at the periphery. It up to the faculty to stand in between the floor and ceiling, gradually easing their way out over the three years. By the end of the resident's third year, the faculty must raise the level of the resident to meet the ceiling. The resident must hold the ceiling and floor together seamlessly and independently, without faculty help. This can only be accomplished by a joint effort of residents and faculty, and an organization of networks that permits these interactions to flourish. How this process actually occurs is, as noted earlier, based on all the prior interactions that have set-up the current interactions. This In-Action Opportunity Set, that is the interaction between faculty, patients and residents, is the final opportunity to mold both patient care and teaching/learning. It is, to some extent, dependent on how faculty respond to residents' presentations, and what happens when faculty return to exam rooms, with or without the resident.

Faculty Considerations before Responding

The faculty responses to resident's presentations are based on several considerations (as described to me by the faculty).

a) The coherence of the resident's presentation. That is, how well does the resident communicate the patient's story to the attending? Residents who appear more

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confident and coherent receive less immediate questioning. Here is an example of non-coherence:

- Resident:* [Presents patient.] The patient has a lump. It's not tender at all; changes with her menstrual cycle. No family history [of breast cancer]. Shortness of breath, ____, ____.
- Attending:* Whoa – lots of other things, let's stick with one. Tell me more about the lump.
- Resident:* I cannot tell if it's a mass or just a duct – it's not superficial, very deep.
- Resident:* Sometimes she has shortness of breath. It's her first visit with this office. I think she deserves a mammography.
- Attending:* What if the mammography doesn't show anything? What are you gonna do next?
- Resident:* Probably an ultrasound [OB79].

This was a first year resident, where one would expect some problems with providing the findings in a coherent manner. But the patient's problem also warranted extra careful attention. Notice how quickly the attending broke in and focused on what the attending considered to be the most emergent problem.

b) The resident's immediate knowledge (or lack of it). When residents explain and justify the patient's treatment plan, they often clearly stated a lack of knowledge. Residents also changed in expertise and knowledge over the three years. Here is a teaching script that one of the attendings used with a new intern. Notice how the intern expects to simply give the patient a dose of antibiotics. Also—there is always humor creeping in from some of the more senior residents!

- Resident:* OK mucous plugging nose.
- Attending:* So if she didn't go to the ER, is it URI or flu? People who have flu are really sick. So how do we treat URI?
- Resident:* Just give them antibiotics.
- Attending:* Depends if it's bacterial or viral. 90% are viral - those go away in ten days.

Another resident hollers out: Dr. Attending, are you trying to teach?

Attending: Yes, I am trying to teach. So maybe you should listen so you could get a job! If symptoms don't improve, secondary bacterial, not really before 10 days. The general thing--most times we tell patients, most of the time, it's viral.

Attending: What kinds of things can you give to be supportive?

Resident: Fluids, meds.

Attending: What kinds of meds?

Resident: Tylenol.

Attending: What else?

[Resident shrugs, she doesn't know.]

Attending: How about for congestion?

Resident: So decongestants.

Attending: 25% time URIs persist more than one week. If people are really demanding and they want antibiotics-- most of the time, if you talk to them about side effects, they'll be OK [without antibiotics].

Attending: What are side effects?

Resident: Resistance? [Attending reels off a long list.] [OB118].

Here is a case where the attending starts off fairly generally. "How do we treat URI"?

Because this is an intern,¹ the attending will go in the room and examine the patient himself, so this portion of the teaching/learning process is more about treatment in general. All of the attendings in the clinic were very insistent about not treating viral upper respiratory infections with antibiotics. Notice how the resident admits that she doesn't know by shrugging her shoulders. This is one of many approaches used by residents to admit subtly that they do not have an answer. Finally, notice how over time, the attending steps in with more answers, until at the end, he is answering his own questions.

c) Charting notes. Sometimes the faculty read previous notes that residents write in charts. How accurately has the resident previously tracked this patient? One day an attending read the patient's chart and then told the resident: "You need to

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document more. You need to be able to tell me she had this on this date and this on this date. It's a mess--you can't figure it out. Is this your last year? [Resident replied "yes."] Attending responded: "Let's make it a goal to get better documentation" [OB116].

d) The patient's problems or issues. Attendings are particularly attentive to physical findings, patient in a lot of pain, or social-emotional issues. These generate more careful questioning of residents or more immediate responses to see the patient.

[A first year resident presents patient's demographics and history to attending.]

Resident: Bump or lump on inguinal region. Girlfriend noticed it.

Attending: Uh huh. [Writing in chart.]

Resident: [Explained what he thought it was.] Kind of squishy.

Attending: And where is it at?

Resident: [Pointed on his own body.] Checked for indirect hernia.

Attending: What's a direct hernia? Technical.

Resident: Not a lymph node. Checked for indirect hernia [OB45].

After taking a brief phone call, the attending immediately went to see the patient.

e) The attending's previous experiences (with residents or own experiences). Most attendings rotate with residents in the hospital, so they are aware of the residents' capabilities. The attendings' own prior experiences with similar conditions or diagnoses also play a role.

Attending: Why am I not completely comfortable with that?

Attending: Could it be PE? You could have fewer with PE.

Attending: Is she on oral contraceptives?

Resident: No.

[Resident just stands there and lets him ask rapid-fire questions.]

Attending: Really?

Resident: Well, I asked her if she was on any medications.

Attending: Sometimes they don't count that [OB69].

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After this discussion, the attending told us that he had previously had a bad experience. He had misdiagnosed a patient as not having a pulmonary embolism (PE), when in fact the patient did have one. So the attending's previous experiences made him very wary about treating anybody with symptoms that might be PE. He reverted to being the physician himself, rather than letting the resident continue managing the case. For this patient, providing the best patient care came before teaching/learning for him.

Attendings also assist residents in developing contingency plans. Asking "what if" questions is fairly common amongst faculty. For example:

Attending: So how are you gonna go from here?

Resident: Lungs sound clear. Trial of protein pump inhibitor and Ventolin inhaler.

Attending: What if these things don't work? What will you recommend next?

Resident: Might want to think of pulmonary function test.

Attending: Write all this in your note. "My next strategy would be ____"[OB97].

Resident Responses to Faculty Questions

One of the interesting things to note is how residents responded to questions where they have not gathered data or didn't know. With the interns, they answered in a very straightforward manner: Faculty: Does he smoke? Intern: I did not ask" [OB116].

Here is another approach. The resident doesn't answer the question, then reverses the process by asking the attending questions.

Resident: Yeah. One month ago her INR was 2.9; now it's 1.9.

Attending: Did we change anything?

Resident: No.

Attending: Is she drinking tea?

[Resident doesn't answer this. He didn't ask this question of patient.]

Attending: No other medications [changes]. What do you want to do about her INR?

Resident: What do you do?

Attending: 5-10% of total change.

Resident: Of INR?

Attending: No, of medications [OB109].

With residents who have been in clinic longer, sometimes there is no response. In general though, residents are quite honest about admitting that they have not done something or don't know the answer. Generally, this is handled by the resident going back to see the patient and asking the question (or redoing the exam) and then reporting to the attending after the visit is over. Some research has argued that residents are trying to control what they don't know. They do this by finding out what the attending wants and then doing just that and nothing more (Light, 1979). In general, there is very little of this form of control in this clinic. The conversations throughout this document indicate a high degree of professional curiosity and a situation in which attendings and residents had an open, honest and collegial relationship. However, there are occasions, such as the one above, when residents try to "cover their tracks." This generally happens when the attendings asks them questions that they don't know the answers to. Also, as noted throughout these scripts, attendings' clinical knowledge prevailed as being most important in determining any specific treatment. Occasionally, there were literature-based discussions and decisions, but generally, the attendings' clinical knowledge was the deciding factor in determining the direction of future plans for the patient. This concurs with other previous studies (Light, 1979).

In sum, within a few minutes, the faculty have listened to the resident's presentation and reviewed and considered the factors noted above. They have assessed their own knowledge and experience and what they know of the resident from previous work experiences. In addition, they have evaluated the coherence and current knowledge of

the resident on this particular issue. They have also considered the severity of the patient's problem(s). How do they now respond to what the resident has presented?

In this clinic, faculty use five types of responses: A.) Return before presentation, B.) Return a few sentences into presentation, C.) Return at end of presentation, D.) Return for social call and E.) No return. Each of these is discussed in more detail below.

Five Faculty Responses to Resident's Presentations

A. Return before presentation. There was one attending that liked having the resident present in front of the patient without doing any preliminaries in the RWR. I observed her do this on a couple of occasions [OB14], and it worked just fine for the patients and the resident. However, she was working with a fairly senior resident with well-developed medical knowledge. It is unclear how this might have worked with a resident who was less certain about the diagnosis and treatment. This teaching style was outside the "expected" presentation protocol. It made it more difficult for her to insist on using it, as residents expected to present in the RWR. The patients liked it because it gave them more time with two attentive physicians.

B. Return a few sentences into presentation. If the resident presents a case with an unusual physical finding (e.g., a skin rash or infected ear drum), the attending usually interrupts the presentation and goes almost immediately to look at the patient. For example:

Resident: 'The patient had a big lump under his arm. The lump was cut out and packed in the ER. The patient was told to come into the office to have it checked

on.” [The attending got up immediately and went with the resident and KVB to the patient’s room] [OB45].

Resident: “Eye problem. Patient complaining of eye pain. Wears contacts. Very, very photo sensitive.” [The attending got up immediately and walked down the hall.]

Attending: We need to do a fluorescein [dye] test [OB59].

In both of these cases, the attendings stayed in the patient’s room with the resident and developed a plan of action. However, there were other occasions when they needed more information from labs or other reports [OB02;07;11]. Then they returned to the RWR for further discussion with the resident.

In general, residents are fairly open to admitting that they do not know the answer and need attending help. On several occasions, residents would ask attendings to come in and look at something, or help them out with taking a history from a patient. For example, a patient presented with increased fatigue and memory loss. After some discussion about what to do, the resident immediately asked the attending for help. He reiterated this after a few minutes into the conversation. “Maybe you [the attending] can get more out of her” [OB53]. In all of these cases, the residents would go back in to the patient’s room with the attending.

C. Return at end of presentation. If the attending is more certain about the resident’s assessment of the problem, the attending waits until the end of the presentation and discussion before going with the resident to see the patient. A few residents almost never went back in with the attending. This produced an awkward situation for the attending, since there was an unstated assumption that the resident would see the patient with the attending. In one case the attending made a comment

behind the resident's back— "When I was a resident, I always went in with the attending" [OB100]. Residents who do *not* go in to see the patient with the attending are able to finish up note writing, or make needed calls to consultants so that they can move on to the next patient more quickly [OB09; 23].

The complexity of the patient case is a key determinant of whether faculty went back to see the patient. Note below that the faculty did not have to go in, but considered the patient interaction important to putting together the whole story.

KVB-Attending: Do you go in to see pretty much everybody?

Attending: Today I did because they were so complicated. We don't have to go in with seniors. In fact after the first six months as interns, [they don't have to go in.] But I like to put a face with the story [OB72].

D. Return for social call. In some cases, attendings conducted "social calls."

They felt that it helped them get to know the patients better and make a connection between the person and their medical issues. For example:

Attending to Patient: "Hi! I'm one of Dr. Smith's [the resident's] partners. How're you doing? We're going to send you to physical therapy and give you some better medication to control your pain. It will help with your mood and general well being. [Patient response]. You used to have different color hair?" [A discussion ensued with the patient about how her hair had turned blue before it turned white. Her neighbor also confirmed this. The attending left with]: "Well, hopefully we're going to get you feeling better" [OB43].

E. No return. In some cases attendings choose not to see the patient at all. This also happens more frequently with the senior residents, as it approaches June.

[OB43;67;72]. The attendings were asked how they decide when to see patients. Here is one response that was echoed by most of the others: "It depends on the resident. John is in his fourth year and I trust his judgment. With senior residents, I don't always go in,

and this was a case of managing [the patient's] drugs" [OB67]. There had been no physical findings of note in this patient's case.

Other activities are also carried out during the time when the resident is with the attending. The patient could be misdiagnosed, as discussed below. In addition, charting issues are discussed. Who to use as consultants, or how to look things up in books or on the web also take place during this time. Some of these issues have been discussed previously. Below, the mis-diagnosis of patients and charting issues are explored.

Mis-Diagnosis

Attendings also have to address situations when a resident makes a wrong diagnosis. In some cases, the resident has already given the patient a diagnosis. Then when the attending sees the patient, the resident has to change the story. Usually the resident handles this by explaining to the patient that the attending has a different opinion. In this script, the resident has already presented the case and the attending is summing it up:

Attending: So basically, this is a 40 year-old African American female. History of diabetes, asthma, and high blood pressure. Leg swelling before she ran out of meds; ran out of meds. In extremities, plus two edema. Definitely needs to go back to current meds. Is she on a diuretic?

Resident: I'm tempted to give her a little for a few days.

Attending: Yeah, it may not be chronic. She's not complaining of urine. Let me go listen to her lungs.

[The attending leaves, resident stays in RWR writing up notes. Attending comes back in room.]

Attending: Hey Resident (FN), she doesn't look too good. She tells me she's taking Primatene every half block she walks--I'd have her go in for diuresis, get the fluid off her.

Resident: Over night?

Attending: She may not even have to stay. Just get rid of fluid. It's a more conservative approach.

[The Resident goes in to talk to patient.]

Resident to Patient: Dr. Smith [the attending] feels more comfortable to take you to the hospital and get the fluid off you. We'll get the van to take you over, stay there about one day.

The attending did not go back in with the resident to show the resident *why* he thought the edema was bad enough to put her in the hospital. However, that did happen in the case of the man with the hernia.

(Continued from dialogue, p.314.) Attending goes in with resident and examines patient with lump in inguinal region.

Attending: So what is it, Resident (first name)?

Resident: It's a hernia.

KVB unstated observation: The resident seemed suddenly much more certain of the diagnosis than he had when he presented in the RWR [OB45].

When and how faculty respond to residents who misdiagnose appears somewhat related to the faculty's experience. Those who have been teaching longer make teaching points out of issues [OB45;OB97]. Those with lesser experience become more involved in making certain that patient care is carried out [OB53; OB116].

Charting

Both the resident and the attending are required to write notes in each patient chart. If residents have to wait to present to attendings, they would usually spend this time writing up their notes. Some residents prefer not to present until such time as they have complete notes. Some residents write their notes while they are in with their patients, while others write only after they have seen the patients. Some of the PGY-1's wait until the end of the session. One resident was still writing a half-hour after the end of the clinic session [OB111].

The faculty stated that they base their resident involvement on the residents' level of experience. But oftentimes their own time is valued more. On several occasions, faculty wrote in the chart while the resident was still presenting [OB09;11;07]. One of the attendings explained what he wrote in the chart. Like this:

I can write "agree with above," or if it's a junior resident and they missed something, I add whatever the junior resident missed. I usually just write: "patient was discussed with Dr. [Resident's last name] about [list of problems] or patient was seen with Dr. [Resident's last name]." There is a Medicare requirement to write something in the chart. [Then he showed me what he had written in the chart: "Agree with detailed Hx [history], physical, assessment and exam"] [OB07].

When faculty are very busy, they have baskets where they ask residents to put the patient charts. The faculty then review these at the end of the session. There are very few instances of questioning the note. The faculty obligation to sign the chart is focused more on meeting the requirement than using chart writing as a learning/teaching tool.

Faculty infrequently discuss chart-writing skills with residents. When they were discussed, they were usually brief comments—both positive and negative. For example:

- * An attending tells a resident he can't keep little pieces of paper clipped to the chart; they must be copied onto regular paper and attached by the big fastener [OB09].
- * An attending to a resident: "Hey! You even wrote it on your problem list!" [OB60]
- * An attending looked at a note that a resident wrote to a patient. Attending: "It was great that you wrote the note, but say 'there was no gonorrhea or chlamydia.' Make sure you can read the words" [OB42].

Coding the Visit

On the other hand, there are significant efforts made to teaching correct coding due to the importance of the correct codes on the encounter form used for billing purposes.

The rule is: physicians have to make certain that they document in the chart at whatever level they code on the billing sheet. Here are some examples:

Faculty: So arthritis, gout [writing on encounter form].

Resident: I couldn't find gout [on encounter form].

Faculty: No, it isn't here. [Faculty goes and finds ICD-9 book, finds the correct number and puts it on the list] [OB88].

Resident: Should I make him a low or medium complexity?

Faculty: 213. It's always a 213 [OB43].

In the second example, this is not technically correct, because depending on what the resident has completed AND documented, the coding level could have been a 212 (low complexity). Only attendings are permitted to go above the 213 level.

Usually before the resident and attending went back in to see the patient, they would conclude the formal part of teaching/learning encounter by the resident trying to code the encounter form, and the attending checking on it. Oftentimes, if the attendings were in a hurry, they would simply code it for the residents or tell the residents why they were coding as they were. There are two parts to the code. The first is to figure out the level of intensity, and the second has to do with the specific diagnosis.

Attending: How do you think we should code this?
[Resident brings out cheat sheet for coding.]

Attending: 3-4 issues, which could potentially have bad complications but she's OK. So moderate at most, limited to moderate stuff. ROS [review of systems] was more than two. I would say more multiple diagnosis, so give it a three [OB117].

[Attending looking up code for toe burn.]

Attending: From over 0-10% of body we do not have to code this by site.

Writes code down on encounter form [OB67].

The exercise of teaching residents how to code properly is not very effective, because the complexity of the code cannot be above a “3” level for a resident. (Code levels go all the way to “5.”) Here is a case where the current practice situation cannot replicate what the resident needs to know for future practice. The issue of coding office visits correctly remains an enormous problem across the nation. Rose, et al (2000) designed a template for coding sore throats in the office. It had no effect on billing and coding errors, but it did produce more thorough documentation of the history of the present illness and physical exam items.

Other RWR Activities

Before completing the final Agreement on Treatment Phase, some of the other activities that occur in the RWR must also be described. When residents are not presenting cases to attendings, they are spending time looking up labs and/or other reports on the computer, writing in charts, checking their pharmaceutical books for drug interactions and drug amounts, looking for prescription pads, talking to other residents, and checking their “files” for returning lab and consultant reports.

Most days there are three attendings present in the clinic, but sometimes they have meetings or other appointments, decreasing the number to two. Occasionally there are as many as four attendings present. Attendings and, to a lesser extent, residents “multi-task.” That is, they carry out several different activities almost simultaneously. Faculty

answer phones, speak with nurses, call consultants, look up things on computers, write in charts and on encounter forms, and answer their beepers. If the residents are on a particularly busy service (e.g., cardiology) in the hospital, they also spend time doing many of these same activities. It becomes so complex, that several of the faculty wrote notes on little scraps of paper—which residents they saw with which patients and how they are coding them [OB67;72]. In some cases it becomes difficult to remember just where the conversation originally started, it takes so many different turns. In many instances, this happens while the patient is still waiting in the exam room.

Sometimes faculty enter the RWR with an enormous stack of charts from their own patients. They spend their “free” time dealing with their own patients’ issues: talking on the phone to their patients, or to consultants about their patients, or writing in their charts. It is sometimes difficult for residents to determine whether a faculty member is busy doing catch-up work from seeing her own patients, or writing in the resident’s charts. Residents go up to attendings and ask, “Are you busy?” One day a resident got the response: “I’m just contemplating my life!” [OB72]. When attendings want residents to come to them, they ask, “Anybody waiting?” [MT02]. Attendings who are using the computer are rarely approached by residents, even though they might be checking their email, or looking at non-medically related web sites [OBO8;75;88].

Phase C: Resident/Patient/Faculty Complete Plan In Exam Room

After the resident and attending discuss the case and come to a tentative agreement on treatment, this third phase returns them to the patient exam room. This is probably the

most variable part of the process. In many cases, additional information is needed before a treatment plan can be developed. Sometimes this simply involves the resident and attending going back into the patient room and re-examining the patient or asking a few more questions. Sometimes it involves the attending or resident going to the computer and looking up hospital information. Sometimes a patient has already been to a consultant. The consultant has to be called before anything further can be done with the patient. Sometimes the attendings make the calls, but usually they encourage residents to make them.

In with the patient, the attending and resident finish up any questions, history taking or physical exam components that remain unanswered. Then they discuss treatment options with the patient. In many cases this involves further studies, obtaining outside consultations, determining what the insurance company will pay for, what the family is willing to do, etc. This must all be summarized into a few simple steps that the patient can take. In the exam room, there are generally two strategies physicians used: being directive, i.e., telling the patient what to do, or negotiating with the patient.

Telling the Patient

Negotiating a plan with the patient was an oft-stated goal, yet what really happens is more complex. If there are any questions of a more direct or immediate need for information, there is very little negotiation. The physician simply tells the patient what to do. In these two cases, the patients are not given much choice in the matter:

[The patient asked about potassium. They have recently increased his lasix to two a day.]

Attending: Here's what I think we should do. Well we're gonna do what Dr. S. [the cardiologist] wants. We'll do some blood work and then I'll talk to Dr. S. [OB45].

Attending to Patient: Sounds like it could be transient ischemic attacks - TIAs. Those are small vessels. With your high blood pressure, it doesn't sound like large vessels. [The resident is writing out a prescription.]

Attending to Resident: Let's get Dopplers and a cat scan of the brain.

Attending to Patient: I want to get another image of your brain and do an ultrasound. You can start by taking aspirin. If it still happens, we'll put you on plavex. Then the strongest is coumadin. Studies show if there's enough blockage in neck--it correlates with your symptoms. Less than 70%. You might benefit from carotid anorectomy. We'll have to talk about surgery [OB59].

Note that in both of these cases, the attending took over the case, even to the extent of shifting from "we" to "I." In the second case, the attending also told the resident what he wanted the resident to do.

Negotiating with the Patient

Some attempts at negotiation took place over lifestyle changes such as smoking, taking medications and weight loss. This is one area where attendings did try to model how to ask difficult questions and how to work with patients on lifestyle issues. One of the faculty stated to a young female patient who is 60 pounds overweight: "Given how hard you're working at it, I was wondering if you'd be open to considering the obesity clinic?" [OB070]

Patients also quite willingly expressed preferences for certain specialists, certain drugs, or, in the case below, even the dosages.

Resident: OK – How do you feel about going up on your medication from 50 to 100?

Patient: Oh wow, that's a lot. Will that make me dizzy? I drive; I work.
Resident: Do you work on Friday?
Patient: No.
Resident: How about trying Friday, Saturday, Sunday – just stay home a couple hours after you take it to see if you're OK.
Patient: I try to change my diet.
Resident: Try half of 'em.
Patient: I'm afraid. I don't want to get dizzy.
Resident: We don't want you to be dizzy. Not too high either.
Patient: I want my normal schedule. 100 mg. might be too strong.
Resident: That's normal for most people.
Patient: I don't think it would be normal for me – I'm not most people.
Resident: Just judging from your blood pressure. [She checks in her little pocket pharmaceutical book.]
Patient: I just made it to my job when I collapsed when I had my stroke.
Patient: How about 50 [mg.] two times a day? I'm not trying to be difficult.
Resident: [Checks back in the book.] That looks OK [OB116].

The resident then leaves the room as she has already written the prescription for the 100-mg. tablets. She didn't have a prescription pad on her to change the prescription to 50 mg. She came back a few minutes later with the new prescription. It is unclear whether the resident understood the patient's underlying concern that the patient does not want to re-create the same conditions that led to her stroke.

One of the more frustrating parts of the clinic is when patients don't follow through and either take the prescribed drugs, or complete the recommended consults. For example:

Faculty: When was the last time that you saw Dr. E [cardiologist]?
Patient: Awhile.
Faculty: You're going soon?
Resident: Please tell me you're going back.
Patient: I guess I'm going back.
Faculty: I want you to follow-up.
Faculty: We'll give you the referral [OB72].

The most frustrating cases for physicians are those in which there is some type of abuse.

Resident: Main issues: diabetes out of control, underlying coronary artery disease, but I can't get a stress test.

Faculty: Why do you think he has coronary artery disease?
Resident: He came in with this as a diagnosis.
Faculty: Why aren't they [the addiction program patient attends] picking it up that he's still using?
Resident: I gave him refills for all his meds.
Faculty: You seem frustrated.
Resident: I'm talking to him about his meds and diabetes, but I can't get him off heroin [OB05].

In the scripts above, the faculty's entry into the patient exam room changes the dynamic. Unless they are making "social calls," many of the attendings tend to take over the case. They seem to have difficulty determining how to make certain the patient is well taken care of through the resident or when they need to take over the case. Once the faculty is in the exam room, there are only a few instances where the resident leads the discussion. Although most faculty try to use "we" and introduce themselves variously as the resident's partner or colleague, they become caught up in the details of the cases. In turn, they act as if they are the physician in charge—rather than the resident.

The length of time from when the patient goes into an exam room until they leave the clinic is about one hour. It takes residents 10-20 minutes to obtain a history and conduct the patient interview; another 20-30 minutes to write up the note, present to the attending and discuss the case; and another 10 minutes or so of negotiation, developing, explaining, and discussing the treatment plan with the patient.

Before the patient is discharged, the encounter form has to be signed by both the attending and resident. The form is given to the patient to return to the discharge desk. Since residents are held accountable for turning in those forms, many residents walk their patients up to the discharge desk and turn in the forms themselves. One of the few

times when residents and faculty interact with office staff is around discharge issues. If a resident or attending has decided that the patient must be seen again in two weeks, they walk up to discharge and try to figure out a way to get the patient on the schedule. One time, a resident was supposed to be the ROC, but nevertheless agreed to see the patient [OB12]. Another time, the patient made an appointment with another resident for two weeks, but made a second appointment for four weeks later with the original resident [OB19]. Sometimes, it was a case of an unusual referral. Then both the attending and resident would go first to discharge, and then to the referral coordinator to figure out what could be done for the patient [OB67].

This part of the encounter concludes the three key component parts of the In-Action Opportunity Set: First, the resident and patient are present in the exam room by themselves, with the resident taking a history and physical exam. Second, residents and faculty discuss the patient cases outside the exam room. Third, patients, residents, and (sometimes) faculty resolve the problems or develop a treatment plan.

How Does the In-Action Opportunity Set Relate to Patient Care and Teaching/Learning?

Teaching/learning are focused primarily on patient-centered issues. While there is a general pattern to the encounters, there can be considerable variation and complexity to what happens in each encounter. How the encounter is enacted is the last set of changes to the availability and quality of patient care and teaching/learning.

In the first part of the encounter, both the resident's skills and the patient's ability to explain the problem and be a good "historian" are key to how much residents will learn

and how well patients are treated. In the examples where residents don't ask patients certain questions, such issues are only caught if attendings check on them. The same holds with physical exam skills. If residents do not properly conduct a physical exam, and the attending does not "re-do" it, there is a possibility that something may not be caught. To my knowledge, this never happened in the clinic, but it is difficult to know, because the omissions might not surface until the patient returns for another visit. Thus, in the very first part of the encounter, the amount of information available to resolve the problem is reduced by the resident and patient's interactions. It is directly related to both patient care and teaching/learning.

However, in the second part of the encounter, when residents present cases to attendings, this information may be expanded (and usually is) by questions and responses of the attendings. Here the role of the attending is paramount. However, this role is changed by residents' responses and previous interactions of attendings and residents in either the clinic or hospital. During this part of the encounter, the chart represents the patient. Further information that the patient may not have remembered (e.g., dates of previous surgeries or additional diagnosed conditions) surfaces. Thus the chart is a key actor here as well. Again, it is the direct interactions of the resident, attending and chart that will determine what the resident learns and how the patient is treated.

When the clinic moved, one of the stated purposes of combining the two previous clinics was to eliminate some of the time that residents had to wait for an attending to present cases to. Residents preferred the additional space in the new clinic to the old [DOC115;

OB01;13], but the wait for an attending continues to be somewhat problematic [DOC115]. This appears to be partially due to most attendings' insistence on seeing every patient, i.e., making social calls, even when they agree with the resident's

Table 7.1: Relationship of Unavailable Attendings to Teaching/Learning/Patient Care

Organizational Issue #16	When attendings are unavailable, residents have no one to present to.
Network Element(s)	By choosing to see almost all patients, attendings do not prioritize which patients to see, or which residents need more teaching time per case. Also, there are days when there are more attendings than needed in clinic, and other days when there are fewer than needed. This is a scheduling issue.
Faculty Opportunities and Constraints	Attendings gain freedom over their own schedule. They also assure themselves that all patients are receiving quality care. They do not have as much time with each resident for teaching.
Resident Opportunities and Constraints	Residents have to wait for an attending. Attendings doing "social calls" may inhibit patient-resident relationship. Residents gain time to write up their notes, check on reports, etc.
Patient Care	Patients have a chance to chat with an attending, and in some cases, receive a second opinion. On the other hand, patients have to wait for the attending to come, and may not learn anything new.

See Table 8.1 for Summary of Relationships

treatment plan. One resident noted in the survey: "I don't like when the attendings spend a lot of time bonding with my patients as I am their doctor" [DOC115]. The attendings order their time by giving each patient and each resident equal amounts, whether or not patients or residents need it. This results in a high degree of sociability with patients. Patients constantly commented on how nice everyone is in the clinic ["I feel like somebody will remember me here" OB09]. However, some patients and/or

residents need more time while others need less. As previously noted, third year residents did receive more leeway. However, the randomness of the attending-resident selection process makes it difficult for attendings to know precisely what teaching points each resident needs, and when it might be possible for residents to handle a particular type of case without further intervention. To some extent, attendings do this with their social calls. That is, they are visually checking on the patient without interfering with the resident's plan of treatment. This choice further limits time in the RWR teaching residents who might need more help. In this clinic, social calls are viewed as positive by both attendings and patients. Again, there are advantages and disadvantages for both patients and residents with the current ordering.

Table 7.2: Relationship of Attending Take-Over to Teaching/Learning/Patient Care

Organizational Issue #17	Attendings take over patient negotiation stage.
Network Element(s)	The attending-resident-patient interaction is unbalanced in favor of the attending. There is weak enrollment of residents <i>vis-à-vis</i> faculty.
Faculty Opportunities and Constraints	Faculty assure themselves of providing quality patient care by seeing and taking care of patients. Faculty do not observe residents in this negotiation stage.
Resident Opportunities and Constraints	Residents are freed from final responsibility of patient care. They may also observe how faculty "model" this negotiation. However, they lose the opportunity to receive feedback on their own skills in negotiation.
Patient Care	There isn't really a downside for the patient, as they still receive good care, and may in fact, receive even better care. However, they lose the opportunity to further develop their relationship with the resident.

See Table 8.1 for Summary of Relationships

In the last part of encounters, Phase C, when residents return to discuss plans with patients, attendings' responses are also important. When an attending comes in and "takes over" the case—what does that do to the patient-resident interaction? Or, to future resident-attending interactions? This study indicates that residents lose opportunities to further their own negotiation skills when attendings "take-over." However, they gain opportunities to observe attendings model these skills. Patients receive care from the expert attendings, but lose possibilities to further their relationships with residents. Balance and choices are made or lost by how this last part of the encounter is handled.

How Does This Finding on the In-Action Opportunity Set Relate to the Literature?

Effective Teaching in Ambulatory Clinics

The list of "themes" that emerge about good teaching and learning in ambulatory settings (discussed in chapter 2) is a starting point for this section. Let us explore how these points relate to the In-Action Opportunity Set.

a) The ambulatory setting is designed so that most of the learning comes from seeing and treating patients. Therefore the need for patients is paramount. b) Residents need to see patients over time (continuity of care) in order to simulate the experiences they will have in their own practices (Irby, 1995). Both of these points are better related to the Ordering Opportunity Set where the planning for patient visits with continuity of care occurs. If the clinic does not schedule sufficient patients, or schedule them with the correct physicians, then neither one of these key opportunities can be provided for the residents.

c) Residents model their behavior based on the faculty's behavior (Kogan, Reynolds, & Shea, 2001). Here is a case where the In-Action Opportunity Set provides clear opportunities and cases for faculty to model professional and appropriate teaching behaviors. We see above that the faculty do not encourage or figure out ways to help patients with the continuity of care issue. Therefore residents do not perceive this as an important issue. Few residents discussed the need for continuity with their patients.

d) Residents need opportunities to generalize from specific cases; they must consider what would happen if the patient was 80 rather than 20, or how patients might react to a specific treatment if there are complications (Eraut, 1994; Resnick, 1987). e) Residents and faculty must reflect on their experiences of the day—what went well, what could have been improved, where are there gaps in the resident's knowledge that still require attention? (Hewson, 1992). Both of these issues are about faculty questioning residents—asking them to generalize or, asking them to be self-reflective. If the faculty do not ask those kinds of questions, residents do not learn how to ask such questions of themselves. Again, time is one issue here—faculty need to figure out ways to change the order of the moment, to gain the time to ask those questions. But faculty also need to be trained how to incorporate those questions into their repertoire [see (g) below].

f) Residents need feedback from faculty on their performances (Frye, Hollingsworth, Wymer, & Hinds, 1996). As noted earlier, it is easier to provide feedback when an attending has observed a resident doing something: an interview, physical exam skills, procedures, etc. In order to make this happen, faculty need to change around their “in-

the-moment” actions to make it known to residents that they want to observe them with specific portions of the visit (or the entire visit)—and then follow through.

g) Faculty development needs are still immense, particularly in the areas noted above (Kelley M. Skeff et al., 1997). There is also a need to address specific content areas such as preventive medicine, EBM, and practice-based research. Faculty “down-time” in the RWR could be used for this. However, faculty would need to be “enrolled” via CME credit, pay incentives, requirements for advancement, etc.

h) Faculty time for teaching is decreasing as pressure is building for faculty to see more patients (O'Malley, Kroenke, Ritter, Dy, & Pangaro, 1999; Skeff, Bowen, & Irby, 1997). Faculty need to look specifically at what they are spending their time doing when teaching. They need to employ mechanisms to shorten knowledge transfer, and lengthen the more analytical and evaluative components of teaching/learning experiences. Faculty are spending most of their time assuring quality treatment for patients, resulting in insufficient amounts of time in analytical discussions with residents.

The interactions between faculty and residents are much more complex than focusing on faculty teaching skills. Faculty must make decisions about prioritizing resident needs or patient needs. Other network components that must be addressed include the presence or absence of actors (e.g., charts and patients), the quality of interactions, attendings' prior knowledge of both patients and residents, and the interactive opportunities available to

each actor by virtue of prior actions. Studying the narrow trainer/learner dyad is insufficient. The actors must all act as a coordinated whole.

Adult Learning Theory

Adult Learning Theory rests on premises that learning takes place when learners have identified their own goals and they are ready and motivated to learn (Cross, 1981, Knowles, 1970). Laidley and Braddock (2000) proposed several strategies to improve clinic teaching while incorporating Adult Learning theory. These included increasing the resident's role as primary provider—higher level of accountability, explicitly agreeing on roles for the preceptor and resident—including communication patterns, setting a limited agenda, directly eliciting learner-perceived needs, and using multiple techniques to assess resident knowledge. These teaching methods were unobserved at the Korsdale Clinic. Research on the effectiveness of these strategies has not been conducted however. The application of Adult Learning Theory to clinic settings has been essentially unexplored.

In sum, most medical education research has focused on the teacher-learner dyad, developing lists of characteristics or skills that faculty should obtain. This study contributes to the literature by exploring the complexities of the interactions, not only between the teacher and learner, but all of the other actors who are involved. It corroborates other studies, to some extent, but opens for question the nature of the many relationships involved in carrying out even one patient encounter. Further, the study suggests that, even if faculty have all the skills on the lists, they are limited in their

implementation by the opportunities available to them through the network of previous and current actors.

Avoided Actors

Finding F: *Avoided actors also play a role in shaping what is not provided in services or training.*

Beyond the missing actors, or the problems that various actors have in their interactions and orderings, it is necessary to ask if there are any actors that are simply *never* present in the clinic. These, I have termed “Avoided Actors” for they are most usually well recognized by the current actors, who have chosen to avoid them. Avoided actors are not the same thing as missing or absent actors. With missing or absent actors, these are actors that are regularly present in the clinic, but whom, for one reason or another, do not show up at the correct time or in the correct place. With avoided actors, the clinic’s actors have usually openly discussed their non-presence in the clinic, and chosen to not make them a part of clinic activities. By their total absence, these Avoided Actors also contribute to the shape of what is possible to be delivered.

Ambulatory Curriculum

Up until July of 2000, there had been an ambulatory series provided by the clinic faculty. Because the clinic was in the hospital, it was easy for residents to appear a half hour early for a “mini-lecture series.” A lecture was prepared by one of the faculty and then provided ten times over (once each half day) by one of the clinic preceptors for that half day. When the move to the new clinic became a reality, the faculty decided to stop providing these lectures. It was now a fifteen-minute walk from the hospital to the

clinic, thereby making it difficult to start clinic on time. There was originally some thought given and some work done to providing these mini-lectures in a computerized format. Residents would be able to peruse them at any time. However, this had not appeared by the end of the year (June, 2001). One of the resident survey results was that residents wanted the return of the ambulatory lecture series [DOC115]. These were restarted during the last study week in the clinic (September, 2001). They did it in the same manner as it had been done the year prior to my study, i.e., by one faculty member preparing the lecture. Whoever was assigned to precept for the half day provides the lecture. Ten different thereby teach the same material. The lectures serve two purposes. First, they provide the same set of parameters for all the clinic residents on a given topic. But because ten different faculty give the lectures, they reinforce the key teaching points for faculty as well.

On the week observed in September, for the first three afternoons, the faculty presented the material [OB116-18]. But on the fourth afternoon, the attending did not show up to provide the lecture [OB119]. As this was the first week, there was apparently confusion over who would be giving the lectures for each half-day session. However, it points out how difficult it is to make changes. Even the residents did not show up at this new time for the lectures, because it meant coming to clinic a half-hour earlier than previously.

Evidence-Based Medicine

From my perspective, another one of the surprises I found in the clinic was the lack of emphasis on Evidence-Based Medicine (EBM). The literature on ambulatory education

has noted the importance of incorporating this in to clinic decision-making (Dobbie, Schneider, Anderson, & Littlefield, 2000 ; Schoenfeld, Cruess, & Peterson, 2000). It is also one of the new core competencies required by the ACGME. Here is a case where the faculty recognized their need to include EBM in the curriculum, but chose to do it by requiring a four week rotation in EBM, rather than incorporate it into clinic routines. Yet the use of EBM has been very important in ambulatory settings in order to assist residents in learning to interpret the literature to make the best possible clinical decisions and to provide up-to-date information for their patients.

There were some discussions that incorporated EBM on an individual case basis. At one point, one of the faculty overheard a conversation about whether to test a patient or not, and provided a brief lesson on false positives and negatives [OB61]. Faculty explained that residents have a special rotation in EBM, and that is where they learn it.

KVB: Do you teach residents how to use the Cochrane database? [an EBM tool].

Attending: Not really. I took a faculty development course last year and learned specificity and sensitivity and odds ratios, but we don't use it a lot. The residents have to use it to present an article at journal club while they are on their teaching month. We use EBM more to confirm our own clinical judgment, but it's coming, there's more pressure to use guidelines. For the most part it is not incorporated into clinic visits [OB19].

The examples in Chapter 4, where faculty mentioned basing their decisions on the literature were uncommon occurrences. There are no efforts to encourage residents to go on-line, find answers for themselves, or figure out how to use the myriad sets of guidelines that are on-line. Faculty seemed unaware of how to use EBM in the clinic on a daily basis. The faculty member in charge of faculty development pointed out that

another group of faculty she works with have all been through an EBM training program, but that most of the clinic faculty did not participate [OB59]. During the winter months, the pace is too fast to do anything but respond to the immediate problems at hand. However, residents could be given assignments to look things up on their own, but that requires faculty who can teach them how to do this.

Organization/Practice Management

There is also a lack of emphasis on teaching residents organizational and practice management skills. The opportunities abound for involving residents in all sorts of practice management, team-building kinds of projects, particularly during the slower months when they are sitting around. Yet these are viewed as outside the purview of what residents should be doing. But they are learning about the organization. What they are learning is that it is easier to go and get the nose cone from another patient room than to try to get the problem fixed. They see faculty addressing the problems in the same way, so they model based on what faculty do. The message that comes across is that fixing the system is somebody else's job. There is a large lost opportunity to teach about organizational issues and how to at least study them. Residents are not learning organizational problem solving skills, management skills, or leadership skills to resolve clinic issues. They do not work in interdisciplinary teams, or even resident/faculty teams. What will happen when they go into practice and find these same kinds of problems in their practice settings?

Dugdale noted that residents need to be taught about time management and communication skills—also managing inefficiency (e.g., touching papers only once and acting on them) and managing uncertainty (Dugdale, Epstein, & Pantilat, 1999). In this clinic, disease prevention and health promotion are well-covered topics, albeit on a patient-to patient basis. However, management skills, and the larger socioeconomic and health care financing issues are not addressed. There is also a need for residents to learn how one addresses organizational issues through team building and action research. If the patient is in control in the ambulatory clinic, how does one learn to develop organizational systems that will make for better patient/consumer relationships?

Patient Education

There was no patient education during most of the study. When the new Nurse Manager came, she developed a series of educational materials to use with diabetic patients and started to try to implement them. The Clinic Director put a stop to it, until such time as she was able to review all of the materials. When I left (approximately 5 months after the issue first surfaced), there was a notice up in the RWR that physicians could now schedule patients for diabetic education [DOC97]. But, when I returned four months later, no classes were being conducted. Pamphlets on other subjects were also missing.

How Do These Avoided Actors Relate to Teaching/Learning/Patient Care?

Each of these Avoided Actors leaves a “void” in the clinic’s curriculum. Residents are free to choose how they will make up those voids, but this may leave them without the practical experience of having to integrate this knowledge into their clinical practices.

Patients too, lose the “cutting-edge” knowledge that one expects in an academic medical center. They are not provided with patient education materials, nor do the residents provide them with the latest research results as demonstrated through their EBM discussions. While the focus on resolving clinical problems must continue to be the primary one for residents, these Avoided Actors would enrich the current curriculum tremendously. In fact, they are incorporated into the ACGME core competencies.

Table 7.3: Relationship of Avoided Actors to Teaching/Learning/Patient Care

Organizational Issue #18	From the clinics’ perspective, there is no organizational issue here, as they have chosen to avoid these actors. For this clinic, these actors include an ambulatory curriculum, EBM, organizational issues and patient education.
Network Element(s)	The clinic actors have chosen to not incorporate these actors into the clinic.
Faculty Opportunities and Constraints	Faculty have less to teach, and may teach anything they wish without the structure of a curriculum. Faculty generally do not provide instruction on these topics. There is no assurance that these topics are covered in the clinic.
Resident Opportunities and Constraints	Residents are free to learn these topics on their own, and to choose their own methods for acquiring them. However, they may miss their applications in the clinics, as that is not an explicit part of the instruction.
Patient Care	Patients may not be receiving the most up-to-date, cutting-edge care.

See Table 8.1 for Summary of Relationships

The Interrelatedness of Patient Care and Teaching/Learning

Finding G: *The actors intertwine both patient care and teaching/learning to become **interdependent** and inseparable: one is not provided without the other and vice versa.*

Casper and Berg said it best: “in the practices of medicine, patients’ bodies, lives, and subjectivities become entrenched within networks of technologies, medical personnel, and institutional arrangements” (1995, p. 402). What does “entrenchment” mean? Are patient care and teaching/learning two separate processes that are carried out simultaneously, or are they somehow intertwined?

Con-Joined Activities

There are activities in the teaching/learning interactions that take place in separate physical locations from patient care, and are quite separate in terms of their actions. However, even these interactions have elements of both patient care and teaching/learning. *It is in the work of doing/practicing patient care that teaching/learning occurs.* The work is the learning, so if work isn’t present or doesn’t meet quality standards, teaching/learning is sub-optimal. The reverse holds true as well; if the learning isn’t present, the work is sub-optimal. In fact, the intertwined nature of these activities changes the availability of both patient care and teaching/learning opportunities. The residents viewed the work as such:

Resident: “I didn’t learn a whole lot in terms of today. Nothing new today.” [A few minutes later—same resident] “Only thing I learned is that bright red blood, I can do an anascope in the office”[OB23].

Here the resident initially claimed he had just been doing patient care. But after thinking about it, he realized he had learned a new procedure that he can use in the office for a specific clinical finding.

KVB: How does the clinic help with [your becoming a sub specialist]?

Resident: If you don’t have this clinic, you have no outpatient exposure. It’s different than patients in the hospital. Learning how to do outpatient...When you

change meds, you have to think about driving, alcohol. In the hospital, the nurses are there 24/7" [OB001].

In this case, the resident recognizes the importance of understanding how differently things work in the clinic. Also, the faculty primarily view how they teach and how residents learn as being very patient-centered. However, faculty go on to note that they know there are other things that they should be doing to improve the quality of their teaching. They also note that there is insufficient time to carry them out.

KVB: How do you think residents learn in the clinic?

Faculty A: Unfortunately, I think residents learn a lot by, or perhaps fortunately, learn a lot by example.... One of the dominant models that we have is—"The way we do it at KH is ---fill in the blank." "What I learned from cardiology is to do this—fill in the blank." So the resident will present a plan largely for approval by an attending physician [IN08].

Faculty B: The teaching that we do at this point is all basically problem based, or case-based learning. So they learn one little snippet at a time. Sometimes they hear us with other residents so they learn by hearing that [IN 09].

Faculty C: They probably learn by doing. Learn by having a chance to see the patient, start from the beginning with a patient, take their own history and physical and have a chance to present their assessment and plan to you with as little interference on our part as possible. At that point it's my job to fill in anything that might be missing. To jump in when I think things are... if there's a hole somewhere, that's a critical hole, that has to be filled, it needs to be filled at this point. And help identify issues, glaring abnormalities that residents have in the assessment and management of the patient [IN11].

In this clinic, most of the teaching/learning centered on patient care. It is impossible to separate the two into separate networks or even separate strands. Even if other activities are present, the fundamental relationship between patient care and teaching/learning remains—they cannot be separated out easily. Separation contorts the relationship and is not an accurate picture of what is happening during the Opportunity Set processes.

Three Paths for Separating/Joining

The separation or joining actions are quite complex. There appear to be three different paths that are used to merge or separate these activities. 1) Separate activities for the patient, but joint activities for the resident, 2) separate activities while one or the other actor(s) waited, and 3) joint patient care/ teaching/learning.

1) Separate activities for the patient, but joint for the resident. There are components of patient care that are not part of the resident's immediate network. These appear to be divided by professional specialty. For example, one rarely sees a physician standing in the hall weighing a patient or making a referral appointment. These are considered the work of nurses or discharge staff. Separate patient activities also take place when the patient receives in-house tests. During this time, residents are presenting patients to faculty. The resident-to-faculty presentation is also centered around patient care first, with a secondary emphasis on teaching/learning [NR30]. Note the interdependence of the two activities: resident and attendings must wait for the in-house test results before making decisions on the next steps. Residents and attendings are interacting on both patient care and teaching/learning components simultaneously. This also happens when the patient leaves the clinic. They may be sent for referrals, more lab work, or to see other specialists. In the meantime, the resident may be calling specialists to alert them ahead of time, or checking on additional services that may be available to the patient. Here residents are primarily enacting patient care. But in the process, they

are learning communication skills, and learning about other services available to their patients.

2) Separate activities while one or another actor(s) waited. Sometimes patient care activities have to precede the teaching/learning component and sometimes these are reversed. For example, if patients need x-rays, they have to go to another floor in the building. If it is a fairly urgent matter, the resident tells the patient to bring the X-ray back immediately, and waits for the patient. The reverse is also possible. One day a patient couldn't remember the names of her medications. The resident went to look them up and didn't return for quite awhile. In this instance, the patient was waiting [OB23].

3) Joint patient care and teaching/learning. These events occurred during the three parts of the patient encounter – the resident in the exam room taking the patient's history and doing a physical exam, the resident presenting to the attending, and the return to the patient in exam room by the resident and sometimes the faculty. Here is where it is most clear how conjoined patient care and teaching/learning are. It is through the work of asking patients about their problems and their physical and social histories that residents learn communication and interviewing skills. It is through the work of giving patients physical exams that residents learn physical exam skills. Reasoning skills are taught by attendings in the RWR. Finally, the last opportunity for interaction comes when residents return to patient exam rooms to discuss and/or develop treatment plans with their patients.

Here are three key teaching/learning opportunities. The first and last remain very patient-centered around the care of a specific patient. But the RWR permits attendings to further explore the residents' knowledge of the topics at hand. For example, they can elaborate on variations of patient cases. They can speak about the generalities of a particular class of diseases or drugs. They can push residents to formulate clinical questions and look up answers on the Internet.

In all three of these types of encounters, the interdependence of patient care and teaching/learning cannot be ignored. The actors, i.e., the patients, residents, faculty, charts, lab reports, etc. must all come together to provide both patient care and teaching/learning. Without the lab report, the patient cannot complete her care nor can the resident complete her learning about that patient. Without the attending modeling some behaviors in the presence of patients, residents may not learn, yet too much modeling may overbalance the resident's interactions with the patient. There is a fine line to walk along this joining process. When does patient care outweigh teaching/learning? And how best to provide them both in a seamless joining?

Chapter Summary

This chapter concludes the findings for this study. The last Opportunity Set, the In-Action Opportunity Set, further refines the possibilities for patient care and teaching/learning. This Opportunity Set cannot be separated easily from the other two. Many of the ordering processes and socio-spatial interactions that precede the actual

patient encounter have already formed what is implementable. Yet, in the end, the very actions that take place during the encounter also construct the care that patients receive and the residents' learning. Particularly the attendings actions are based on prior interactions they have had with patients or residents. How residents and patients present their problems or cases also make a difference in the responses from attendings. Finally, the orderings used in this clinic make it difficult for attendings to develop in-depth knowledge of patients or residents.

The interactions between residents and attendings have been the subject of numerous medical education studies. This study corroborates many of their findings, but suggests that more attention needs to be paid to the organizational components that shape medical education. It also suggests that studies that separate teaching or learning from patient care are missing an integral part of the picture. It is almost impossible, if not impossible, to separate patient care and teaching/learning. It is in the action of doing patient care that residents learn. The role of patients in this process needs further exploration.

Endnotes

¹ The GC modifier was still in effect. This requires attendings to repeat the entire interview and exam with patients.

CHAPTER EIGHT: SUMMARY OF FINDINGS

“It’s a lot of broken windows” *Staff* [OB26].

Introduction

This study began with a problem: “How are the simultaneous activities of patient care and residency education (teaching/learning) organized in a primary care, ambulatory clinic?” I originally assumed that these two sets of activities were carried out through distinct and separate networks, with occasional overlaps. However, in this text, the overlaps and intertwinings have been shown to be very highly related. Therefore, we must accept the premise that the actual delivery of patient care is inseparable from the actual delivery of teaching/learning. But how do two separate sets of activities get so intertwined? These activities certainly begin from very different starting points. The processes by which they become intertwined is the story of this text.

In this chapter, the “story” is summarized and concluded. The original problem and research questions set out at the beginning of the text and a brief summary of the study are reviewed. The study itself is summarized. Then there is a summary of who the actors are (Chapter 3). Next, the actors’ interactions and ordering of their actions is discussed. This begins with a summary of the Socio-Spatial Opportunity Set (Chapters 4 and 5), and moves to the Ordering or process-enactment Opportunity Set (Chapter 6) and In-Action Opportunity Set (Chapter 5). As a means of synthesizing the findings, a Conceptual model for re-visioning the work of the clinic is proposed in Figure 1.2, p. 45.

One of Law's (1994) principles, "*non-reduction*," provided an excellent theoretical overview for interpretation. Reductionism is a method by which a large number of objects, phenomena, or events get reduced to a smaller class that is then given explanatory power. But in order to do this, one must differentiate that which is being explained from that which is explained. That is, the interactions of actors must be differentiated from the use of the Opportunity Sets Model to explain the intertwining of resident education and patient care. In this study, the descriptive components are found primarily in Chapters 3 through 7, with the larger conclusions ("the reduction") in Chapter 8. Law cautioned that one must always go back into the thick description in order to understand the larger conclusions.

Summary of Study

The overarching research question was: What are the networks in an ambulatory education clinic as they relate to patient care and resident education? Sub-questions were: a) Who are the actors in the networks? b) What are the relationships of the actors? and c) What processes of ordering do the actors create and use? These questions were designed to answer the overall problem of how the simultaneous activities of patient care and residency education are organized in an ambulatory education clinic. To answer these questions, the study described in this text was undertaken. A case study design using qualitative, observational methods to observe interactions among actors, both human and non-human, was selected as most appropriate. A clinic in a large, metropolitan city was selected. It met all of the criteria originally established. It was an Internal Medicine clinic with over 100 residents, who

spent one half day per week in the clinic. There were 14 faculty who each had some portion of an FTE as supervising attendings in this clinic. Staff numbered approximately twenty. Methods consisted of observation, interviews of key faculty, residents, and staff, and document review. Data was analyzed using an iterative coding process in NVivo. The results of the study are summarized below. Throughout this text, I have proposed a conceptual model, Clinic Opportunity Sets that serves as an explanation for how activities are enacted on a daily basis in the clinic. The model derives from the findings in this text. See Figure 1.2, Clinic Opportunity Sets, p. 45.

Summary of Findings

Overall Finding: *Medical educators are searching for answers within the very narrow dyad of the teacher-learner, when in fact, the answers lie in studying the clinic's networks. The actors construct and reconstruct the networks that provide patient care and teaching/learning. Historical actors and the outer networks play major roles in defining the outer parameters of patient care and teaching/learning. Within the clinic, at least three Opportunity Sets further refine the opportunities for teaching/learning and patient care: Socio-Spatial, Ordering, and In-Action.*

The actors expand, delete, revise, circumscribe and create the network. By their actions, they change the capabilities and opportunities for providing patient care and teaching/ learning in a residency clinic. Capabilities include quality, i.e., the degree to which standards of patient care and teaching/learning are implemented for each patient and resident. Opportunities include quantity, i.e., the number of opportunities to provide services and training.

Within the clinic, the actors (both human and non-human) construct and reconstruct a) the Socio-Spatial Opportunity Set (the nodes, interactions within nodes, and linkages across nodes), b) the Ordering Opportunity Set (prioritization of interactions into orderings), and c) the In-Action Opportunity Set (the in-the-moment actions when delivering patient care and teaching/learning). Changes in any one of these Opportunity Sets may increase or decrease the clinic's capabilities and opportunities for service/training provision. The absence of actors can also change the network.

Through this complex process, teaching/learning and patient care become intertwined and interdependent—to the point where one cannot be provided without the other.

Individual Findings

Finding A: *The historical actions of previous actors have embedded the organization with interactions and processes that are often difficult to change.* (Chapter 3)

Finding B: *There is considerable control from “outer” networks – most changes came from the outside. The inner network’s links to the outer networks are generally weak.* (Chapter 3)

Finding C: *The Socio-Spatial Opportunity Set. The actors construct and reconstruct the configuration of the residency clinic network. This includes both human and non-human actors’ social and spatial interactions, hereby termed the Socio-Spatial Opportunity Set. This configuration, and the ways by which the actors control the configuration circumscribe or expand the capabilities and opportunities for teaching/learning and patient care.* (Chapter 4)

Finding C.1. *Human and non-human actors combine to do the work of the clinic.* (Chapter 4)

Finding C.2. *The configuration of the clinic network, i.e., the pattern of nodes and their linkages are a key factor in delivering patient care and teaching/learning. In this clinic, the nodes operate fairly independently of one another.* (Chapter 5)

Finding C.3. *The interactions or links between the nodes are critical to the ability of each node to function. However, there are few links and little linkage redundancy between nodes.* (Chapter 5)

Finding C. 4. *The actors assert minimal control of the “net-work” (both inside and between nodes). Control primarily surfaces when there are problems, and then as a blaming mechanism. This can also result in disorder, further limiting patient care/teaching/learning.* (Chapter 5)

Finding D: *The Ordering Opportunity Set. The actors construct and reconstruct the processes by which activities are ordered so that patient care is not separated from teaching/learning. The Ordering Opportunity Set further constrains implementable patient services and resident experiences.* (Chapter 6)

Finding D.1. *The Ordering Opportunity Set: Scheduling. One of the key ordering processes in this residency clinic is scheduling. It is the prelude to the patient care/teaching/learning ordering process and thereby delimits actors’ actions in later ordering processes.* (Chapter 6)

Finding D.2. The Ordering Opportunity Set: Patient Care/Teaching/Learning (PCTL) is the second major ordering process. How patient care and teaching/learning are ordered can further change the availability of both service and training. (Chapter 6)

Finding D.3. There are at least three characteristics of the ordering processes: a) actors and actions are distributed across processes, b) patients play a major role, and c) other missing or absent actors change the ordering processes as well. (Chapter 6)

Finding D.4. Changes in the ordering processes may increase or decrease the organizational capabilities and opportunities for service/training provision. (Chapter 6)

Finding E: The In-Action Opportunity Set provides the last opportunity to shape or direct opportunities and capabilities for patient care and teaching/learning. This is created by actions of residents, patients, faculty and other actors during and after patient visit. (Chapter 7)

Finding F: Avoided actors also play a role in shaping what is not provided in services or training. (Chapter 7)

Finding G: The actors intertwine both patient care and teaching/learning to become interdependent and inseparable: one is not provided without the other and vice versa. (Chapter 7)

Brief summaries of each major finding are provided below.

Historical Actors and The Outer Networks (Chapter 3)

The Outer Networks are one of two groups of initial shapers of opportunities for resident learning and patient care. The major outer networks are noted in Figures 1.2 and 3.1, however, they are so numerous that it is impossible to represent them all. Some of the key shapers include: the federal government in the form of Medicaid, Medicare, and various regulatory agencies; national accrediting bodies, insurance companies, the

academic medical center, and state and local regulatory agencies. The outer network shapers for resident learning are primarily national. The ACGME accreditation standards require residents to spend at least 30 weeks, one half day per week, in a continuity of care experience in an ambulatory setting.¹ The standards further regulate the maximum number of patients first year residents may see² [DOC118]. Medicaid and Medicare regulations require faculty to be present and attending solely to resident teaching and learning. In fact, during the first six months of a resident's training, faculty must physically examine the patient him/herself. Other Medicaid regulations have made the ACP billing codes mandatory, with their resultant changes in what residents and faculty must complete on the encounter form. In addition to all of this, there are all of the JCAHO regulations, and other health and environmental regulations that must be met. (See Chapter 3 for a discussion of the outer networks). Such requirements set the initial parameters for what can be provided and accomplished in an ambulatory education setting.

The outer networks also shape opportunities for patient care. These too, begin with Medicare and Medicaid, as the largest purchasers of medical services in the country. Private insurance companies also use the Medicare/Medicaid billing codes. The regulations of these large purchasers of services are some of the initial shapers of what can be provided in the way of patient care. For example, one insurer did not permit billing for annual physical exams. There had to be a more urgent need associated with the visit. Another permitted billing for certain tests, but not others. Indirectly, the outer networks also included the employers, as they were often the ones who switched from

one insurance carrier to the next. One of the most frequent reasons new patients cited for coming to the clinic was that their insurance had changed.

The medical and professional education literature also provides a set of educational standards for what constitutes quality teaching and learning. The list of these standards is discussed in Chapter 2. Along with this, there is a generally established set of topics that are assumed to be covered as “primary care” (see Chapter 2). Assumptions are made on the part of accreditors and hospital personnel and faculty that these topics and standards are known *and* being implemented. These standards and topics also play a role in framing what and how teaching/learning will take place in the clinic. Prevention, for example, is a topic that is generally considered to be taught in ambulatory settings, whereas putting in a central line is a topic reserved for teaching in a hospital setting.

Standards on the quality of patient care are also available in the health care literature. These have been discussed in Chapter 2. Some of these are encoded into laws, rules and regulations, but others are encoded through the general training of professional staff. In the Korsdale Clinic, if patients waited too long, or someone was rude to a patient, there were comments made that this was “highly unprofessional behavior.” Such incidents were never codified into a set of rules, yet for the most part, everyone acted in ways that indicated an “understood” form of professional behavior, as defined in that clinic. While such standards may be less formal than others, they nevertheless contribute to the process of circumscribing what is considered quality patient care.

The outer networks set the original parameters in which all clinics operate. The enormity, complexity, and control of these networks is tremendous. The number of inspections, accreditation agencies, environmental and health regulations, laws, billing procedures, and coding rules is almost overwhelming. Also, the hospital contracts with various insurance companies to provide health care to large groups of patients. Each insurance company contract has its own sets of rules, regulations, and reporting mechanisms. In addition to the “required” standards, rules and regulations, professional standards for patient care and teaching/learning, as established through the literature, must also be implemented.

As with any clinic directly affiliated with a hospital, there were numerous ways in which the hospital itself controls the clinic. As we have seen in this text, decisions about space and computer systems are made by the hospital. The clinic staff are hospital employees, with job descriptions, salary levels, hiring and firing procedures all determined by the human resources department of the hospital. The faculty are first and foremost members of the Internal Medicine Department of the university. The residents are first and foremost post-graduate students at the university and hospital employees. Thus, before anyone ever begins a workday at the clinic, the building they work in, the computer systems they will use, the patients they will see, and the work they will actually do, is pre-established by a large number of outer networks.

While the outer networks are actively working to establish and implement all of these rules, they remain, for the most part, separate entities. Therefore, in Figure 1.2, Clinic

Opportunity Sets, they have been represented as having fairly solid lines between them. That is to say, the “space czars” do not interact with the insurance companies about patient needs or billing procedures. The faculty themselves do not speak with the insurance companies—that is handled by a separate contracting office. The residents and staff do not have input into the design of the computer system. The environmental and health regulatory agencies may have hospital representation, but it would rarely be a front-line person from the clinic. The same could be said for the accrediting bodies—they do not interact with clinic staff unless they are conducting an inspection. In other words, actions of the outer networks *precede* the daily enactment of clinic life. But in most cases, these outer networks remain separate and distinct. The actions are “sent down” (or so it appears to the clinic actors) from a large number of outer networks. These networks have no reason to interact with other networks. *It is up to the clinic itself to provide a synthesis of all of these rules, regulations and controls.* In sum, the outer networks have much more control in establishing the outer parameters of clinic life than originally envisioned. From the clinic actors’ perspective, this control appears uncoordinated. The clinic actors are left with the operationalization of the parameters set down by disparate outer networks. A thorough study of these outer networks and their various enrollment techniques and standards must be left for the future. This study focused primarily on the in-clinic actors. But one must keep in mind that the in-clinic actors and their interactions took place within this larger framework of outer networks.

Historical Actors also maintain a presence in today’s clinic. The move into the new clinic brought the same socio-spatial separations of faculty and residency clinics

into the new setting. The patients remained largely segregated as well, i.e., the percentage of Medicaid and Medicare patients seen on the residency side remained much higher than that seen on the faculty side. Furthermore, each of the old clinics brought with them different chart systems. Although everyone recognized the need to make this into one system, one year after the move, this was just starting to happen.

The In-Clinic Network

Within the clinic, the key actors have been thoroughly described in Chapter 3, and are only briefly summarized here. They include: faculty, staff, residents, patients, computers, phones, physical building layout and space, patient charts, curriculum, and funding. Key actors are both human and non-human. The role of patients is very important to service delivery. Patients not only impact their own care, but also constrain or expand residents' opportunities for teaching/learning. In this clinic, physical space layout, patient charts and the CSBS computer system, all non-human actors, are directly related to opportunities for both patient care and teaching/learning. Other clinics may have other actors. From my years of experience in clinics, the actors discussed in this text appear to be the primary actors in all clinics, but there is a possibility that other actors exist.

To answer the question, I abandoned the notion of two separate networks, and put forth the concept of one network that has socio-spatial nodes. (These are defined and discussed in Chapter 4). There are small groups of actors who interact with each other on very regular or frequent bases. These are usually the people and equipment that are

in the same physical space with each other. For example, the medical records staff rarely leaves the medical records room. They interact primarily with each other, the computers and patient charts. However, a socio-spatial node does not have to constitute the same physical space. All of the administrative/management staff are grouped together because, even though they are physically separate, they move freely between each others' offices, and spent considerable amounts of time together, both in and out of meetings.

Within each node, the actors develop ordering processes specific to the work of that node, in order to accomplish this work. For example, in medical records, returning charts are placed on one shelf, whereas charts being prepared for the next day are placed in a different place. One person prepares charts, while others file. As one would expect, the ordering processes developed *within* nodes are more flexible. If one person is absent, other node-workers fill in and do the required work. The key point is that, at all levels and at all times, the actors' actions have two dimensions: the direct interactions and the ordering of the interactions. Both work around the socio-spatial constraints.

In order to move the work from one node to the next, the actors create links. These range from speaking directly to actors in the next node, to leaving messages or forms, using the computer, or speaking on the phone. See Figure 5.2, Chapter 5 for a complete picture of the nodes and their links. Where there are weak links, a link that breaks down, or an absent link, the process of getting the work from one node to the next also

breaks down. In some cases, these breakdowns happen so frequently that alternative orderings or processes are established. In other cases, the work grinds to a halt.

The Role of Opportunity Sets

Within the clinic, the actors set in motion through the Opportunity Sets, how all of the demands from the outer networks will be met. Through their interactions and orderings, the actors accomplish a synthesis. Through their socio-spatial interactions and orderings, they essentially figure out ways to operationalize the many requirements, standards, and actions placed upon them by the outer networks. This is not to say that they don't meet the requirements and standards. However, because it is impossible to attend to all of them equally, the actors selectively choose what and how to meet them. Also, many of the regulations and standards expect a certain level or action, but do not explain how to achieve it. For example, the encounter form must be filled out correctly in order to send in a bill, but it does not explain how the resident will learn to complete the form. Therefore, the Opportunity Sets serve several purposes: 1) to enact the various regulations and standards, 2) to synthesize these outer network requirements into implementable patient care services and resident training experiences, and 3) to provide the services that result in patient care and resident learning. The following section explains each of the three Opportunity Sets in more detail.

The Socio-Spatial Opportunity Set

In the process of enacting the work through their interactions, the actors are circumscribed, not only by the outer networks and the clinic's history, but also by the

space and the physical attributes of the clinic. Such things as the “V” in the hallway can not be easily changed. The CSBS computer system, the telephone system, the two previous charting systems, and funding levels are also presented to the actors as “givens.” The permanent staff are also considered to be “givens.” While it is possible to make some minor changes (e.g., a wall removed between two rooms, or phone lines and computer hookups added), for the most part, issues surrounding space, physical layout and equipment are viewed by everyone as beyond their control. In the socio-spatial nodes, actors learn to work around these very intransigent actors. For example, instead of moving the medical records, a feat that required reinforcing the concrete floor, medical records developed a new staff position, the Walker, to move patient charts from one end of the clinic to the other. The schedulers hunt through the computer list to try to figure out who is the patient’s primary care physician.

Within each node, actors develop and order interactions to move around and get through, what, in their perception, can not be changed. These within-node interactions and orderings are termed *the Socio-Spatial Opportunity Set*. It is placed as the first in-clinic Opportunity Set in Figure 1.2, Clinic Opportunity Sets. It is the set of interactions that has the least movement, and where the actors must take the most drastic steps to work around what can not be changed. This may be due to the degree of hospital control, the intransigence of the objects themselves, or the inability of the actors to demand more attention, or combinations of all these reasons. The Socio-Spatial Opportunity Set is also the first place where all of the rules and regulations from the outer networks meet within the clinic walls. It is now up to the clinic actors to operationalize these rules in

ways that will make it possible for them to continue to work. Thus, this Opportunity Set is the first circumscriber of both patient care and teaching/learning.

In addition to ordering their actions within the nodes where they are carrying out their work, the actors have devised ways to move the work from one node to the next, over time. I termed these ordering processes. These orders provide an overall sense to the major work activities of the clinic. They served as parameters or guidelines for all of the other work that needs to be accomplished in order for these processes to be completed.

The Ordering Opportunity Set

The Ordering Opportunity Set consists of two main ordering processes, scheduling and patient care/teaching/learning. These two processes guide the overall activities of the clinic so that both patient care and teaching/learning may be accomplished. The processes order the actors' actions inside and across nodes, through the links. The ordering processes make it possible for the work of the nodes to go from one node to the next. *The key difference between the Ordering Opportunity Set and the Socio-Spatial Opportunity Set is temporality.* Not all interactions can be carried out simultaneously. The ordering processes provide a means to arrange which interactions will be implemented before others. The Ordering Opportunity Set is directly related to almost all actions in the clinic. Changes in the ordering processes change the actions of large numbers of actors. The temporality of the Ordering Opportunity Set is contrasted with the semi-static nature of the Socio-Spatial Opportunity Set, but these two Sets are, in fact, two dimensions of the same phenomenon. One cannot be changed without

changing the other. They are therefore represented in Figure 1.2 as separate Opportunity Sets but with a dotted line between them.

The first ordering process is scheduling. This is a very complex, yearlong process that begins around faculty responsibilities for teaching in the university, in-hospital rotation schedules and vacation schedules. Residents and all of their out-rotations must be factored in. Staff scheduling is next, and finally patients. This process ranges over several nodes and over long lengths of time. With the exception of medical records and billing, almost all of the actors in the clinic are involved at some point.

The second ordering process is “patient care/teaching/learning” (PCTL). This process has a somewhat shorter time line, spanning from one patient appointment to the next. It is usually never more than six months, and often, more frequent. It covers gathering all of the information before the patient visit (e.g., obtaining test or X-ray results), the patient visit itself, and after care. The teaching/learning takes place primarily during the patient visit, but also before and after, so it is interspersed throughout this process. For a thorough explanation see Figure 6.2, p. 258. This ordering process is primarily driven by the patient’s availability, but also depends, to some extent, on the resident’s availability.

The In-Action Opportunity Set

This final Opportunity Set does not have the same level of impact that the other two Opportunity Sets have. The In-Action Opportunity Set is about changing the ordering

processes, but on a minute-by-minute basis while the actors are implementing patient care and/or teaching/learning. It usually involves interactions of very small groups of actors. For example, only the patients, residents, and faculty who are assigned to the one exam room with the missing ear cones have to change their actions to accomplish their goals. They do so temporarily. For the most part, these temporary changes in ordering processes are never codified into changes in the overall ordering processes.

A Conceptual Model: Opportunity Sets

These three Opportunity Sets provide mechanisms for operationalizing the myriad demands of the outer networks. They make it possible to achieve the two simultaneous sets of activities: patient care and teaching/learning. Here is an example of how it works: The outer network of the hospital requires that patients register in the hospital system so that laboratory tests, x-rays, etc. can be tracked and billed. The clinic's patient tracking system (CSBS) is separate. Because the hospital system is so complicated, the registration desk staff reports to hospital finance instead of the Clinic Director. Already, there are several very strong ties from the clinic actors to the outer networks. To enroll the registration staff even more in the hospital networks, the hospital has an incentive pay system. It is tied into errorless entry into the hospital computer system, but not the clinic system.

The registration desk staff sit in the patient lobby. They are completely separate from the rest of the clinic staff, and only occasionally speak together via phone. The link between the registration node and the nursing node is the CSBS computer system. If the

patient doesn't get registered in the CSBS, the nursing staff does not know (and can not see from their station) if the patient is present. The CSBS, the physical layout, and the staff reporting to two different departments are all actors in the Socio-Spatial Opportunity Set.

The Ordering Opportunity Set is supposed to work (and most of the time does work) by having the registration desk staff enter the patient first into the hospital system, and then into the clinic computer system. It is easy to become distracted or mixed up. On a fairly regular basis, during the study period, patients are not entered into the clinic system. When the patient is finally "discovered," a different set of interactions and orderings takes place.

The Socio-Spatial and the Ordering Opportunity Sets have narrowed the patients' availability to the resident and the residents' availability to the patient. The first two Opportunity Sets determine what is possible to take place on a given day. For example, instead of a half hour appointment, now the patient might have to be squeezed into a fifteen-minute slot. In almost every case, someone noticed the waiting patient after a period of time (or patients complained about the long wait), and patients were seen. By changing the amount of time available, the nature of what can be accomplished for both patients and residents has also changed.

The In-Action Opportunity Set determines the last parameter. Both faculty and residents make decisions about what must be absolutely covered with the patient, and what can

wait until next time. On occasion the patient makes the decision not to wait any longer, and leaves before being seen. The patient departure further limits both patient and resident opportunities.

In this example, the three Opportunity Sets combine to produce less than optimal patient care³ and less than optimal teaching/learning for the resident. However, the Opportunity Sets may also combine to produce highly optimal opportunities. When all socio-spatial interactions work well, and the ordering processes are smooth, time is available. (Of course, individual actors may choose to use that time opportunity very differently as noted previously.) These Opportunity Sets align the actors to make it possible to provide quality patient care opportunities and resident learning experiences. The issue becomes one of making it possible for the optimum results to be obtained on a consistent basis for all patients and residents. In sum, the first two Opportunity Sets, the Socio-Spatial and Ordering Opportunity Sets operationalize the implementable services and curriculum. The final In-Action Opportunity Set enacts the experiences. In the process of doing this, several things occur:

- * Patient care and teaching/learning become intertwined.
- * The Opportunity Sets define the parameters of the actual services/experiences.
- * The Socio-Spatial and Ordering Opportunity Sets interact with each other, but are generally ordered by their degree of intransigence to change.
- * Opportunity Sets cut across all aspects of teaching/learning and patient care.
- * The interactions, and thus the Opportunity Sets, are constantly moving targets but are generally ordered by their degree of intransigence to change.

Let us examine these statements in more detail:

Patient Care and Teaching/Learning Become Intertwined

Through the actors' interactions in the Socio-Spatial and Ordering Opportunity Sets, they intertwine the delivery of patient care and teaching/learning. These activities become so intertwined that they cannot be extricated from one another. In the registration desk example above, the key actors are enrolled in very different networks: the desk staff report to finance, the residents report to the program director in the Department of Internal Medicine, and the patients come because they belong to certain insurance plans. Yet, by the end of the Opportunity Sets, actions started in registration, the computer systems, and actions by staff, nursing, faculty and residents bring patient care and resident learning into one and the same encounter. Resident learning comes primarily from the *experience* of seeing and treating patients. Therefore, the clinic's most important guiding directive is to integrate patient care and resident education effectively and efficiently. This occurs through the actions that lead up to the experience itself. The ambulatory education clinic has no *raison d'être* if it is providing only patient care. Resident education can only be accomplished when patient care is provided. Therefore, the clinic *must* devise means to intertwine these two activities in order to provide for a combined, integrated experience for patients and residents.

The Opportunity Sets Define the Parameters of the Actual Services/Experiences

The Socio-Spatial Opportunity Set and the Ordering Opportunity Set define the parameters of the possible, implementable set of patient care services and opportunities

for teaching/learning. In the registration desk example, the standard appointment length is no longer an option if the patient does not get entered into the system and is not called on time. Some shortening of the appointment, and what can be accomplished in that appointment will take place. How this plays out is dependent on the third Set, the In-Action Opportunity Set. This third and final Opportunity Set defines what is actually provided or implemented.

The actors arrange their interactions within and between nodes and then order these interactions. These actions define the implementable opportunities and experiences, as well as the constraints. The Socio-Spatial and Ordering Opportunity Sets operationalize the ideal world of the outer networks, with all their standards and regulations as both opportunities to act and constraints to not act. The availability of the *opportunity* to experience (or NOT experience) is a *precondition* for the experience itself. In other words, experiences must be present and accessible, implementable, *and actually implemented, before* one can measure what learners have learned, or what patients perceive as desired outcomes. The interactions within and between nodes, as well as the ordering of these interactions are related to both the *quantity* and the *quality* of opportunities for patient care *and* potential teaching/learning experiences.

The lack of working Opportunity Set processes results in disorders. On several occasions, patients were unclear as to who their primary care physicians were. The faculty changed the treatment from what the resident had previously told the patient. The lack of ordering processes and socio-spatial interactions make these incidents occur

more frequently than if such measures are in place. It is not to say that they will not occur, but where protocols and processes are in place, there appear to be far fewer incidents of patients perceiving organizational problems, at least in this clinic.

The Socio-Spatial and Ordering Opportunity Sets Interact With Each Other But Are Generally Ordered by Their Degree of Intransigence to Change

The Socio-Spatial Opportunity Set and the Ordering Opportunity Set are separated in order to explore them in more detail. However, in reality, the ordering processes cannot be separated from the socio-spatial interactions. They are two sides of the same coin. Therefore, in Figure 1.2, they are drawn with a dotted line between them. Changing the interactions of actors within a node will usually change the ordering of those interactions, and vice versa. For example, giving the patient demographic forms to the patient to be immediately placed in their charts eliminates the need for medical records to file them at the end of the day. It changes the ordering and the interactions for the registration desk staff, patients, the form itself, nurses, the patient chart, and the medical records staff. Each actor changes both the interactions and the order. For example, the registration staff now has to add a step at the beginning of their patient encounters, handing patients patient demographic forms. But the registration staff eliminates a step to their end of day routine as they no longer have to take the pile of forms back to medical records. It is impossible to hold interactions static, because they occur over time. The very fact that one actor acts, and another actor re-acts is temporalized. The actors order their interactions to accomplish what they view as the necessary activities

they must achieve. The interactions and the actors' ordering of the interactions must both be accounted for.

By placing the Socio-Spatial Opportunity Set first, followed by the Ordering Opportunity Set, and last the In-Action-Opportunity Set, I have imposed my own "ordering" on these three in-clinic Opportunity Sets. This ordering resulted from observations that the actors have the most variety of actions and interactions (see Chapter 7) with the In-Action Opportunity Set, and the least variety of interactions and most intransigence with the Socio-Spatial Opportunity Set. The In-Action Opportunity Set is the easiest to change. It can be changed without changing orderings or interactions that involve the entire clinic. This Opportunity Set mostly involves very small groups of actors. For example, one faculty member can work with one resident using a different interaction pattern by going into the exam room with the patient to hear the resident present. Such actions only involve, at any one time, one faculty member, one resident, and one patient. The interactions and orderings can be changed without enrolling a large number of actors across nodes.

Producing alternative responses is more difficult with ordering processes. These are more involved because the ordering processes stretch across several nodes and links. Changes in orderings will also create changes in interactions. The actors are already doing the work in certain ways to accomplish the processes. Yet, the ordering processes are less difficult to change (and thus still produce more variety in responses) than the socio-spatial interactions. As noted in the case of the patient demographic form, both

socio-spatial and orderings changed, but primarily it was an issue of changing the ordering. The form, patient chart, human actors, and physical locations where the interactions took place, i.e., the actors all remained the same.

The Socio-Spatial Opportunity Set, where such things as physical space, personnel, and computer systems must interact, is the most difficult to change from within the clinic. Many of these actors, such as the CSBS system, personnel, and space are tightly tied into outer networks. Such changes require enrollment from large numbers of actors across many nodes, and usually require changes in funding. Therefore, one would expect the least possibilities for alternative interactions, variation on the interactions or changes to interactions within this Opportunity Set.

By ordering the Opportunity Sets in succession, it is possible to consider a new method for making changes. One could experiment with changes to the In-Action orderings and interactions with relatively small numbers of actors and at little risk or cost. Changes in the ordering processes have more risk and cost, but may also have higher benefits. Finally, changes to the socio-spatial interactions require the most serious consideration before embarking upon them, because they are so all encompassing. Because the cement floor could not be reinforced in the middle of the clinic, medical records had to be placed at the far end of the clinic. This required a new staff position that of Walker, to move the patient charts around the clinic on a daily basis. Not only was the solution an expensive one, but also it was less efficient for all concerned. The Opportunity Sets appear to have degrees of “hardness” or difficulty to make change possible, based on the

number of actors enrolled, and how well enrolled each actor is. Latour discussed “hardness” and “softness” in terms of facts (1987). He used these terms to describe how entrenched particular facts are, i.e., how many actors are enrolled and how well are they enrolled. Here the terms are applied to the Opportunity Sets themselves, that is, to the interactions that produce the facts.

Opportunity Sets Are Related to All Aspects of Teaching/Learning and Patient Care

Throughout the text, we have looked at various organizational issues, some of the network components involved in the issue, and how they are related to teaching/learning and patient care. The Tables scattered through Chapters 3-7 indicated specific organizational issues, the network element(s) that are most predominant in the issues, and the effects of the issue on faculty and resident constraints and opportunities, as well as on patient care. These tables have been summarized into Table 8.1. However, here they are organized by the network element that contributes most to the issue. The relationships of these issues to the capabilities and constraints for patient care and teaching/learning are then explored.

If we explore the table by network element, the first category is **Missing Actors**. For some actors, this category probably has the direst consequences. When patients or charts are missing, residents totally lose an opportunity to learn. Nothing can replace the missing patient or chart, even if the resident sees a different patient or looks up the information on the computer. It is not the same as the original patient or chart.

**Table 8.1: Summary of Relationships
of Organizational Issues and Network Components to Patient Care and Teaching/Learning**
(Grouped by network component)

These relationships are discussed in detail on the pages noted beside each issue number.

Org Issue	Network Components Contributing	Learning Opportunity For Resident (R)	Learning Constraint for Resident	Faculty (F) Opportunity	Faculty Constraint	Patient (Pt) Care
	Missing Actors					
#12, p. 284 Scheduling – Patient doesn't show	-Actor absence -Processes for minimizing no-shows are missing	R. may use time for other forms of learning	R. misses opportunity to learn from pt.	F. may use time to follow-up on other issues	F. misses opportunity to teach abt. pt.	Pt. who needs care doesn't receive it
#13, p. 288 Chart missing—previous history, reports and med list absent	-Actor (chart) missing -Interactions/processes within Med. Records node cannot produce results	R. practices interviewing skills as pt. retells story	-R. re-does work already done. -R. has no back-up information to determine if problem correctly treated	F. opportunity to discuss organizational issues	F. has less time to teach, task made more difficult without chart	Pt. has to retell history, meds & undergo a more thorough physical in order to address current problem
# 14, p. 289 Chart w/ missing info, e.g., lab tests, consultant reports	-Actor (results) missing -Interactions/processes within Med. Records node cannot produce results	R. spends time on computer to find results or calls around to find info (computer skills & better knowledge of system)	R. has less time with Pt. and F. -Cannot discuss test results	F. teaches how to access test results system and opp. to address process problems	F. has less time to teach about Pt. issues; Cannot teach about test results	Pt. has to come back or call in for results

Table 8.1 (cont'd.)

Org Issue	Network Components Contributing	Learning Opportunity For Resident	Learning Constraint for Resident	Faculty Opportunity	Faculty Constraint	Patient Care
	Missing Actors					
#15, p. 294 Exam room objects missing	Actor missing Current process has no checks or links. (Within node work-nursing station)	R. learns how to "work-around" the system	R. spending time looking for objects, rather than talking to or examining patient.	F. teaches R. where to find things in clinic	less time for F./R. interaction	Pt's perception of R. ability becomes negative. Pt. loses time to talk about problems
# 16, p. 332 Attendings unavailable when R. needs to present	Actor missing	R. gain time for further write-ups, research	R. loses time spent in R-F interaction	F. establishes better rapport w/ pts if making social calls.	Less time with R. Lose opportunity to interact with pt.	Patients wait
	Node Configuration					
#3, p. 181 Node work doesn't pass smoothly from node to node, e.g., Registration Desk -pt. not entered into system upon arrival	Separated nodes. No central core, links/checks insufficient, poor quality actor (CSBS)	R. learns to see pts. in less time	R. waits, then must hurry to finish on time	To teach about organizational issues and how to resolve them	Less time for F-R interaction	Pt. waits a long time to be seen, visit is rushed



Table 8.1 (cont'd.)

Org Issue	Network Components Contributing	Learning Opportunity For Resident	Learning Constraint for Resident	Faculty (F) Opportunity	Faculty Constraint	Patient Care
	Missing Links					
#4, p. 200 Lost patients, charts & scheduling errors	Absence of links, little or no link redundancy, poor quality link	R. gains opportunity to analyze & find creative solutions for org. problem	R. loses learning time around patient care	Breakdowns in links result in less teaching time,	F. could use opportunity to discuss org. issues of repairing links	Loss of quality care if not called on time, chart is missing, etc.
	Processes					
#6, p. 252 Scheduling – Lack of continuity of care. (Pt. seen by diff. doctor each time)	Current process is guessing game	R. practices interviewing skills as pt. retells story. R. sees what prev. Rs missed	R. misses continuity of care experience, spending time repeating what others have done previously	F (if it is a pt previously known) may benefit from new R's different perspective	F. teach abt current problem rather than addressing longer-term, or prevention issues	Pts. stated they prefer to see same doctor, have to re-state same stories each time
#7, p. 268 Most teaching occurs outside exam room	Ordering of PCTL process	R. independently sees pt. Can develop rapport	R. sees pt without advance organizer from F.	None permitted	F. loses opportunity to set expectations or observe R.	Pts. may wait for residents who don't know they are here
# 8, p. 270 R. selection of F. is random	Process works but eliminates possibility of remaining w/ same F.	R. obtains diff. opinions from diff. F.	R. presents same pt to >1 diff. F. Continuity of care missing	F. teach R. abt pt.	F. doesn't develop long-term relationships w/ R. & Pt.	Continuity of F. knowing a pt not present

Table 8.1 (cont'd.)

Org Issue	Network Components Contributing	Learning Opportunity For Resident	Learning Constraint for Resident	Faculty (F) Opportunity	Faculty Constraint	Patient Care
	Processes					
#9, p. 271 ROC follows up rather than R. who saw pt.	Process works, but has little follow-up on implementation	ROC sees more cases than if seeing pts. R. have someone follow-up when R. absent	R. uninvolved in follow-up. ROC may not implement what R. wanted to do or what R. told pt would happen.	N/A	N/A	Pt. confusion ("but you're not my doctor")
#10, p. 273 ROC or R. does not show up for session	Process not followed by ROC or R.	Other R. gain learning opportunity	R. loses learning opportunity Other Rs. must see own pts. plus do ROC work	F. can review work of Rs. by reading charts, checking tests ordered, etc.	F. spend time doing ROC work, potentially less time teaching	N/A
#11, p. 276 Scheduling – Patient late	Actor not following process	R. addresses current problem only.	R. may not see pt—someone else may see pt for R.	F. opportunity to discuss organizational issues??	F. do less teaching, more hurried, more focused on current problem	Patient has shorter visit, less time to talk
#17, p. 333 F. response – take over patient negotiation stage	Actor (Faculty/pt) interaction	R. observes modeling, but often turns away to write in chart.	R. loses opportunity to learn appropriate interaction w/ pt.	F. establishes rapport w/ pt.	F. do not have opportunity to observe R. interact with pt.	??? Unclear about Pt. perception, but several Pts. stated they prefer same dr.

Table 8.1 (cont'd.)

Org Issue	Network Components Contributing	Learning Opportunity For Resident (R)	Learning Constraint for Resident	Faculty (F) Opportunity	Faculty Constraint	Patient Care
	Avoided Actors					
#18, p. 343 No amb. curr., EBM, org. of pt. care, & pt. educ. in Rs' clinic curr.	Avoided Actors	R. free to select and study own learning issues	R. unassured that all areas were covered; loses oppor. to apply knowledge to clinical probs.	F. free to teach anything they want or think necessary	F. do not teach on some subjects, no assurance that all content covered.	R. may have insufficient knowledge of pt's probs or diseases, or org. solutions
	Enrollment					
#1, p. 114 Historical actors produce intransigent practices, e.g., 2 chart systems	Actions of historical actors; current actors continue to enact practices, strong enrollment	R. works in nicer surroundings, gains access to diff. attdngs., views diff. chart systems	R. loses opportunity to team with one F. R. difficulty finding paper in 2 chart systems.	F. gain access to each other for informal consultations	F. lose opp. to work w/ R. team. Continued diff. in maintaining 2 chart systems.	Pts. view new physical plant as better, frustrated when papers not found in charts
#2, p. 131 Outer Networks control daily clinic life	Strong enrollment of clinic actors into outer networks, e.g., funding	R. have access to wide range of resources from outer networks	Changes in regs make it difficult to stay current	F. have wide range of resources to use in teaching	Funding decs. req. F. spend more time seeing pts., less time precepting	Depending on regs, Pts. lose or increase benefits
#5, p. 224 Few rules, chaotic practices within clinic	Lack of strong enrollment of local actors in clinic	R. free to self-learn, little clinic responsibility	R. lose opp. long-term developmt. of relationships. & respsblty	F. free to treat pts. and R. according to own precepts	F. lose long-term rel. with R. (& some Pts.)	Pts perceive clinic as disorganized

However, for more minor objects, such as missing records in the chart or missing exam room objects, residents (and faculty have found ways to work around their need for these objects.) Thus it is important to question the degree to which certain actors are critical to teaching/learning and ascertain ways to remedy any absences of those actors.

The next two network elements, **Node Configuration** and **Missing Links** are more difficult to solve, as they require changes in the Socio-Spatial Opportunity Set.

Therefore one has to ask whether the tremendous effort and re-enrollment of actors will really resolve the organizational issues, and is it worth that effort? What does one gain in terms of better patient care and/or teaching/learning opportunities?

As noted with the Ordering Opportunity Set, the **Processes** may be easiest to address, as they require few, if any, changes in the Socio-Spatial arrangements. However, if we look at what is gained by residents, faculty and patients, it is not as much as one gains by restructuring the Socio-Spatial Opportunity Set. Nevertheless, with considerably less effort, some of the process issues could be addressed, and provide a quick “return on investment” for the clinic in terms of perceptions of residents and patients.

As for the **Avoided Actors**, this may be more of my own personal concern for what I perceive as quality care from a patient’s perspective. In the clinic that I go to, I want my physician to have the most up-to-date pamphlets on whatever questions I bring her, and the most up-to-date knowledge about the latest prevention guidelines and articles about the various therapies that she is prescribing for me. However, in this clinic, patients

perceived themselves as receiving good quality care, so perhaps this is of less concern to them (and to the residents and faculty) than it is to me. I would also be concerned that residents are being sent out to work in other clinics without understanding much, if anything, about the organization of the clinic, how to “team” with nurses, work through issues of scheduling and patient no-shows, etc. One is connected to a large number of organizations throughout one’s life. Some understanding of how to work in them and through them is useful for everyone.

Finally, perhaps the most difficult network component to address is that of **Enrollment**. It is so difficult, because most actors are very tightly tied into other networks, either within the larger hospital/medical center complex or beyond. The only ways to address this is to find other ways to tie them into the clinic more directly. Latour noted that it is the number of enrollments that is critical—not what they are, but I would argue that actors who are enrolled in other networks by virtue of funding, salaries, and buildings are probably more powerful than a few nice words of recognition from the Clinic Director. Any changes in these enrollments would need to be carefully considered, as the new enrollments would have to be equally as strong as the current ones.

Each of these network components directly shapes what is possible to provide in the way of patient care and resident learning. When missing, some components have more serious effects than others. Some can be resolved and provide a greater perception of better care quite easily. Others require turning the clinic upside down to achieve resolution. Yet each in its own way continues to form the opportunities. It is no longer

possible to separate patient care and resident learning experiences from those elements that shape them.

As discussed in Chapters 4 and 5, the quality of patient care is related to how the actors interact and order their interactions. Patient care experiences include continuity of care, patient wait time, availability of their primary care physician, and the presence or absence of the chart and the reports in it. These are all related to how efficiently and effectively the actors interact with their space, computers, patient charts, and each other, and how those interactions are ordered. When patients find that there are organizational problems, their perceptions of the clinic as a place to receive quality medical care decline.

The Opportunity Sets are also directly related to all aspects of teaching/learning. The goals and objectives of the clinic experience, the content (i.e., patient problems), instructional methods and mechanisms for evaluating residents are all related to the ways in which the actors move through the three Opportunity Sets. The first two Opportunity Sets provide the total possible *implementable* curriculum and the total possible *implementable* array of patient services. But it is the In-Action Opportunity Set that transforms the possible into the actual. These are the on-the-spot decisions of faculty and residents to see or not see patients, ask certain questions or not, order tests or not, etc. The In-Action Opportunity Set is the final definition of what is actually delivered by the resident to the patient and by faculty to the resident and patient.

The Interactions, and Thus the Opportunity Sets, are Constantly Moving Targets

The interactions are never static; they are always in motion. But, for the most part, that motion is fairly random. Law (1994) argued that the processes that order the social are constantly changing and transforming themselves. He termed these recursive processes. “Movement and the organization of movement are not different” (p. 15). As researchers, we cannot assume that patterns or processes will remain static.

In sum, medical educators cannot consider the actual activities of patient care or teaching/learning without being cognizant of the ways in which the actors have interacted and produced the orderings that shape these activities. These interactions and orderings are related directly to the capability of the organization to produce the quantity and quality of opportunities for both patient care and teaching/learning. Educators must more clearly define these interactions and orderings, as they define the parameters for what is possible to achieve in the actual moment of the patient visit. In the model in Figure 1.2, I propose a new conceptualization of what has previously been termed “the learning environment.” It negates the concept of a separable “place” or “entity” that can be attended to *apart from* the actions of those directly involved in patient care and teaching/learning. Instead it proposes that the outer networks, the clinic’s history and the three in-clinic Opportunity Sets define the opportunities and capabilities for both patient care and teaching/learning. The findings from this study clearly indicate that clinic actors’ interactions are related to the actual implementation of both patient care and teaching/learning. What remains is to further test and refine this model in other clinics.

Summary of Opportunity Sets Model

Here is a summary of the main points in the Opportunity Sets Model.

- * Actors in the outer networks play a larger role in shaping the delivery for services than inner ones.*
- * Historical actors and actions also set outer limits on services.*
- * The Opportunity Sets circumscribe the implementable residency curriculum and patient care.*
- * Opportunity Sets generally work in a succession of degrees of intransigence to change, but are intertwined, nevertheless.*
- * The interactions, and thus the Opportunity Sets, are constantly moving targets.*
- * Patient care cannot be separated from teaching and learning.*
- * The human actors cannot be separated from the non-human actors.*
- * The whole is more than the sum of its parts. Net-work must be studied in its entirety.*

Theoretical Constructs

Changing the research focus from individual learners and teachers to networks of teachers, learners (and others) requires a different set of theoretical constructs. An expanded summary of constructs resulting from the findings is discussed below. These constructs could be used for any study of experiential or professional education organizations where products or services are simultaneously being produced for a public, or set of publics.

(1) Organization matters. The findings demonstrate that, in this setting, the socio-spatial interactions and the ordering processes enabled the organization to define the opportunities for teaching/learning and the consumer services. Regardless of the abilities of the individual learners, and/or their presence, if a setting is not organized to perform teaching/learning activities, none will be enacted. The same may be said for the patients (or other consumers). If they show up without being scheduled, without residents and faculty being scheduled, without charts, or without mechanisms built into the system for payment, then patients' chances of receiving treatment are greatly diminished, and they will usually not succeed at all.

This also holds in higher education. Without the organization of classrooms, distance learning, schedules, catalogues, faculty, secretaries, students, books (consider the whole black-boxed network behind the book ordering and publishing business!), copy centers for course packs, etc., teaching and learning in the classroom will not take place. In order for teaching and learning to be possible, the ideal curriculum, standards, rules and regulations of the outer networks must be operationalized into implementable services and opportunities. The manner in which the actors enact and order their interactions expands or inhibits the availability and effectiveness of teaching and learning.

Of equal importance, we must recognize that any one individual operates in a vast array of networks—family, work, professional, and social networks, all of which have different strengths to one's enrollment. Studies of individual learners and/or faculty might well address which networks individual actors are a part of, and how the

individual human actors' enrollment in each of those is related to his/her enrollment in the others (including the learning networks).

(2) The environment or context cannot be separated from the service or product provision or the teaching/learning process. The environment is not a separate variable with lists of characteristics. It is the network itself. It consists of (at least) the Socio-Spatial, Ordering and In-Action Opportunity Sets.⁴ It is the actors, their linking mechanisms, their interactions and their ordering processes. The actors develop, evolve, and maintain these interactions in order to accomplish the clinic purposes.

(3) The network(s) are not passive or static. The actors and their interactions continually reconstitute them. Because they are in constant flux and re-creation, organizations must be studied over time, as well as across nodes and networks. The scale must also be studied for variation. There may be times when one network or node becomes more prevalent or dominant than at other times.

(4) The historical actions of previous actors have embedded interactions and processes in the organization that are often difficult to change. By virtue of the number of actors that may have been enrolled over a large number of years, historical actions represent particular challenges, as they are less likely to be in constant flux, and more entrenched as part of commonly practiced actions.

(5) *The outer networks are the first shapers of opportunities.* They establish and maintain the first set of preconditions that must be met. The organization is dependent on the outer networks for both funding, and the “right to exist” by virtue of all types of accreditation and legal regulations. In today’s world, both non-profit and for-profit organizations have external regulations in the form of laws or regulations that must be attended to in order to stay in existence. Consequently, this work becomes an accepted part of the practices of the everyday work carried out in the organization.

(6) *The customer/client/patient dominates.* If the experiential or professional education setting requires the “customer/client/patient” to a) purchase services in order to keep the organization in operation, and b) participate with learners and trainers/faculty in the teaching/learning process, then customer service will remain a priority. The setting will cease operations if there are no customers/clients/patients. Therefore, maintaining a balance between customer needs and learners will always be an important balancing act. This is perhaps the one factor that universities do not worry about, at least in terms of their educational mission. As long as there are sufficient applications to maintain the enrollment numbers, the learners continue to arrive.

(7) *Both human and non-human actors shape the opportunities for teaching/learning and patient/client experiences.* Key actors not only include those who provide the teaching/learning and/or other patient/client services, but such non-human actors as the location of the building, the building itself, computer systems, records and the record keeping system, funding, rules, and regulations. All of these play a part in providing the

general shape of what can be accomplished, before any experience is ever provided.

However, it is not just the listing of these actors that is important. One must carefully study *where, how, and when* they interact.

Using these constructs as a foundation, and the Opportunity Sets Model developed from the findings, one is able to begin the building of a research agenda centered on networks, at any level. Some of the more specific details of such an agenda are discussed in the next chapter.

Afterword: The Possibility of Implementable Change

What can be done about the clinic in this study? Many have suggested that the clinic needs to change in order to resolve its problems. In this clinic, change is primarily viewed as something that has been imposed from the outer networks. Is it realistic to assume that clinics with so little experience in successful organizational change can change? Before we can assume that change is the answer, we must ask: 1) Will change produce the desired outcomes? And 2) Is change even possible?

1. Will change produce desired outcomes? This study clearly links the opportunity sets to change. When the opportunity sets change, so do the opportunities and capabilities of the networks to either expand or constrain learning and patient care experiences. *However, this study does not link the opportunity sets or changes in those sets to outcomes.* As noted above, the outcomes have yet to be clearly defined.

Measures of those outcomes are also lacking (and may remain so). What we are left

with is trying to maximize the number of opportunities in any given set, for residents to experience quality education and for patients to experience patient care. A vast unexplored territory awaits those who venture to research the areas of quality patient care and residency education outcomes.

2. Is change possible? Organizational theorists have suggested that it is necessary to have a certain amount of inefficiency and redundancy built in to organizations (Meyer, 1978). Organizations may not be able to improve beyond a certain point. Even with major changes to the organization, more efficiency and effectiveness do not always result. This organization had combined two clinics into one, yet this move brought on a whole new set of problems and magnified many of the old ones. Toward the end of the study, Medzicon consultants were pushing faculty to see more patients per hour, and the faculty were saying that they could do it only if some of these problems were fixed. To date, changing personnel and moving into different physical space is insufficient to make a difference.

At KUI, key staff and faculty make the assumption that change would be positive if it solves their problems. As noted previously, KUI undergoes change primarily when it is mandated from the outside, unless it is a change that affects only one node. While most of the faculty, residents, and staff can list the general issues that need changing, they 1) do not have many ideas about how to change them,⁵ 2) stated that, and act as if, it is the responsibility of the Clinic Director and other administrative staff to change them, and

3) are not provided with responsibility to make changes. One could say that they are essentially un-enrolled in creating change.

Perhaps the faculty and staff's lack of response is normal. In some sense, everyone who works in any kind of organization feels the same way. It may be impossible to be motivated enough to change the organization, to help it go on, or to improve it. In many cases, the only answer is to leave. Everyone wanted the change because they clearly did not like working in such chaos. But they didn't want it badly enough to take responsibility for fixing it.

My clinic "story" may be the story of a lot of organizations, including higher education. One lives in these "interstitial spaces" and just gets by. Why do anything extra? It will only mean more work and time away from what one really wants to do. The clinic setting is already viewed as "residual." A half day a week—or perhaps even a few half days a week—it just isn't important enough in the larger scheme of things to be worrying about. If one tried to do something about it, it would mean extra work.

If change would work at all in this clinic, it would have to be a multi-fronted operation. It would include rebuilding and revitalizing some networks by strengthening the ties that bind them. It would also need to restructure other networks into totally different configurations. At the same time that all of this is happening, the "outer" networks would have to receive sufficient attention to keep their continual requests and new demands at bay, while the problems within the clinic are worked out.

Perhaps the presentation of quality standards for teaching/learning and patient care could be suggested and presented as a rationale for change. Is everyone satisfied with the level of care and teaching/learning that is currently produced? Or, is there room for improvement? Could patient waiting times be reduced? Could patients be provided with more patient education? Is random selection of faculty by residents who need to present a case the best method for providing feedback and evaluation to residents? If the faculty takes over the patient interview in the exam room, what is the resident learning and the faculty teaching? The development of standards and indicators for what will be considered quality patient care and teaching/learning in this setting, might be a first step toward gaining participation and enrolling all actors in a change process.

Considerable work has been done on teamwork (Ancona & Caldwell, 1992; Neumann & Bensimon, 1993; Senge, Ross, Smith, Roberts, & Kleiner, 1994). This is a wonderful tool for enrolling actors in becoming creative and designing solutions for their own problems. But teams must be given the authority to resolve issues beyond their own team. This requires a considerable amount of training, and a change in managerial controls. The requirements for team participation may be beyond the capabilities of some clinics. Team participation requires people who have leadership and team participation skills. Performance review systems would need to be changed to a system of accountability for mutually established indicators. It would require changes in evaluations—from the faculty to the telephone receptionists. Changes might be needed in job activities so that certain actors are responsible for maintaining new actor interactions and orderings. The magnitude and scope of these forms of change are so

large that most clinics will not undertake such change. The question then becomes: Which is better? Should clinics proactively involve themselves in a change-making process, or should they simply wait and react to changes “sent down” from outer networks?

In my more pessimistic (or is it realistic?) mood, I am uncertain whether any group of physicians could make such drastic role changes without a large infusion of actors from the outside. Professionals view themselves as being primarily autonomous (Freidson, 1986; Larson, 1977). A physician once told me that it was his signature, and his signature only, that counted when the patient got sick. That sense of autonomy, power, and responsibility is tremendous. Larson argued that this autonomy came from the creation of larger social systems in which physicians maintained and improved their positions of autonomy (e.g., state medical societies, and federal laws). In this form of society, there was little need for physicians to act in teams. When medicine began to organize into larger clinic settings, and health maintenance organizations, physicians were unprepared. They lacked (and continue to lack) training in team participation as well as administration and management. Yet in spite of that, clinic organizations continue to change. Physicians will continue to need to develop capabilities to respond rapidly to the changes that hit them from outer networks. The question remains: How will the physicians choose to participate in change?

My own personal struggle with this problem. The inability of this organization to address issues, reflect and research solutions and implement them, at

least on trial bases (i.e., to be a learning organization) is perhaps the most difficult finding to understand. It is difficult to see how “stuck” this organization appears to be. Many people assumed that most of the problems would disappear magically once they moved to the beautiful new clinic. I spent a lot of time reflecting with faculty and staff and with others outside the organization on the reasons why the clinic does not seem to be able to resolve the problems they themselves have identified. Part of my surprise may be my own lack of experience in ambulatory clinics. Most of my work experiences have been in organizations where change is viewed as an important, critical component of improving the products, services and outcomes. There is always a sense of moving forward, of looking for ways to improve, and trying them out. While I have been involved in many educational projects in clinics, I had never spent time examining the difficult organizational issues that situate patient care and teaching/learning in a clinic.

Summary

This chapter concludes and summarizes the findings from this study. In the process, it provides a fresh conceptualization of how patient care and teaching/learning come to be intertwined and circumscribed by the clinic actors’ actions and temporal orderings. This conceptualization requires a re-visioning of both medical education and medical education research, as well as the concept of “context” or “learning environments.”

Studying any one or even two components of this set of interactions and orderings is insufficient. Narrow lists of clinical teaching skills, or even a set of environmental factors does not provide a clear picture of the clinic’s organizational complexity. All

actors, including non-human ones, are crucial to how the network is defined. They are also crucial to the clinic's ability to produce quality patient care and teaching/learning.

The main point is that, educators *have been looking in the wrong direction*. Not only do they not see the forest, they are not even looking at the trees. They have focused on the insects and birds, while the trucks are arriving to clear-cut the forest.⁶ The answer lies not in selecting some specific actor or point in the network and examining it in great detail. There certainly is a role for such narrow research topics. But when that is the only thing educators do, the larger picture is lost. The whole must be examined *with its parts*—neither stands alone. Nor does the whole remain static. Studying the ever-changing interactions will make it possible to begin to resolve issues that, to date, have remained open questions.

Endnotes

¹ For more information on the RRC and the ACGME, go to their web site: www.acgme.org. The complete listing of all program requirements is on this web site.

² “A first year resident’s patient load , on average, must not exceed two new patients or more than six return patients per ½ day session” [DOC115, p. 3].

³ I must note that there was never an incident where patient care was not good, in fact, from a layman’s perspective, I would term most care given in this clinic excellent. The problem is more that the lack of time does not permit the thoroughness that might have been possible if the patient is being seen during the correct time slot.

⁴ Engeström raises the possibility of an Ethical Opportunity Set as well. Such an opportunity set would consist of actions taken or not taken based on ethical considerations—be it individual ones on the part of the physician or patient, or ones determined by the collective organization. The use of ethics to determine actions has been proposed by Engeström, but this study produced insufficient evidence to discuss this further.

⁵ As noted previously, almost the entire faculty had never practiced in any other setting. For many of the staff, this was also their first resident clinic experience. Most faculty and staff seemed unaware of ways to lower the patient no-show rate.

⁶ This is not too far from the truth. In Michigan, two residency clinics have been closed within the past six months because they were not breaking even and the hospitals refused to continue to support them.

CHAPTER NINE: RECOMMENDATIONS/IMPLICATIONS FOR RESEARCHERS, EDUCATORS AND POLICY-MAKERS

Introduction

To the extent that the Korsdale Clinic is representative of other residency clinics and of professional education settings, this study has applications to medical education, the health care system, professional education, and higher education. The study also adds to the theoretical literature in the areas of actor network theory and situated learning.

What can be learned from this study? A call for further research is the “next step.”

Ambulatory education clinics are important. Experiential clinic settings are also used in other professions, e.g., pharmacy, nursing, psychology and social work. Researchers and educators must broaden their understanding of how teaching and learning are accomplished in clinic settings while services are provided to patients or clients simultaneously. This chapter is divided into three parts. The first looks at the potential for future research directions, the second discusses implications for medical education, and the third discusses the contribution of the study to the literature.

Future Research Directions

In many ways, this study leaves feelings of hopelessness, devastation, and wonderment. The study’s findings push us to try to make sense out of these descriptions of everyday clinic life. How have such health care organizations come to be and what can be done about them? This study sets the stage for many other forms of research and questions to

be asked. By placing this study's limitations within the broader context of all health care research, a method for envisioning future research questions is suggested.

We can conceptualize health care research as having many dimensions, including temporality or historicity; scale, i.e., from individual networks consisting of individual people or objects to global networks (e.g., the internet); and quantity of study networks, e.g. more clinics within the same organization or across different organizations. The study presented herein covered only a very small amount of territory. In order to understand how we have arrived at this point in our health care and educational delivery, and what can be done about it, all of the above dimensions must be more thoroughly explored. There is tremendous potential in considering each of these dimensions.

Dimension to be Studied: Temporality or History

The study is situated within a very brief time frame, essentially during one year, 2001. While the near-historical actions were incorporated into the study, the residents' clinic has a rich, twenty year history, with volumes of data on prior ways in which it was funded, number of patients seen, etc. In addition, it is situated within the larger history of the Korsdale Academic Medical Center. Starting as a private religious hospital, over its long history it became a well-respected academic medical center. Much would be gained by a thorough review of the history of this particular medical center. Furthermore, the history of American medical education and the health care system could also be further explored. While both Starr (1982) and Ludmerer (1985) have addressed many issues relating to funding, physician autonomy, the role of insurance

companies and the American Medical Association in the American system, issues specifically related to clinic care and medical education in clinic settings need further exploration. For example, what has been the historical role of outer networks, socio-spatial opportunity sets, or ordering opportunity sets in clinic education or patient care provision? How do historical decisions about medical education funding for clinics relate to current opportunities for teaching and learning? Finally, one must ask, how is our history the same or different than that of other industrialized Western nations?

Dimension to be Studied: Scale

I selected a particular level of network to study—that of the clinic. A great many additional “scales” of networks remain to be studied in future research.

1. Individual Actors. Beginning with individual actors as the human or object actors identified in this study, one could consider the range of networks of which they are a part, and follow them individually through their many other daily interactions, both in-clinic and out. An entirely different set of questions would emerge from choosing to follow individual actors. One could ask: How are their interactions in the clinic the same or different from other aspects of their lives? Are there other organizational networks within which they have more (or less) interaction than in the clinic? Which networks do actors see themselves as being most enrolled in? How do actors relate their clinic experiences to other actors as they interact with them? Are there non-human actors (e.g. hand-held or portable computing devices) that move across networks with the human actors? What roles do they play?

In addition, we see in this study that faculty and residents were considerably more autonomous than the nurses or staff who worked in the clinic full-time. That is, they were very loosely “enrolled” in the clinic by contrast to their enrollment in the hospital or Internal Medicine department. Do residents and faculty transfer this loose enrollment to other networks? If so, which ones? What are the mechanisms that keep them enrolled?

Both the nursing staff and the medical records staff had one hundred percent turnover during the study period. What does that indicate about their enrollment and the differences between their status as full-time employees in the clinic and those who were essentially there only a few half days per week? Why did some of the other staff *not* turnover? What enrollment mechanisms kept them engaged?

Questions about values, beliefs, and perceptions of staff, residents and faculty have been primarily handled via survey method in medical education. As discussed in Chapter 2, if someone states or writes their beliefs, but enacts something differently, how does the researcher determine their “true belief”? The theoretical frames used in this study suggest that actions are all that count (or that they should be given more weight than statements of beliefs). Since the actors themselves use actions to demonstrate their beliefs, such observations are more powerful than espoused theories of statements made to researchers (Argyris, 1992). (For further discussion of this topic, see Chapter 2.)

Finally, the two largest, unanswered questions at the individual level are: How can we define quality patient care outcomes for a clinic? And, how can we define quality resident learning in clinic settings? These questions are about both individual and program outcomes, as well as processes. They are very difficult questions to answer. Typically, they have been measured by indicators that are easily quantifiable—for example, the no-show rate, billing amounts, or resident board scores. But do these give us sufficiently accurate measures of whether patients get well, incorporate prevention into their daily lives, and rid themselves of unhealthy habits? Do these give us sufficiently accurate measures of whether residents can run effective and efficient office practices when they leave the residency? Work well with teams to accomplish larger goals? Incorporate the latest research findings into their treatment of patients?

These questions are particularly difficult to answer in clinic settings, as both residents and patients are enrolled in a large number of networks. Patients watch television; read magazines, newspapers and the Internet; and talk to other physicians and lay people. All of these sources “highly encourage” specific drugs or treatments over others. Residents go to lectures, work in the hospital, and speak with a multitude of other health-related caregivers. How is it possible to separate out what they learn in clinic from the rest of their lives? Perhaps looking at how actors construct *opportunities* for learning and patient care is the best that can be accomplished within the clinic setting.

2. Individual Nodes. Individual nodes, or even subsets of one node, could also have been made the focus of the study. For example, studying a small group of

residents, or one faculty member and his/her interactions with a small group of residents and patients would have produced a very different set of results. Perhaps more would have been learned about teaching/learning, or about the capabilities of a small group of actors to produce quality patient care over time. One could have more easily focused on a couple of exam rooms, and looked more closely at object usage within those exam rooms. In addition, a more in depth picture would arise as to the meaning that a small group of actors placed on the missing or avoided actors. (A node study could also be used to answer some of the questions raised under #1, the study of individual actors.)

3. Clinics. In addition to the large number of other organizational challenges that this study did not address, there are many other purposes for studying clinics as organizational entities. These include epidemiological research on quality of patient care, such as the prevention of disease, or changes in health habits, e.g., non-smoking programs, or obesity clinics. Medical education also needs further research. Studies done to date indicate that clinic activities may be changed by involving residents, e.g., with charting quality, or residents' treatment of specific chronic diseases (Gould et al., 2002; Rose, Deshikachar, Schwartz, & Severson, 2001).

3. Department and Medical Centers. Moving toward larger scales, the Internal Medicine Department or the hospital/medical center networks relating to the clinic (e.g., the employment office, temporary staffing office, budgeting, computer systems, consultancy arrangements) could also have been studied. Questions raised about their relationships to the clinic could encompass legal and moral responsibilities,

as well as programmatic ones. How do they reconcile their responsibilities for medical education with their responsibilities for patient care *and* fiscal integrity?

4. Outer Networks. There is more than one study waiting to be accomplished on the role of outer networks in medical education, as this study clearly indicates. Are the outer networks even aware of their actions on clinics? What are these actions? How do they come to be regulated, or made into laws? How do clinics react to embodying and incorporating these requirements? What is the role of history in the development of these outer networks? More specifically, can funding mechanisms be changed such that GME dollars could flow to clinics? Could various associations and federal and state governments create quality patient education materials to address common and chronic diseases and prevention strategies?

5. National/Global Networks. Finally, we must look at national and global systems and ask ourselves how we have come to be the only nation in the Western world without a basic safety net of health insurance? The number of uninsured in the United States has risen to over 42 million. Canada spends \$1000 less per capita on health care than the U.S., but delivers more care and greater choice for patients.¹ How did this happen and what can be done about it? What impacts does this lack of insurance have on resident education? (The impacts on patient care have been well discussed in the literature.) Studies of other nations might well indicate very different opportunity sets for residency education in both clinic and hospital settings.

Dimension to be Studied: Quantity of Networks

Another area for further research would be to study a larger quantity of clinics, or a large quantity of the same nodes in different clinics, or more than one clinic in the same academic medical center. There are a number of ways to configure the “quantity” dimension. One could also look at the many networks with which clinic actors have daily interactions: the day care center, human relations department, budgeting department, Internal Medicine department, etc. Here the questions take on several aspects that incorporate the temporality dimension. That is, what is the history of each of these networks? Who are current and historical actors? How are the networks configured? How do they differ, etc.? Do all networks change in the same manner, or, if not, how do they differ? What are the salient features of change?

In sum, all of these dimensions suggest the need for considerable further study of the findings developed here. To some degree throughout all professional education, and certainly in medical education, the research emphasis has been on the individual learner, and/or the faculty who teach the learners. But to fully grasp what is involved in that teaching/learning process, we must raise our sights, so to speak, to look at the entire scale of networks that produce the opportunity sets for teaching/learning. *The unit of analysis must change:* individual learners and teachers are insufficient units of analysis. They are certainly some of the key actors. However, studying only these actors is insufficient. Researchers must examine the networks within which they are situated.

If researchers of experiential settings accept the theoretical constructs developed in this text, then a very different form of inquiry emerges. The following questions are summarized as a guide to inquiry based on studying networks and interactions among actors. For each network level in the scale, it is possible to begin with a very similar list of questions:

- * How do the outer networks relate to the inner networks?
- * What is the socio-spatial configuration of the network(s)?
- * How is the work within nodes or mini-networks conducted?
- * How well do the links connect the nodes?
- * What are the temporal ordering processes?
- * What actors are absent, avoided or dis-ordered?
- * What historical actions constrain or shape current actions?
- * How do the findings relate to the conditions for [insert key organizational activities here] (e.g., teaching/learning/patient care?)

While placed in linear order, these questions are essentially cyclical. If change occurs, one must re-commence the cycle. It is only with time that it is possible to observe what relationships and interactions remain relatively stable, and which are constantly in flux. By addressing all network scales, we can begin to fully comprehend the answers to why our health care system and medical education are what they are today. Once that is understood, it may be possible to discern parameters within which change can occur—if change is needed.

Contribution To Medical Education

Bowen and Irby (2002) called for more studies on the effectiveness of learning in ambulatory clinics. But how is effective learning defined? They noted that inpatient rotations produced better board scores. Board scores test a fairly narrow range of cognition based primarily on knowledge of physiologic processes and a rather small number of diseases (albeit, usually the most important ones). The objectives of the ambulatory experience are considerably different. Here residents must demonstrate skills in a much wider range of areas with the always semi-known variable of the patient. Residents are learning and demonstrating situated knowledge of the clinic, and what their future practice habits will be. In fact, one could argue that if residents can successfully complete a half-day of independently seeing a full schedule of patients on time, they have learned the essentials of what will be required of them in practice. *It is the experience itself that becomes the learning.*

These assumptions change the focus of what needs to be studied. The focus shifts to opening up, structuring, scaffolding, and assuring the maximum number of opportunities and experiences for residents to learn. If the experiences have been well designed, then the rest is up to the learners. Learners prefer this *modus operandi*. They prefer hands on experiences with patients to observing the preceptor. If these experiences are well designed and faculty are expert in providing the support and teaching scripts when needed, learners will flourish. In Chapter 2, there is considerable discussion on what are the needed supports and teaching techniques. Many of them are also listed in Table 8.1. The point here is to find ways to provide what is needed, not to develop more lists of

what those needs might be, as they will vary from clinic to clinic, trainer to trainer, and learner to learner.

In lieu of trying to measure every skill a resident obtains in clinic, medical educators should concentrate on assuring that the maximum number of quality opportunities and experiences, with the best possible resources and organization are in place. The focus changes to assuring that the outer networks and the three in-clinic opportunity sets provide the maximum *implementable and implemented* curriculum. This requires a completely different research agenda. The nature of the research questions change to:

- What are key opportunities that are critical to residents' abilities to work in ambulatory settings?
- How many and what type of opportunities/experiences should residents have?
- What are acceptable (normative??) constraints that are present in any clinic organization where residents practice upon graduation?
- How can faculty recognize opportunities in situations where absent actors block the originally designated experiences?
- How can constraints that are deemed undesirable be removed?

In order to improve the quality and quantity of experiences for residents and patients, all of the above questions must be addressed. The following are some suggested areas that derive from the above questions.

Improve The Patient No-Show Rate. In order to have medical education, there must be patients. Therefore, high no-show rates and continuity issues must be among the first issues to address. Patient empowerment and consumerism (Towle,

2000) is already clearly understood by patients. All clinic actors must recognize it. The literature abounds with no-show rate studies,² but no one has clearly analyzed what measures work best to address these problems. The absence of patients not only leaves residents without the opportunity for patient care experiences, but it also decreases the number of patients with whom residents can obtain continuity of care experience. Every resident is required to write a research paper—why not have some of them work with faculty and staff on patient no-show issues?

The absence of patients is a difficult issue to resolve, as it requires a large number of changes both within nodes and across-nodes. The literature is replete with very innovative suggestions on how to lower no-show rates. Yet it may be something as simple as changing an ordering process so that the charts are returned to the resident to call or send a reminder notice, rather than having the staff call in their [very infrequent] spare time. Not all of the needed changes issue are expensive or complicated.

Increase Faculty Observations Of Residents At Work. There are two times when the resident is with the patient—at the beginning and end of the encounter. Faculty must find ways to spend more time with residents at those times, and less in the middle, away from the patient. Can anyone imagine training someone to do surgery and never watch the physicians actually perform it? Yet that is what is happening here. Faculty do not need to be present all the time—but they must at least cover basic physical examination and interviewing skills over the three-year period. Several mechanisms, including the ABIM checklist, are now readily available for faculty

observations (American Board of Internal Medicine (ABIM), 1999; Ferenchick, Simpson, Blackman, DaRosa, & Dunnington, 1997; Skeff, Bowen, & Irby, 1997; Kelley M. Skeff et al., 1997).

Increase Resident Self-Learning. In the time spent *away* from the patient, faculty must provide residents with more opportunities for self-learning. Faculty should encourage residents to look up answers rather than provide them. Faculty would need to check with residents later to discuss correct applications. Faculty development on efficient ways to use computer databases during office hours is also needed.

Increase Resident Responsibilities For Their Own Learning Needs. Keeping track of residents' learning needs is easier when faculty and residents work in small teams. Teamwork permits faculty to get to know the residents (and their patients) over a period of time. The residents would also gain valuable faculty time, as they would not be repeating the same patient's story to different faculty. Other mechanisms for increasing responsibility include asking residents at the beginnings and ends of sessions about their learning objectives for the day. Alternatively, residents can develop written plans.

Increase Emphasis On Evidence-Based Medicine (EBM). EBM training should be focused on assisting residents to research, critique, and apply clinical guidelines, research and review articles. Learning EBM in a one-month rotation is insufficient. Quick search techniques must be incorporated into daily clinic practice so

that residents use this skill when they go into practice. The practice of medicine changes every two to three years. Residents must learn how to keep up with the literature and how to differentiate and determine what will work for patient populations in their own clinic settings.

Involve Residents In Learning About The Organization Of Patient Care.

Residents need to become more involved in the management and oversight of patient care and the organization of patient care. What will they do in practice if they have never worked on an interdisciplinary team with nurses, social workers, and referral staff? How will they address patient no-show rates in their own clinics? Do they have sufficient action research skills to carry out mini-research projects? Do residents know how to develop patient education materials and teach from them? Why not ask residents to develop an interview protocol to use with patients who arrive late? A few questions about the barriers patients face in getting to the clinic could provide a basis for further action. At the same time as residents would be improving their organizational and patient communication skills, residents would be learning action research skills that would stand them in good stead for any professional endeavor.

Address Issue Of Absent Patient Charts. Why were the charts always absent?

Charts were absent both inside and outside medical records. One of the staff suggested using “out guides” to sign out charts to specific individuals, but nobody implemented the idea. Other solutions would have included bar codes or changing to electronic medical records. Almost any solution would have required changes in almost all the

nodes and ordering processes. Staff performance systems would also need to be tied in. Actors must be enrolled in multiple ways into any new alignment of socio-spatial interactions and ordering processes.

Improve The Data Management Software. In the Korsdale clinic, a considerable amount of time is spent “working around” an outdated data management system. When a system cannot generate customized reports and fields cannot be added to basic forms, the software is out of date. In addition, transferring the patient data from the hospital system into the clinic system, particularly when the two systems are part of the same organization, should also be possible. Increasing the ease with which information could be accessed and provided would make it possible for staff to spend time on other, higher priority issues.

Develop Clinic Operation Indicators. Clinics should determine what they want to measure, and devise ways to measure it. For example, if the no-show rate is important, then it should be measured daily, weekly, and monthly. Other service indicators could include: measuring the number or percentage of patients who wait more than ten minutes before being registered, or the percent of daily phone calls with hang-ups, the percentage of charts with missing or misfiled information. The residents’ patient rate per half day could be provided to residents so that they could determine for themselves how they were progressing toward seeing a full schedule of patients. Without indicators, there are no measures by which everyone in the clinic can gauge their contribution to the work activities. Engeström suggested that using artifacts to control humans provides mediating (linking) forces. By using artifacts such as

computer-generated reports, it is possible to eliminate control by “outer” actors. The humans control their own behavior by creating such artifacts (Engeström, 1999a). In this clinic, however, there was more of a focus on operationalizing existing rules rather than creating control mechanisms. The rules were taken for granted rather than questioned. This is not uncommon, according to Engeström (1999b).

Create Cross-Disciplinary And Cross-Node Teams To Resolve Network

Problems. The nodes in the network divide both the work and the space. But the problems that need solving cross over the nodes. Therefore, in order to resolve problems, both human and non-human actors from across the nodes must be brought together. Developing and supporting cross-disciplinary teams requires giving the teams time to discuss solutions and act upon them. Incentives must be provided for teams to create, research, pilot, and implement innovative solutions. It would be the team's responsibility [*not* the Clinic Director's] to create indicators to monitor issues and solutions. Once developed, teams would monitor their indicators, make changes as needed and report out on progress. In other words, responsibility for creating, implementing and evaluating changes would be shared across all clinic actors. This would be a radical change from its current state of only a few actors being responsible for all decision-making.

Change Management Actions. The role of management would need to change from one of directing and supervising to providing support, time, and leadership training for the teams discussed above. The processes and products would require

support and direction. Management would still provide the outer parameters, i.e., requirements that must be met within certain time frames, limits by regulatory bodies, etc. There would also be a need to develop guiding principles that every one must adhere to. Within this framework, innovative solutions can still exist, but they would need support. There must be enrollment from actors beyond the team. This would also involve management. The final key here would be to hold the team members responsible for implementing solutions. The role of management would need to change. It would have to provide support, training and enrollment mechanisms to ensure that all actors share in both setting and implementing standards for actions.

In sum, medical educators must widen their scope to attend to a much larger set of issues and problems than currently occurs. Without attention to the larger issues of patient care, management, funding, and the overall curriculum, the experiences and opportunities available in the clinic are not maximized. Hence, resident outcomes may also be constrained, but to what degree is currently unknown.

Contribution To Higher Education

The Opportunity Set concept changes the vision of what is currently considered the learning environment or context in higher education. Opportunity Sets do not separate context from teaching and learning itself. Instead, I propose a much more complex vision of what actually happens. By using a conceptualization of opportunity sets, I suggest that the amount of control and possibilities for change varies, depending on the set(s) involved. Researchers are challenged to carefully consider ways in which each

actor involved in the “local” classroom is enrolled in the many varied networks linked to the classroom. Too often we have assumed that a small number of individual or personal factors account for student or faculty motivation. Perhaps there are more compelling reasons to be found in the faculty’s or students’ enrollments in larger networks.

Furthermore, the separation of what happens in the classroom from what happens beyond its walls must be brought into question. What is possible to achieve in the classroom is shaped *a priori* by a whole host of actors that never even enter the classroom. Particularly as educators face new challenges in adult education through the use of technology, and returning adult learners, it will be insufficient to “tinker” at the level of the In-Action Opportunity Set. The larger supporting components of the networks must be addressed. For example with the Ordering Opportunity Set, one could ask: Why is the semester sacred? With the Socio-Spatial Opportunity Set, one could question the availability of sufficient computers and technical support to do community-based research with a distance learning class located across the state. Perhaps changes in the funding structures are also needed. These are issues that address the relationship of the university with its outer networks. The questions and issues are endless. The Opportunity Set Model begins to provide a general direction for recognizing the importance of the complexity of the myriad networks to which each actor is connected.

Research has been focused on the narrow environment of the classroom. Stark and Latucca’s model pushed the definition of the learning environments one step further to

consider it as the surround for the “academic plan,” with “influences” being the synonym with the outer networks described here (1997). Research on these larger factors and their relationship to teaching and learning in the classroom appears to be missing. Furthermore, the factors themselves are described as static entities, rather than parts of networks that enroll or un-enroll various actors as the outer networks deem fit. Most importantly, the concept of a separate “context” from the teaching and learning itself is revisioned as one continuous flow. This flow mixes the outer networks with the actors in the inner network(s) together to create possible opportunities for teaching and learning. The picture is much more complex than what has been proposed thus far in the literature.

For example, both federal and state governments control many different forms and sources of funding for higher education, thereby predetermining some of the curricular content, the type of students attracted to higher education, (some) faculty salaries, and research priorities. At the overall university level, decisions about the program of the university are circumscribed by the priority of which departments receive new buildings or funding to start new programs, faculty research programs, student applications, as well as staffing and technology issues. The opportunities for teaching and learning are further circumscribed when leaders clearly state their priorities, e.g., research, undergraduate education, or community relationships. When the leaders attach funding to those priorities, they have further shaped what can be accomplished in the classroom. Choices are also made as to class size, scheduling, rooms for classes, number of teaching assistants, etc. A professor who has a syllabus that encourages small group discussion

may find herself assigned to teach in a large lecture hall with fixed seats, or without the proper audiovisual support for presentations. University rules and regulations set deadlines for when the semester must end and the students' work must be completed. The professor (and departments) also section-off the curricular content into semester-size chunks. Departmental meetings make further changes in requirements for what will, and will not be taught. In sum, the large number of outer networks, and the university itself provide the general shape and outer parameters for what can be implemented in higher education settings.

In terms of intransigence to change, the Opportunity Sets play the same roles in higher education as in medical education. The In-Action Opportunity Set is the easiest to change, and provides the greatest leeway. The professor chooses to answer student questions in the classroom or not. The professor chooses to cancel one class, or move the class outside for the day. The students show up for class or not, they bring their assignments or not, they complete the course or not. Moving up one level, the Ordering Opportunity Set is next easiest to change. Schedules can be changed to make the hours more conducive for students and faculty, classrooms can be changed from lecture halls to discussion rooms, and faculty have some degree of control over the ordering of the courses. However, it is most difficult to change the actors in the Socio-Spatial Opportunity Set. Staff, faculty and students cannot be "terminated" without considerable difficulty. Buildings cannot be renovated without funds appropriated from higher-level networks. New computers require both funds and technical support to permit them to do what they need to do. The Opportunity Sets are "ordered" in a similar

manner to those of the clinic. The classroom is but the microcosm of reduced opportunities and many constraints put on it by various components of the many networks that exist both within and outside the university. To separate the classroom from the larger networks that create and maintain it does not permit a full and complete analysis of teaching and learning issues.

Contributions to the Literature

In this section, the study implications are examined in light of their contributions to two bodies of theoretical literature: Actor Network Theory and Situated Learning.

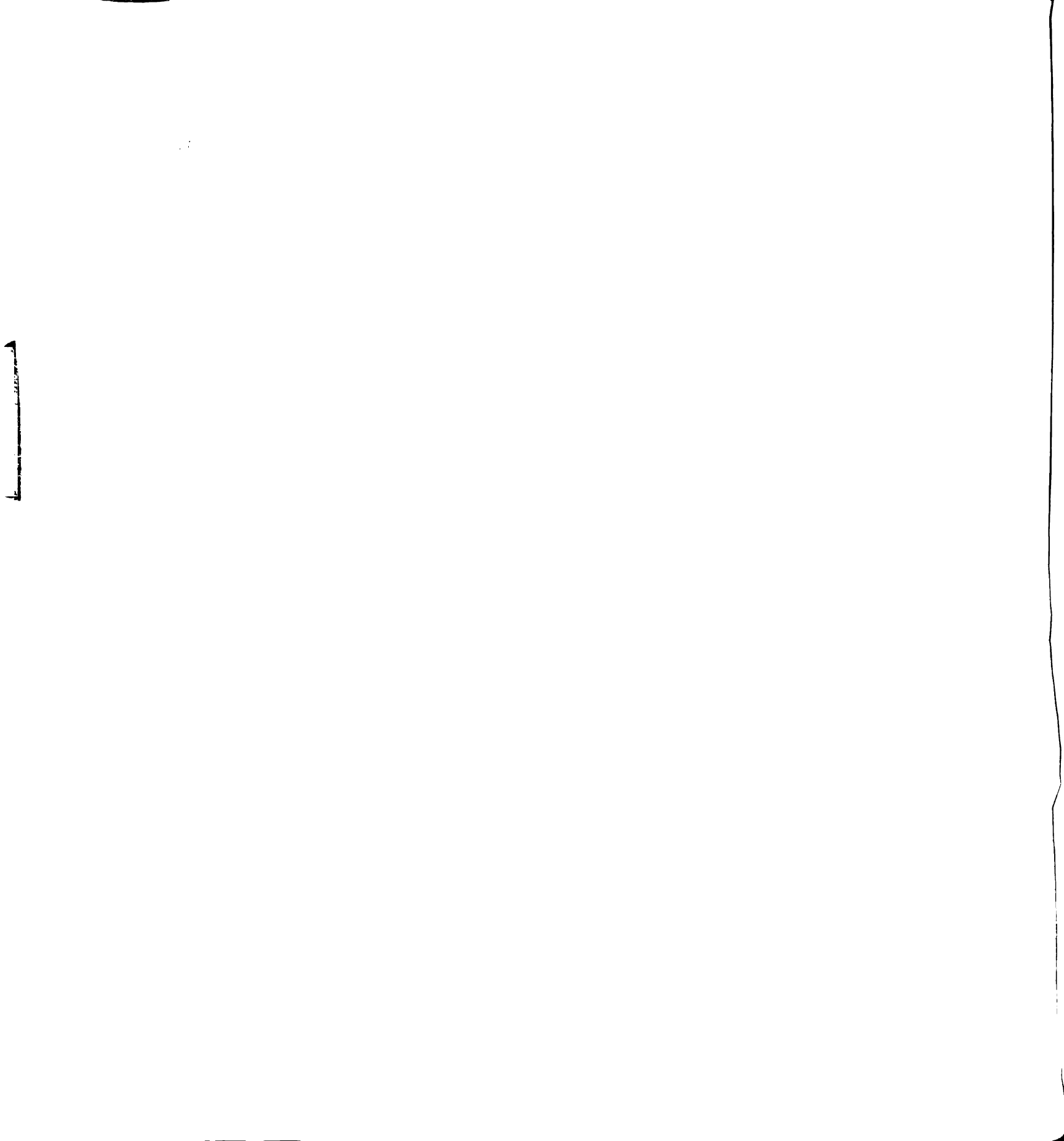
Contributions to ANT

In the ANT literature, researchers have generally made an assumption that there is one “inner” network and perhaps several “outer” networks. The findings of this study support this assumption. However, there has been less attention paid to the detail of how entire networks perform on a daily basis. Most studies have focused on a few actors or one product produced by the organizations. Researchers have assumed that the organization (or the part they are concerned with) is one centralized, tightly knit network. Ordering processes within one organization can be fairly separate—except at key intersections. Nodes may have hardly any interactions with other nodes—or be very loosely linked. It is at the points of intersection that it is important to pay attention. Are those strong or weak links/points? How do actors cross over from one node to the next—which actors do that easily (e.g., the computer system), and which have more difficulty (e.g., humans)? This study suggests that the rather loosely linked and fairly

separate node arrangement is directly related to how work and actors pass from one node to the next. It further suggests that this loose and separate shape of the network is related to the organizational capabilities to produce learning and patient care experiences.

Generally ANT studies have focused on key actors in major network(s). But, for example, in the Korsdale Clinic, the availability and actions of patients change the entire set of ordering processes. These are people who are in the network for only an hour or so once every six months. Yet, their presence or absence, who they see, their insurance, and what they remember to bring with them or do between visits, are all-critical to the ordering processes. Also, the registration desk clerks are almost *personae non gratae* in the clinic. Many of the staff and faculty do not even know their names. Yet, when even one patient is not registered, everyone makes comments about the registration desk staff. Another example was the lack of ear cones. Their absence continued to change the actions of all the people in that exam room for months. It is not only the key players that are critical to the smooth functioning of the daily actions in the clinic. Even the most non-significant bit player can change the actions. No actor can be discounted—at least initially.

Most ANT studies have been centered on organizations that have one primary set of activities. They have usually produced something—scientific knowledge, a technological product or service, or a tangible product. The work of Berg and Mol (1998) examined health protocols. But, these texts became visible sets of rules to



follow. In this study, ANT has been applied to a service organization with two different sets of cyclical services. Performance measures for both patient care and teaching/learning are not immediately evident. There is no product—if patients don't return, one assumes that some of them got well, and that is a positive outcome. But some of them may not be showing up for appointments, which is considered a negative outcome.

This study began by assuming that there were two simultaneous but separate sets of activities occurring in the clinic. In Figure 1.2, I provide a conceptualization of how these two activity sets come to be intertwined and inseparable through their own actions in the opportunity sets. The theory has provided fresh insights into how the work produces its intertwined services and limits/expands opportunities for both sets of activities. I have not seen this problem addressed in the ANT literature, and hope that it will be explored more closely.

Contributions to Situated Learning

Situated learning has been focused on the specific setting and tools that are used by the humans in that setting. What this clinic study does is open up the horizons to consider: a) the role(s) of the “outer” networks, b) the actions of non-human actors in the organization, and c) the intertwined nature of the teaching/learning actions and those of actors whose primary task it is to provide other types of patient/client services.

Organizational life is more complex than just looking at how students might be using computers to do a science project in the classroom. While the students and the computer

may be key actors, there are several other actors that play significant roles in learning. It is that “surround” that we have forgotten about in our effort to simplify and make our studies fit neat time and cost frames.

Even in K-12 education (where many of the situated learning studies have taken place), the roles of the outer networks continue to expand. State mandated reading and math exams, federal funding regulations, and now federally mandated examinations all extend their activities into the classroom. Even health and other regulatory bodies such as environmental control agencies consider everything from lead-based paint to water quality in schools. Higher education does not escape from outer networks either.

Funding sources include research from both federal and state sources, student loans at both federal and state levels, and direct government grants. More funding comes with restrictions, and laws passed by various governing bodies on a regular basis. Situated learning has had a tendency to consider one small space, be it the classroom, or one work station as the “learning environment.” The many roles of the outer networks have not been well developed.

Unlike inanimate objects, such as pieces of cloth or meat, this study sheds light on what happens when learners are learning to work with human beings. As previously noted, patients can come late, they can forget things, and they can not show up at all. These are all contingencies that have not needed to be addressed in the situated learning studies. Providing services to human beings, while at the same time teaching learners how to do it, is much more complex than working on inanimate objects. It is important to scaffold

and structure those experiences so that they are maximized. One cannot hold constant certain variables with patients (e.g., more complex medical problems) while one teaches the simpler ones. Therefore, the teacher must work at making more connections, relationships and conceptual transfers than would be necessary if the skills being learned are repeated regularly.

Finally, the quality of the actors has not been discussed in situated learning. We have seen in this study how difficult the interactions become when quality actors (e.g., good computer software, and well designed patient charts) are absent. The strength of the interaction may be based on the design or quality of the intermediating actor. It is insufficient to count all interactions as being of equal importance. Some will be easier to affect than others, based on who the actors are, and how they are involved in the interaction.

Certainly the concept of distributed cognition is evident here—particularly in the scheduling process where bits and pieces of the process reside with a large number of actors. But what is demonstrated in this study is that we cannot assume that the background for this distribution is smooth and flat. Instead, the nodes with their various weak or strong links, make this distribution a bumpy one. In some nodes the work and actions flow smoothly; in other nodes, they do not. The configuration of the networks cannot be ignored, as it becomes the series of conduits over which the knowledge is distributed.

In sum, situated learning and distributed cognition are upheld by this study, but combining the learning-oriented theories with actor network theories makes for a richer interpretation of what is happening at an experiential learning site.

Summary

This study began with observations of a “normal” residency clinic. The research question became: How do patient care and teaching/learning come to be simultaneously enacted? The outer networks have considerably more control over the shape of the services than originally noted. The history of the organization also plays a part, as some interactions and processes are imbedded in years of acting on “that’s the way it’s always been.” The three opportunity sets, Socio-Spatial, Ordering and In-Action, are the in-house shapers of opportunities for the patient care and teaching/learning experiences themselves. The importance of the non-human actors stands out, with numerous examples provided. Most of the in-clinic nodes are very loosely connected. Where they are connected, the links are mainly via one or two non-human actors. Finally the disorders and absences provide insight into key interactions.

Medical educators have been separatists too long. I hope that this study will start a dialogue on new directions for medical education research. It is time to develop/find/create new research methods and apply theoretical frameworks that permit study of the relationships of organizational issues to teaching/learning.

The ANT literature has focused on the roles of technology and construction of science through the co-construction of the organization. Up to this point in time, it has been centered on making the case that our material world must count as much as the social world. But its role in organizational change has not been fully explored.

The question still remains: How does change actually occur? The organizational learning literature assumes organizations want to, and are willing to change (Senge, Ross, Smith, Roberts, & Kleiner, 1994; Wenger, McDermott, & Snyder, 2002). How does one take an organization such as the Korsdale clinic, and make sense of why it has such difficulty changing? How can it become a “learning organization?” The specifics of organizational change must be further explored. While actor network theory looks promising, there are other frameworks as well. However, even if the need for change is recognized, will medical educators and researchers willingly undertake such actions? It is imperative that more research be conducted using fresh new approaches and perspectives in order to resolve this continuing debate. Providing patient care services while juxtaposing teaching/learning experiences is inherently a difficult contradiction. The future will challenge educators to create new ways to enact both sets of activities while preserving quality for both.

Endnotes

¹ See www.pnhp.org/hcinfo. All information on this site is referenced to major, refereed journal articles.

²There are so many that all one can do is mention a few of them: (Jain & Chou, 2000; Little, Cannon, Whitson, & Jarolim, 1991; Pal, Taberner, Readman, & Jones, 1998; Weingarten, Meyer, & Schneid, 1997).

EPILOGUE

I returned to the clinic in February of 2001 for a brief visit. In November, almost one year to the day from their last move, the clinic had moved again. This time however, it was just to the other side of the same floor. At that time, they merged the Korsdale clinic with the failing HOM clinic, Rancom. Medzicon had made these decisions. The move definitely gave them a little more space. They now occupy all of one long corridor, one full short corridor, and half of another short corridor. They have a medical records room designed for medical records with counters all around the edges for workspace. They also have two, much larger nurses' workstations, with places for the nurses to sit down and check their computer screens. The workstations are actual rooms (not stand-up stations in the corridor). The clinic also gained more patient discharge space.

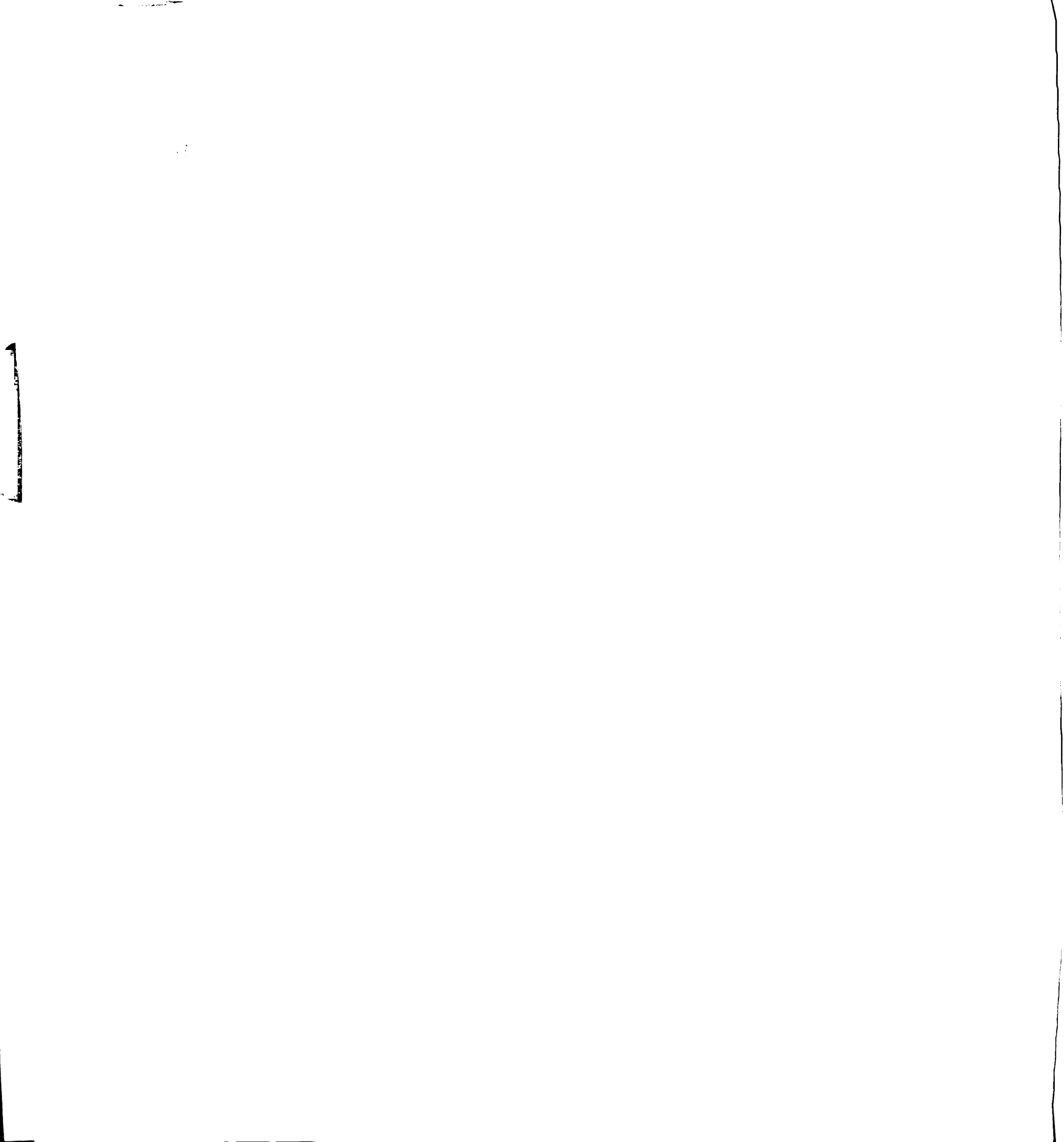
Since the latest merger, (the new clinic is called the "new Korsdale clinic"), they have moved all of the medical records to a numeric system. While this has helped some, everyone agreed that there are still large numbers of missing charts. They still have both the eight-tab and four-tab systems for the inside of the charts, so it continues to be very easy for papers to be misfiled. The computer system has not been updated or changed, and they are still getting approximately two hundred "hang-ups" on the phone per day, because they have an insufficient number of telephone receptionists [OB120]. While some of the staff from the Rancom office have been kept on, everyone claims that it is an insufficient number to do what is needed. In addition, there are big splits in the staff

as to which is the better way to do things, with everybody maintaining “their way” is the best way [OB120].

However, the most rancorous issue is that Kordsdale faculty have been told that they must see patients every fifteen minutes. The Rancom faculty never did any teaching, as the resident clinic was a separate entity. Rancom faculty were paid to see patients and generate a patient base for the specialty care in the hospital. In the merger, a number of Rancom physicians did not receive contract renewals. This placed an even greater burden on the Kordsdale faculty to pick up the Rancom patient load. This was certainly a very hot topic among the physicians the day I visited.

Klunk wrote an excellent article on workplace devaluation that may offer an explanation. He defined “devaluation” as the decision-makers ignoring the experience and contributions of the professionals. He interviewed four professionals who had been in some type of workplace devaluation. “The immediate consequence of workplace devaluation is emotion: anger, self-doubt, helplessness, grief, fear, depression, illness, blame or vindication” (1999, p. 158). On the day I visited the clinic, I saw all of those emotions being expressed, except illness. People talked about leaving, how little their contributions meant, how terrible it was to work there, and about opting out of teaching or seeing patients in the clinic.

Klunk further noted a decrease in autonomy for the professionals and organizational barriers that inhibited the professionals from communicating their issues. While these



issues were discussed in the Korsdale Clinic and at the faculty meeting, the staff and the faculty did not have direct access to the Medzicon consultants, nor were any attempts made through meetings to communicate with staff and faculty in a more direct manner.

Klunk also pointed out that throughout this process, the professionals continued to perform their responsibilities in a competent and professional manner. This is assumed on his part, as he only interviewed the four professionals, he did not observe them perform their work. Unfortunately, I did not stay to observe the work either. He further noted that there are costs to workplace devaluation: productivity, efficiency, etc. I would add the costs of human interactions. When everyone is spending his or her day talking about the terrible workplace, time to accomplish other tasks is diminished.

I asked when the faculty would like for me to return to present my report on the “old” clinic. The Clinic Director noted that so much additional change had taken place since I studied it just a few months previously. She was uncertain whether it would be of much value for me to present. Additionally, the monthly faculty meeting time was being taken up with discussions about the new “15-minute patient” rule. I suggested that I provide a written report, and that I would be happy to give a presentation at a later point, when things had calmed down a bit more. Since my visit, the nursing staff have had 100% turnover, and the Office Manager left. A new Operations Manager has been hired. The problems continue.

APPENDICES

APPENDIX A: METHODOLOGY AND PROCEDURES

Introduction

This is a study about the daily interactions that take place in a clinic in order produce patient care and resident education. As such, the interactions became the units of analysis. Chia noted that interactions are not simply units of analysis –they are all that exists (Chia, 1996). There are limited methods available for studying interactions. One can directly observe them, videotape them and observe them on the tape, or audiotape them and listen to a tape or read a transcription. All present limitations and challenges, particularly in a medical clinic that is addressing real human needs at the same time that education is taking place. This Appendix addresses how the choices were made to proceed with this study, and what happened to those choices during and after the study.

Study Design

Previous observational studies of organizational life in residency clinics are nonexistent. While the relationship of patient care to medical education has been studied in hospital settings, studies of this relationship in residency clinics have not been undertaken (Kruper & Jones, 1993; Wilson & McLaughlin, 1984). Thus, a case study design, using observational methods is appropriate. This produces a thick, rich, description of the actors and their organizing processes in a residency clinic. Time and finances were limitations. It was important to select a clinic outside Michigan, as the author is directly involved in several medical education endeavors in the state. While selecting one clinic highlights its uniqueness, it also severely limits the capability to generalize across sites.

An Internal Medicine clinic was selected because all patients were consenting adults over the age of 18. This made human subjects approval from both the university and academic medical center less difficult. Second, it made it easier to assure voluntary consent on the part of participants. The study criteria included: association with an academic medical center, a low number of foreign medical graduates, the reputation of the academic medical center, and diverse faculty and residents in terms of gender and ethnicity, and preferably, a collegial atmosphere. Five sites were visited that met the criteria.

A pilot study in a General Internal Medicine clinic within the state of Michigan was conducted in 1999 over a period of approximately eight weeks. The study received UCRIHS approval. This permitted revision of methods and development of a succinct coding system for collecting observational data. It also provided a trial run through the UCRIHS process—one that took five months.

Methods Selection

Observation

Because it is important to have as rich and thick a description of the clinic as possible, observation was selected as the primary method. Martin noted that observations create understandings of participants' knowledge, while interviews create understanding about the "parameters of their thinking." (Martin, 1995).

There are four general types of observer roles: passive, moderate, active and complete (Spradley, 1980). My role in the clinic was in the passive to moderate range, depending on whom I was observing. I could not “participate” in clinically-related professional activities (e.g., those of nurses or doctors), but I could and did participate in administrative/clerical activities on some occasions. “Wherever I happened to be, the action was not” (Law, 1994). This happened to me primarily on occasions when I was absent from the clinic, rather than on days when I was present. The rather small space involved in most clinics makes it almost impossible not to overhear and see things wherever I was in the clinic. However, it was possible to follow only a few actors in any given day. A matrix approach was used for observations (Barley, 1995). All actors were placed in columns and rows and checked to make certain that data existed for in all cells (where feasible).

Several methods of observation were used: 1) Location: I stood in the hall at the nurses station, registration desk, discharge desk, or in the resident workroom (RWR). 2) Person: I systematically followed a group of residents over a three-month period for one half day per month. I followed each faculty member for at least one half day, and depending on what was happening, sometimes more frequently. I followed staff by job function, i.e., there were four telephone receptionists and four registration attendants, but I followed only two each. 3) Event: There were both faculty meetings and (staff) leadership meetings, as well as two general staff meetings. I attended all meetings when I was present on site. 4) Non-human actors: Since this was a study of non-human as well as human actors, I followed a patient chart, a schedule, and exam room objects

through the system. I conducted several half days of observation on computer usage in the RWR. The observational data, with the exception of the computer records, were my own handwritten, coded notes. These were typed and revised for further clarification. I presented myself as a visiting faculty member from Michigan State University, conducting my doctoral dissertation research. I wore a white coat with my name and university embroidered on the pocket.

Because I was not working in the clinic, I remained, to some extent, the “outside researcher.” A large body of literature addresses this subject. [See Atkinson and Hammersley (1994), Haraway (1988) and Becker et al(1961)]. Guba & Lincoln (1994) suggested that inquirers are not separate from those being inquired about. They asserted that there are at least three levels to the relationship: that of reaction on the part of the respondent to the inquirer, that of the intervention of the investigator that “automatically precludes certain inquiries” and finally the “interaction, that is the investigator is as much disturbed by the studied phenomenon as the phenomenon is disturbed by the investigator” (p. 95). All three of these levels happened, and I have reported on these throughout the text. However, I was never “one of them.” I prefer to consider my position like that of Collins’ “outsider within” (1986). I was unable to be a physician, a resident or a staff person, yet we interacted together and constructed an account of clinic life together. I hold privileged information about all of their lives. I remained as aware of my role and status as possible by daily journaling.

Semi-Structured Interviews

Elements of each interview included: why the inquirer is present, explanation of the project, how the interview will be recorded, and what will happen to the recording (Spradley, 1979). Sample questions for faculty, resident and patient interviews are found in Appendix D. As to other methods, audiotapes and/or videotapes that could be coded by multiple researchers perhaps would have provided more accuracy for the specifics of the data. However, they probably would not have shed any more light on the findings than the methods used.

Site Selection

A *residency* training site was selected for two reasons. First, residency programs must meet the accreditation standards of the Accreditation Council for Graduate Medical Education (ACGME). There are two sets of standards: a general set for ALL residency programs, and a set specific to each specialty. This holds constant the general rules and curriculum by which all residents in the U.S. are trained. Second, residency programs are required, by these standards, to have a longitudinal training experience in an ambulatory setting. Residents have set days each week when they are in the clinic, making it possible to observe them over a period of several months.

Five sites were visited for one to two day visits, before a final decision was made. The criterion of a high percentage of managed care was abandoned. By the time this study took place, managed care contracts were decreasing across the entire nation. All of the clinics visited had a much heavier mix of third party payors and less managed care than

originally envisioned. The Korsdale University Internists (KUI) residency clinic at the Korsdale University and Medical Center best matched the remaining criteria.

The purpose of the study was to describe the daily practices/actions of the staff, residents and faculty. The organization selected was willing to open all parts of their clinic for the study. There was never any intention to showcase problems in the organization. I do not wish to embarrass this organization in any form or fashion. However, during the course of the study, events happened in the clinic. As part of their regular organizing activities, all networks have mechanisms for addressing the unusual, disruptions, changes, and absences. These are part and parcel of their activities. The honesty and frankness with which people permitted me to share in those disruptions and changes was a tribute to the meaning of medical education research in an academic setting. I have tried to accurately represent the actions of the participants as well as my own sense-making about these events. All residency clinics are fraught with issues, problems, and challenges. They may be different than those discussed here, but they will exhibit similarities. This research attempts to provide a fresh conceptualization of how medical educators might re-vision residency clinic challenges. To this end, all study participants were very thoughtful and helpful. It is my hope that this study provides all medical educators, including the Korsdale faculty, residents, and staff, fresh perspectives and insights.

I am not a physician. Therefore this was not a study of patient care quality, as I was not qualified to address such issues. However, during the course of observing the clinic

activities, a large amount of patient care was provided as teaching/learning occurred. I have reported on this primarily as a means of understanding how actors interact and how the processes of patient care come to be ordered with teaching/learning.

The clinic size presented an initial problem. I had intended to follow all residents on a systematic basis. Instead, I selected two PGY1s and two PGY 3s and followed each of them approximately one half day for three succeeding months. I also limited the study solely to the residency component of the clinic.¹

Time Period

I was present in the clinic, on a halftime basis, from January through July 2001. I also made several return visits during August and September 2001. During this time, I was able to observe the three major “phases” of residency education. From January to June, the clinic ran at full speed with all three classes of residents scheduled for their respective maximum number of patients. Over the summer months (July and August) only the second and third year residents (PGY2s and 3s) were present in the clinic. In September, the interns, or first year residents (PGY1s) joined the clinic practice. Until January 1, they are taught using the GC modifier.² By observing over this particular nine month period, all three phases of resident training were present.

Consent

Consent was obtained for residents, faculty, patients and staff. Consent was obtained by first making a verbal presentation on the purposes of the study, and then providing a

copy of the consent letter. (See Appendices B and C.) Each participant was asked to sign a short consent form, which are kept locked. Everyone was told that they had the right to ask me to stop taking notes, leave the room or drop their participation in the study at any time. In addition, patients were asked a second time at the end of their visit, if I could keep my notes.

Resident Consent. Eighty-six residents provided consent to participate. Three of the fourteen remaining residents stated that they did not wish to participate. The other remaining residents were absent when I was present during the early months. They were on out-rotations, vacation or at a nearby community hospital rotation. By May, there was sufficient data from residents and faculty so that it was unnecessary to enroll any more residents.

Faculty Consent. Faculty provided consent during the first week of the study. All except one agreed to participate. Two of the faculty who consented did not teach in the clinic. Therefore, they were excluded from the study.

Staff Consent. The staff had just been through a process of having outside consultants analyze their jobs and make recommendations for change. Understandably, they were quite wary of this study. At the initial meeting, very few staff signed consent forms. As I spent more time with residents and faculty, I came to know several staff on a more individual basis. A few faculty and the Office Manager spoke to the staff members and allayed their fears about my role. By April, three staff remained who did not consent to

participate. One of those consented to my following her for one day only. There were a number of part-time and temporary staff present in the clinic that I chose not to involve in the study. I also chose NOT to obtain consent from staff that were hired close to the end of the study period.

Patient Consent. I entered exam rooms with the residents and asked them to introduce me to patients. I explained the study purpose to the patients and what I would be doing. At all times I clearly stated that I could be asked to leave the room and that I would be asking patients again at the end of the visits if I could keep the notes. In over one hundred and fifty patient encounters, there were two times when I was asked to leave the room in the middle of patient visits [OB100;116]. Another time the attending and resident asked that I not go in to see the patient at all [OB97]. One day a resident asked me to tear up my notes after the patient visit [OB04]. In all four of these cases, there were a number of very difficult emotional problems with the patients. There were an additional two times when I stopped writing even though I did have patient consent, because I became too emotionally involved [OB104;109]. In no case did a patient tell me that I could not keep the notes. In general, patients were very open to discussing even very sensitive subjects in front of me.

There were times when I was following a faculty member or resident when I did not obtain patient consent. In those instances, usually the physicians explained that I was following them and that I would be taking notes only about what the physician said or did. No notes were taken on patient responses during these encounters.

Anonymous Participants. Because of the large volume of such people, and the transient nature of their interactions with clinic staff, written permission was not obtained. They were treated as anonymous.

Issues that Arose with Consent. There were two incidents that arose around consent. At one point, I was asked by the Office Manager to provide input into evaluations of some administrative staff. I explained that the study letters and consent forms clearly indicated that the information gathered couldn't be used for evaluation purposes. However, I did provide her with some general observations. These were observations that I shared fairly openly with a number of staff and faculty. I also discussed with her the potential needs for general staff training, but not for any one specific person. The management consultant team, Medzicon also asked if I could share my observations with them. I explained that I would be providing a written summary report to the Clinic Director and that it would be her choice if she wanted to share it.

Data Collection

Individual signed consent forms were obtained from staff, faculty and residents. These were in effect during the entire clinic stay. When I took notes related to a specific patient, I also obtained patient consent. All participants received a code number that was used on all written materials. Code numbers were separated from the written materials. Multiple methods were used in order to permit triangulation of the data, member checking and to check for disconfirming evidence (LeCompte & Preissle, 1993).

The major method was observation. Additional data consisted of: 1) Taped interviews with all key staff, the four study residents and the entire faculty for whom I had consent. Private interviews were conducted, audiotaped, and transcribed. 2) Daily patient scheduling records were collected for a twelve-week period. These were entered into a data base program for statistical analysis. 3) I was provided with aggregate results of a resident survey that was conducted by Kordsdale faculty while I was on site. 4) Over 110 documents were collected from staff and faculty. These included posted memos, emails, reports, hospital newspapers, and the resident handbook.

I went into this clinic having had two brief meetings with the Residency Program Director and one brief meeting with key staff. I knew no one in the clinic before I started. My roles shifted over time, by node, and by staff activities. I began by doing a lot of straightforward observing—asking questions when I did not understand the meaning of something, and contributing little to the discussion. By the time I left, I noted that it was like walking into an extended family. Everyone would greet me and tell me his or her version of the latest events. By the end of the study, a number of people were asking advice about clinic problems. There were times when I deliberately chose to be more of a “participant.” I have clearly noted this throughout. I kept careful notes on how I responded. I note this now because I made an effort to provide the perspective of all of the participants who “act” in this clinic. However, it is my own perspective that I have brought to the ordering process of this text.

I was initially concerned about the reliability of the information that I was gathering from individual participants. Were they speaking to me only because they had a grudge? How could I check what somebody had told me in confidence without breaking that confidence? After I had been there about six weeks I stopped worrying about it, as many more people started telling me their story. One day I counted—I had six different, but very similar versions of the same story!

Throughout the study period, I was able to conduct member checking on individual issues. For example, I confirmed that a number of people were concerned about the state of the medical records and the scheduling. I was also able to confirm that most people agreed that the organization was very loosely controlled. However, as of this time, I have not been able to return to provide a final discussion of my findings. Due to circumstances beyond their control and mine, the Clinic Director could not provide a time for me to speak to the faculty and staff. Therefore, I am currently in the process of sending a written report to the clinic.

Observation Implementation

Observations were conducted in the clinic for 118 half days. A half-day generally consisted of being there from 8:00 am until 12:30 or 1:00 and from 1:15 to 5:00 or 5:30. I also spent a few of these days observing before the start of the clinic and after it ended. The selection of days was based primarily on my work schedule in Lansing. The general schedule was one week in the clinic, one week in Lansing.

For approximately the first six weeks of observation time, I primarily stayed in the RWR. This permitted me to speak with residents individually to obtain consent. After I had obtained consent, I would often ask the resident if I could follow him/her through a patient visit. There was no structure to this period, except for the underlying goal of obtaining consent from as many residents as possible, and learning the clinic processes. In retrospect, this time could have been better spent if I had systematically followed a faculty member who was precepting. Within the first week, I had already obtained all of the faculty consents. My observations would have been “sanctioned” by the faculty, therefore making it easier for the residents to understand what I was doing. Also, the faculty precept with almost all of the residents in any one half-day session. It would have speeded up the process of my obtaining consent from the residents. After I had obtained most of the residents’ consent, I systematically scheduled half days in all other parts of the clinic to learn the administrative side of the clinic.

I also followed four residents on a regular basis. I selected two PGY-1 (first year residents) and two PGY-3 (third year residents) --one male and one female for each year. The selection process was primarily based on the half day they were present, so that I was only following one of them on any given day. They also had to be present in the clinic for the full four months remaining, i.e., not on vacation or out-rotations. Each resident was followed at least three times. I followed each attending for a half day of precepting, with two exceptions: the attending who did not participate in the study, and one who was ill from March through June. Most of the attending half-day observations took place in April and May.

I took handwritten notes during the entire time I was in the clinic. All notes were coded. A series of false identities were used for the name of the clinic, hospital, program names, etc. Codes were assigned to all staff, faculty, and residents. Because of the large number of people, their names and code numbers were kept on small laminated cards as an aid for me to remember how to code them. These cards were on my person at all times. I was provided with a secure locker. During breaks or lunch, all notes and other materials were locked up.

In addition to conversations and general observations about what was happening in the room where I stood, the notes included attention to objects that participants interacted with. I tried to note what people were doing with the objects that surrounded them. On one day, I followed patient charts through the process, and on several other half days, I spent time observing the use of computers in the resident conference room.

Initially, everyone was wary when I was standing or sitting by them. I began by asking them to show me what they did—or, if they were very busy, I would ask questions about what I could see that they were doing. There were a number of whispered conversations in the first month that I couldn't hear. I would continue to write during these times—describing the room or the participants, or writing that I couldn't hear the conversation. By the end of the second study month, most of the initial apprehension about what I was doing had disappeared. By the last month, I had a number of people coming to me and saying, "I want you to write this down." I always wrote it down, but I also noted that they had asked me to write it. To some extent, I believe it was a measure of the trust

that I had developed. By that time, people had told me a lot about clinic issues and problems. However, I was well aware that these were often the most frustrated and angry people who might have perceived me as a conduit to the top.³ I also clearly indicated that everything anyone said was kept in confidence.

On Participation

My participation roles changed over time. They were also dependent on the subgroup of people I was observing. If they had technical functions (e.g., taking blood pressure) I could not participate. But if they were doing clerical or other administrative tasks (e.g. using the copier or fax) I could participate. I began the process in an almost 100% observer role. In late May I was invited to join a small group of residents and faculty who always went out to lunch on Thursdays. I did join them. I realized at that point, that it was time to leave, as they now considered me “one of them.” On the few occasions where participating faculty or staff had lunch with me, I did not take notes. However, if they made comments relevant to the study, I wrote them in my notes at a later point in the day.

During patient visits, patients would sometimes speak to me. I would generally look at the resident or attending to redirect their attention to that person. I did comment on something non-medical—a dress, hat, an adorable child, etc. Upon leaving, I also wished them well. There were some occasions when the patient asked me how to get out of the office, what to do with a form, etc. If the resident had already left the room, I directed them to the proper place. However, if the resident were still present, I remained

silent in order to see what the resident would say. There were a number of occasions when the resident left the patient exam room to obtain a piece of equipment, a form, etc. On those occasions, I would often stay in the patient room and ask the patients questions from the interview protocol. Sometimes the patients would stay after the visit for a few minutes, so that I could obtain more information.

By the end of the second study month, I decided to share a few of my observations at faculty meetings. I provided both positive comments and brought up one issue that had been raised by an attending. I always asked how it had come to be decided to do things in a certain way. At the last two faculty meetings I attended, the Clinic Director and faculty were asking me for my opinion, or using me to reaffirm what they were saying. In those cases, I restated the issues for them rather than confirming or denying the existence of observations.

The staff provided the most resistance to my presence. When I finally did obtain consent, I began by focusing on staff job functions. What did they do all day and how did they do it? On occasion, but not all the time, I offered to help them out. If they needed something copied, I would offer to do it. I offered to take messages to people. I do not believe this compromised my observations. There were often several people doing the same job, so if I stood at the copier, I could still observe others doing the same job activity. Because I was present only a few half days at any given workstation, my ability to help was too sporadic to develop into any formal change in operations. One day, I offered to help them catch up with alphabetizing the filing for the patient charts.

This was a very helpful process to me, as it gave me an appreciation of what they were actually doing with the filing, and why it was so complicated.

In addition to offering sporadic help, there were two occasions when I decided to “participate” in daily clinic life. When I first arrived in the clinic, residents' and attendings' names were being handwritten on sticky notes and placed on exam room doors. In April, a new LPN was hired. She developed a computerized (printed) version of the names on little pieces of paper. She was putting those up every day, but after a few weeks the paper started to wear out. She noticed me pulling out my laminated cards and asked why they couldn't do the same thing for the resident names. I offered to laminate the signs for the current batch of residents. I then wrote out a set of instructions for her and trained her so that she could do the incoming intern class in July or August. Everyone liked the new signs, and several people thanked me for them. But the new signs for the next batch of interns were not up when I finished the study in October. They were back to handwritten sticky notes. This provided a lesson in participation for me. Even when I injected my participation into the organization, the results could not be sustained without organizational change. In the end, it provided me more with a sense of having offered to help, and provided them with a perception that I was willing to help.

One day the Office Manager and one of the key staff were having difficulty printing data imported from an Excel spread sheet. I helped them for a few minutes. Later, I saw the staff person working on it. I helped her again. The next day I helped most of the day

with this form. I chose to do this because it was in medical records. It gave me a reason to be sitting in medical records and observing indirectly. This group of staff had not been overly forthcoming. I reasoned that by putting some time into helping them solve their problem, they would perceive me as interested in their work. Spending that day did seem to “break the ice” and make it easier for conversations to flow around me when I went back to observe.

During the first few administrative staff meetings, I took notes and did not speak. After two months, I deliberately chose to insert my opinions into two issues in order to see what might happen if someone made a suggestion for change. I worded my suggestions as questions, first to one staff member, and then at a staff meeting. “Has anyone ever considered purchasing hole-punched paper, so that every piece of paper in the office wouldn’t have to be individually hole punched?” [OB46] Several staff liked the idea, but no change ever occurred.

The second suggestion I made did produce a change. At a meeting, staff discussed the inability to keep up with filing the patient demographics forms (over 100 per day.) By the time they reached medical records at the end of the day, they were separated from the charts. This meant they had to be alphabetized first, and then the charts had to be found (and sometimes re-alphabetized) before the forms could be placed in them. I suggested that if the form is given to the patient, the nurse could put the form in the chart at the beginning of the visit thereby eliminating all the re-filing at the end. By the end of the study, the forms were being inserted loose into the charts by the nursing staff. For an

analysis of these interventions, see Chapter 5. In all meetings, I kept notes on their responses to my comments, and these were coded as well.

On the personal side, we all grew much more comfortable with each other. They learned about my family, and my life in Lansing. I learned about their pregnancies, illnesses, families, vacations, where they spent weekends, where to buy the best mangos, where to shop for clothes, etc. Just being together for such a long time produced bonds that wouldn't have been there with shorter periods of observations. However, I have had very limited follow-up with anyone since the end of the study. Our interactions did not grow into lasting social relationships.

In sum, my role changed over time from one of the “outside observer” at the beginning to one of collegiality, trust and limited participation. I was never a full participant, because I was not trained to do any of the clinic jobs. Administrative jobs required knowledge of the computer and phone systems, and I had no medical training for any patient care/work. Because of my lack of medical knowledge, I could not see or treat patients. Therefore, the scale was always tipped just slightly more to the observer role rather than the participant side.

Interview Implementation

Interviews were formally scheduled with all faculty, key staff and administrators, and the smaller group of residents that I followed on a regular basis. Most interviews were held during the months of May and June, 2001. All interviews were held in private

offices or exam rooms, and were audio-taped. Prior written consent had been obtained, but verbal consent was also provided on the tapes. Tapes were duplicated and given to a transcriber to produce rough drafts. Final drafts were developed by the author. Tapes were then coded in the same manner as the observation notes. The interview tapes themselves are kept in a locked box.

Informal interviews [not audiotaped] took place with patients and staff who could not leave their positions. Patient interviews generally took place after the patient's visit with the doctor. At the end of the patient interviews, I asked each patient if I could keep the notes. Questions were used from the protocol, however, depending on responses, follow-up questions were used.

Document Review Implementation

Documents were collected over the entire study; they were numbered, but not coded. They were used primarily as supplemental documentation. One document deserves mention. The faculty decided to conduct a survey of the residents who would be staying in the clinic for the next year (July, 2001). The faculty asked me for input into the questions, and provided a set of aggregate data, i.e., there were no names or other identifiers on the data. The faculty also provided a final, summary report that did include aggregate resident characteristics, such as their PGY year. Throughout this document, I have on occasion referred to this survey data as a source of triangulation for this study's observations and interviews.

Data Analysis

Law has another principle that he termed “reflexivity.” “There is no reason to suppose that we are different from those whom we study. We too are products. If we make pools of sense or order, then these too are local and recursive effects, and have nothing to do with immaculate conception” (Law, 1994, p. 16). This principle reminds us that what we observe is incomplete, that we order it for ourselves, that it is tentative and local. We must ask ourselves how it is that we came to order the way we did. Law suggested that “together with whatever it is that we write, we are effects as well” (1994, p. 17). Again, through daily journaling and this text, I have tried to make my assumptions and questions clear. The final orderings described in this text are mine—but many parts of them are also those of the participants. I have tried to clarify when I speak for myself, and when I speak for others throughout.

One additional comment on reflexivity: It “is a strategic effect generated by creating distinctions between materials” (Law, 1994, p. 139). Being reflexive forces us to question orders not chosen, materials not employed, and actions not taken. It also forces us to consider why certain actions, materials, etc. were selected over others. Although Law would like to have us eliminate dualisms, distinctions and asymmetry, our own limited capacity as observers as well as our own prior experiences will always make this process of creating processes of ordering an imperfect one.

I used field notes analysis methods as explained in Emerson, Fretz and Shaw (1995). This begins with a full text write-up immediately after leaving the field. Field notes were written directly into a word processing program, which was then entered into NVivo for coding. From the write-ups, two types of coding were conducted. The first was open coding in which each line of text was coded for any and all issues or foci. A second, “focused coding” coded the data for interesting themes that began to appear. In both of these cases, some coding and use of themes began almost immediately. Emerson, et al. (1995) suggested that while still in the field coding data, the author should write “initial memos.” These may be nothing more than thoughts, ideas to pursue, areas not covered, etc. These permit the inquirer to go back and check findings by collecting new data and by asking members using “constant comparative analysis” Glaser and Strauss (1967). I also wrote integrative memos that linked separate field notes into themes and categories (Emerson, et al., 1995).

Sections of the data were then reanalyzed in an iterative process. The remaining data have been used to fill in the gaps, and to provide reliability to the claims/actions made by participants. In order to address the issue of reflexivity, I have specifically questioned the possibility of other orderings and groupings of nodes. These are discussed throughout the text.

Participant Description

This study was situated within a residency clinic that has the following characteristics:

1) a full complement of residents, 2) a diverse patient population, 3) maintains

mainstream methods of billing and insurance (i.e., Medicaid, Medicare, managed care and/or private insurances), and 4) provides primary care (Internal Medicine).

The site selected delimited the population for the study. The primary participants were residents, faculty, patients and staff of one ambulatory residency education clinic. A peripheral set of participants included those with secondary affiliations to the clinic: pharmaceutical representatives, laboratory personnel, friends of patients, etc. The study population included, (only in an incidental manner) pregnant women, women of childbearing age, students, low-income people and minorities. All participants have been described earlier but are summarized here.

Residents

The Internal Medicine department has a total of 165 residents, including 7 medicine chief residents. There are four programs within the department: Medicine/Pediatrics (Peds) (16 residents), Medicine/Psychiatry (Psych) (18 residents) and 10 residents in a combined ambulatory program with another hospital. This leaves 114 in the medicine program. The Medicine/Peds residents did not participate in the clinic. However, some of the Medicine/Psych residents participated, and one of the combined residents also participated. Approximately twenty of the Internal Medicine residents conducted their ambulatory experience in other settings. During the study period, 100 residents from Kersdale University were assigned to the clinic for their continuity ambulatory experience. Five residents from another hospital also rotated through the clinic on one-month rotations. They were excluded from the study.

Of these 100 residents, 86 provided consent to participate in the study. Twenty-six of the 100 residents in the clinic graduated from Kordsdale University. An additional sixteen graduated from other medical schools in the same city. The remaining residents came from all parts of the United States. There were four non-U.S. citizens who had attended non-U.S. medical schools. One U.S. citizen also attended a non-U.S. medical school. Below is a table describing the demographics of the residents who were assigned to KUI for their ambulatory experience.

While statistics were unavailable on ethnic diversity, the residents themselves spoke openly of their diversity. Several were second-generation U.S. citizens who spoke a language other than English at home. A few residents were planning to go into practices where English would NOT be the predominant language. From observation, the number of Hispanics and African Americans was probably somewhat lower than the national population. Faculty noted that this is a private medical school, and that costs are lower at a state school located in close proximity. In sum, both the resident population of the clinic and the study population were very similar. They appeared to represent a fairly wide range of diversity in age, years in training, ethnicity, and gender.

Faculty

Demographic data were unavailable on faculty and staff, however, some information is available from observation and documents. Over half the faculty had, at an earlier time, been chief residents at Kordsdale. All but two faculty had attended Kordsdale Medical

Table Appendix A.1: Resident Demographics for KUI Clinic

Descriptor	Residents in Clinic	Residents in Study
<u>Year in Training</u>		
PGY 1	35	31
PGY 2	30	24
PGY 3	29	26
PGY 4	4	4
PGY 5	2	1
<u>Program</u>		
<i>Medicine</i>	85	74
<i>Med Psych</i>	14	11
<i>Joint Amb.</i>	1	1
<u>Age</u>		
<i>25-29</i>	63	52
<i>30-34</i>	29	26
<i>35-47 + Unknown</i>	8	8
<u>Sex</u>		
<i>Male</i>	62	56
<i>Female</i>	38	30
<u>U.S. Citizen</u>		
<i>Yes</i>	96	82
<i>No</i>	4	4
<u>MD/DO</u>		
<i>MD</i>	96	85
<i>DO</i>	4	3

School and went directly into teaching and working in the clinic from medical school.

Only one faculty member had had experience working in a non-academic, private physician office. Of the five non-Caucasian faculty, one was an African American. One physician faculty member spoke Spanish and had a large following of Spanish speaking patients. Most of the faculty were relatively young. They had been out of school on average, approximately five years. Three of the faculty had been with the program longer than ten years. There were ten women and seven males.

Staff

There was a considerable amount of staff turnover during the study period. Of the 29 “permanent” staff present at the end of the study, one hundred percent were female. Only five were Caucasian, the remainder being African American or Hispanic. Both the Clinic Manager and the Nurse Manager were Caucasian. Most of the women were young, i.e., they had perhaps two to four years prior work experience. For many of the staff in entry-level positions, this was their first experience in an ambulatory clinic, although most had previously worked in some sort of medical setting.

Patients

The patient population was somewhat different on the residents’ side from the faculty side. On the residents’ side, the patient population was primarily Medicaid/Medicare, i.e., an older population with many chronic illnesses. They were primarily (80%??) African American (no statistics were available so this is an estimate). There were also approximately 5-10% Hispanic speaking patients. There was an expectation on the part of Hispanic patients that they would be able to either see a Spanish speaking doctor, or that a translator would be available to them. The patients on the faculty side tended to be more diverse, with a large number (app. 50%) of younger, Caucasian, working patients. They had a much wider range of insurance mechanisms, including HMOs, PPOs and standard third-party payers (e.g., Blue Cross/Blue Shield.) When these patients would need to be seen on an emergent or same day basis, a resident usually saw them.

Anonymous Participants

There were a large number of people who were present in the clinic but did not work there. Unless someone spoke directly to me, or their interactions with staff were key to something I was observing, I did not take notes on these people. Where discussed in the text, their general titles are noted, with no further information provided. Perhaps the largest group of these anonymous participants were the drug representatives. There was also a rheumatology clinic on Thursdays that took place in the same space as the Internal Medicine residency clinic. There were both faculty and residents present for this clinic. For several weeks, a faculty pharmacist and a few pharmacy residents also worked one morning a week in the clinic. There was some minor interaction with the lab and pharmacy staff that were located on the same floor as the clinic. There was also transportation staff who would come to take people in wheel chairs out to their rides, and hospital staff who would deliver packages, x-rays, etc. Patients' family members also fell into this category. Finally, there was the staff of the consulting group, Medzicon, who from time to time, wandered through the facility.

Study Limitations

This study does not assess resident learning or faculty teaching. This study focuses on how organizations constrain or expand teaching and learning opportunities. There were inadequate resources to conduct an assessment of faculty teaching and resident learning. This would have required many more assessment instruments, additional observers, and perhaps validated tests of medical knowledge. This critical component must be left for further study.

Patient care is only studied in relationship to the organization. Adding a complete component on quality of patient care would have required more medical expertise and a larger staff to thoroughly explore all of the variants of patient care. However, because it is so difficult to separate patient care from teaching/learning, some of the organizing processes affected both patients and residents. I have noted these in Chapter 6.

Length of time on site did not permit observation of a complete full year cycle.

However, all variations on the cycle were observed. Beginning in January, first-year residents no longer need to have an attending visit every patient, although many faculty continue to do so. In July, the senior residents had graduated, leaving the new third and second year residents to provide all patient care. In September, the new interns began their training. I spent the least amount of observation time with this group (only one week). However, because all other data collection was complete, it was possible to concentrate solely on the interns. There may have been additional data that could have been gathered from the interns, but the other “seasons” were well covered.

There was only one site, one discipline, and one observer. To my knowledge, this is the first clinic study that focuses on observations of how the clinic organization relates to teaching/learning. By virtue of it being a case study, it is not possible to generalize from this study. However, it does provide a starting point for further studies that will be able to better account for its narrow scope.

Self-Reflection

I wrote daily memos on my own thoughts and observations throughout the study period.

These were coded and used as part of the study data. Several themes emerged:

Taking notes while observing is very difficult. There were times when I was still writing about the last patient or incident, but the conversation had moved on. I had to filter what was most important to capture. I often went back at the end of the session and wrote more about what I remembered, but there were times when I realized that I missed the data. The question then became—was I getting a fair sample of observations? By systematically observing faculty, staff and residents, I tried to be as systematic as possible.

My administration and faculty development roles had to be constantly “watched” so that I remained in a researcher role. It was very difficult to keep my mouth closed about improvements that I might be able to suggest. However, as noted earlier, I quickly realized that my ideas would not be implemented even when provided.

There were some attendings, residents, and staff that I liked more than others. When I observed that I was tending to speak more with some people over others, I specifically went out of my way to spend time with those I did not like as much.

Presenting Myself

I am a white, female graduate student who is also an official senior citizen! I brought to this study ten years of experience observing faculty teaching in residency clinics and

teaching faculty how to teach. At KUI, I was ever mindful of my role as a researcher, not a teacher. Over the years, I have gained familiarity with medical terminology and daily clinic routines. This was both an advantage--I already spoke some of the “lingo”-- and a disadvantage-- I had to work harder to see things from a fresh perspective. I viewed this study as an opportunity for the participants and myself to “construct” at least partial views of clinic life. However there is very limited time available for reflection in the clinic. I addressed this by using the few downtime minutes available at the beginnings and ends of sessions to ask reflective questions.

Ethical Considerations

According to Punch, “harm, consent, deception, privacy and confidentiality of data” are the major ethical concerns (1994). I do not believe that I did anyone any harm. My activities were such that I was not involved with the operation of equipment, with medical discussions, or even evaluation of residents.

Punch (1994) noted that consent may reduce participation and that less powerful people are more willing to consent than more powerful. This was the opposite of what occurred in this clinic. The more powerful people consented much more quickly, whereas the less powerful had to be reassured that this would not be part of their job evaluations. The cover letter and consent forms indicated that study participation was voluntary. Participants had the right to choose not to participate at all, and a few exercised that option. Occasionally, patients revealed medically sensitive information about

themselves in my presence. This was minimized by a) assigning a patient number to all notes and not using the person's name, b) asking the patient both at the beginning and end of the visit if it is OK to keep the notes; c) stating verbally and in writing that anyone has the right to ask me to stop taking notes, turn off the tape recorder, or leave the room; and d) occasionally, I stopped taking notes.

There was the possibility that a resident could be shown to have gaps in his/her medical knowledge, and this did occur on a fairly regular basis. The resident's confidentiality was protected through the use of code numbers as explained in the consent form.

Residents also had the right to ask me to stop taking notes and/or to leave the room, or to stop participating in the study. On only two occasions was I asked to stop taking notes, and both revolved around patient concerns, rather than resident knowledge issues.

Benefits to participants included the opportunity to reflect on the learning, organizing and teaching practices of this clinic. Everyone was also asked to provide suggestions as to how to improve the clinic. Those suggestions were summarized and generalized so that no participant could be recognized. The suggestions were then incorporated into a final report for the clinic.

To my knowledge, there was only one deception that was immediately cleared up. A patient asked me a medical question, assuming I was a medical professional. I replied that I was studying how the clinic operated, and that I was not a physician. As for privacy and confidentiality, all names were coded and original data remains under lock

and key. Descriptions of the individuals and the setting have been changed. One person asked me what I was writing. I picked up my notes and read the previous paragraph that I had written. This was the end of any speculation about my note-taking.

Lessons Learned

Several methodological lessons can be learned from this study. 1) It is important to ask patients, learners, and faculty to comment directly upon their experiences. Nursing and front office staff must also be included. 2) Some organizational issues can only be addressed when researchers conduct on-site observations. 3) This study raises the importance of paying attention to patient and resident absences, continuity of care, ease of access for patients, as well as the quality of patient care. 4) Observation does not remain only one type (Spradley, 1980). It may vary across all four of Spradley's types, depending on the time on-site, person being observed, and their job activities.

Endnotes

¹ There was one occasion when I inadvertently put myself in a direct, medically-related question-asking mode. I was with a first year resident. A young patient in his twenties came in who had injured himself working out in the gym. As we were about to leave, I asked the patient, "Just out of curiosity, how did the injury happen?" The patient supplied a very clear answer. When the resident presented the case to the faculty, one of the first questions from the faculty was, "How did the injury happen?" The resident, without recognizing me, provided the answer that the patient had given us [OB111]. Afterwards, I analyzed why I had asked the question, and I am still uncertain. I essentially got wrapped up in the story, and forgot my role as researcher. Of course, I lost the opportunity to determine how the resident might have answered the attending's question if the resident didn't know. On the other hand, there were many other examples of how residents handled situations where they either forgot, or didn't ask the patient a question. Therefore, this one incident must be put into the larger perspective of the total number of observations.

² The GC modifier is a Medicaid regulation that requires attendings to essentially repeat both the history taking and physical exam portions of the patient visit. They must then write a complete note. This is required for all interns for the first six months of training.

³ I also clearly indicated that everything anyone said was kept in confidence. I was very aware of my roles and tried to consciously turn their questions and statements back to them. There was only one time that I inadvertently “gave away” information that I had collected from someone else. In that situation, I asked the Office Manager about an issue that I had heard discussed by three other people. I assumed she already knew about it. But she didn’t know anything about it and was somewhat upset that she heard it first from me [OB81].

Appendix B Consent Letters

Consent Letter for Doctors, Administrators, Residents and Staff Persons

(Letter was placed on Korsdale university stationery and included the signature of the Associate Residency Director. It also included the phone number of the Korsdale IRB office.)

Dear (Doctor, Administrator, Resident, Staff Person)

Rapid changes are occurring in all parts of the health care system, including residency clinics. But very little is known about the ways in which medical education and patient care are organized in residency clinics. How has medical education in residency clinics been affected by these rapid changes?

I am a faculty member at Michigan State University College of Osteopathic Medicine. Currently I am in the process of completing a doctorate in higher education with an emphasis in medical education at MSU. This proposed study is my dissertation. The purpose of the study is to identify the organizational processes by which patient care and resident education coexist in an ambulatory education clinic. The study will identify how faculty, residents, staff and patients interact with each other in the clinic setting, and how they come to “organize” the daily activities of a residency education clinic. The focus will be on best practices that can be shared across clinics. This study has been approved by the _____ Clinic and will take place from (date) to (date). If you have any questions, you may call Dr. Ann Austin, my dissertation chair, at 517-355-6757, or Dr. Ashir Kumar, MSU Committee on Research Involving Human Subjects, 517-355-2180.

We are asking you to participate in this study through several different mechanisms. 1) There will be meetings you lead or in which you participate where I will be present as an observer. During these meetings, I may take notes on what you say or do. 2) There will also be at least one formal interview with me during my stay. This interview will take approximately one hour of your time and will be audiotaped. If both parties are agreeable, there may be additional interviews. 3) I will share, at a mutually agreed upon time and location, both preliminary and final results of my study. Your comments during these meetings will be very helpful, and will be used as part of the research. 4) I would like to spend from one day to two weeks observing you work in the clinic. I plan to “tag along,” observing all activities for the day. The days can be set to best suit your schedule. The schedule will be set ahead of time so that you will know which days I am planning to spend with you. During these days, I will also be taking notes on what you say or do. At the end of the day, I would need from five to fifteen minutes of your time to clarify any remarks or activities that I did not understand during the day’s observations. I anticipate being in the clinic for observations from (date) to (date).

Participation is voluntary. You may stop participating for temporary periods by asking me to stop taking notes or leave the room. You may also discontinue full participation in the study at anytime. If you choose to discontinue participation, I will delete or destroy any information collected to date, if you so desire. Patients will have this same right. I will contact each of you by phone or in person, during clinic hours, to discuss this with you. You will not receive monetary compensation for your participation in this study.

Your privacy will be protected to the maximum extent allowable by law. Although it is possible that you could be identified by someone familiar with the setting and/or your role in it, I will do everything possible to protect your identity through the use of pseudonyms. Dr. Austin and I will be the only one with access to the raw data which will be kept locked at all times. Raw files will not be provided to the _____ Clinic, however, summary reports will be provided to the entire staff for discussion and verification purposes. Your identity will be not be revealed in any report of the study.

Dr. (Name of Residency Director), the director of _____ Clinic, and Dr. Ann Austin, the Chair of my dissertation committee, will be provided with detailed results of this study. I will be sharing the final results of the study with the clinic staff (whoever clinic wants to name) and my Michigan State University College of Education doctoral committee. I also plan to publish, either as a whole or in parts, the final study results.

I hope you will agree to participate. I am enclosing a copy of the consent form that I will be asking you to sign when I meet with you for the first time. I will be happy to answer any questions when I contact you in the clinic.

Sincerely,

Karen V. Busch, M.S.
Doctoral Student
Michigan Sate University College of Education

Patient Consent Letter for Observation and Interview

(Letter was written on Kordsdale University stationery, co-signed by the Associate Residency Director, and provided the phone number of the Kordsdale IRB office as well.)

November 1, 2000

Dear Patient:

I am a doctoral student at Michigan State University College of Education. I am doing a study in this clinic. I want to better understand how the clinic is organized to both provide you with good health care and help residents learn to care for clinic patients. Today I am following Dr. _____. Since you are a patient of Dr. _____, I would like to ask if I might sit in the room while you are talking to, and being treated by the doctor(s) on this visit and any future visits you might make when I am here. I will be taking notes during the visits. If you agree to let me stay in the room, you may ask me at any time to stop taking notes or leave the room. I will also be asking you again, at the end of your visits, if I may keep the notes. After the doctor leaves, if you have enough time and would like to talk to me further, I would like to ask you a few more questions on what you like or don't like about this clinic. I would also like to take notes on your answers to these questions. (Not all patients will be interviewed.)

You are free to choose if you want to be a part of this study. You will not receive any money for participating. Your privacy will be protected to the maximum extent allowable by law. I will be keeping all of the records locked. I will be using false names so that your real name will be not be used in any report. I will be sharing the general results of this work with the staff, residents and faculty here in the clinic as well as five people at the university. I may also use my notes to write articles or talk about my findings. If you have any questions, you may call Dr. Ann Austin, my dissertation chair, at 517-355-6757, or Dr. Ashir Kumar, MSU Committee on Research Involving Human Subjects, 517-355-2180.

I hope you will agree to participate. The consent form that you will be asked to sign is below.

Sincerely,

Karen V. Busch, M.S.
Doctoral Student
Michigan State University College of Education

Appendix C Consent Forms

Consent Form for Residents

This study focuses on the networked interactions of residents in a residency clinic. Ms. Busch will take notes during clinic visits with patients, and in administrative/staff and educational meetings. Ms. Busch will also interview you for approximately one half-hour. Further she will observe your daily work routine and will take notes on your suggestions/comments on the general results of this study. You have the right to ask her to stop taking notes or leave the room at any time.

Your name will not be revealed in any way. Pseudonyms will be used to describe the setting and the participants. Your privacy will be protected to the maximum extent allowable by law. You may ask questions regarding this study, and all of your questions regarding the collection and use of the study data will be adequately answered. You will not be paid for your participation in this study. Your participation in this study is voluntary.

☐ **I agree to voluntarily participate** in the research study to be carried out at the (name of clinic)

Name _____ Date _____
(please print)

Signature _____

Consent Form for Faculty/Staff member

This study focuses on the networked interactions of residents in a residency clinic. Ms. Busch will take notes during clinic visits with patients, and in administrative/staff and educational meetings. Ms. Busch may interview you for approximately 15-20 minutes. Further, she will observe your daily work routine and will take notes on your suggestions/comments on the general results of this study. You have the right to ask her to stop taking notes or leave the room at any time.

Your name will not be revealed in any way. Pseudonyms will be used to describe the setting and the participants. Your privacy will be protected to the maximum extent allowable by law. You may ask questions regarding this study, and all of your questions regarding the collection and use of the study data will be adequately answered. You will not be paid for your participation in this study. Your participation in this study is voluntary.

☐ **I agree to voluntarily participate** in the research study to be carried out at the (name of clinic).

Name _____ Date _____
(please print)

Signature _____

Consent Form for Patients

This study is about how the clinic is organized to provide, at the same time, both good health care for patients and a way for residents to learn to treat clinic patients. Ms. Busch will take notes during your visit. You have the right to ask her at any time to stop taking notes or leave the room. She will be deleting any notes that are medically sensitive. She will also ask you again at the end of the visit if she can keep the notes. She may also ask you a few questions at the end of your visit. You have the right to choose whether she can ask you any questions after your visit with the doctor.

Your name will not be used at all. Your privacy will be protected to the maximum extent allowable by law. Ms. Busch will ask you if you have any questions about this study. All of your questions about what she will do and how she will use her notes will be answered. You will not be paid for your participation in this study. Your participation in this study is voluntary.

☐ **I agree to voluntarily participate** in the study to be carried out at the (name of clinic).

Name _____ Date _____
(please print)

Signature _____

Appendix D Sample Interview Questions

Faculty/Staff Interview Guide For faculty/staff/administrators

(Semi-structured questions will permit follow-up on specific items raised by the interviewee.) All interviewees will have signed written consent forms (See Appendix C.)

My name is Karen Busch. I am a doctoral student who is also a visiting faculty member from Michigan State University. I am conducting a research study about medical education and patient care. I am not a doctor and will not be discussing any medical issues with you. The purpose of this study is to understand how medical education and patient care work together in residency clinics. I want to interview you to get your thoughts about how (name of Clinic) operates and how it might be improved. I would like to have your permission to tape this interview. After we finish, I will be taking notes from the tape, and locking up the original tape. Your name will not be used in anything that I write nor will I give your name to anyone else here in the clinic. Any other distinguishing characteristics about you will also be disguised. Would it be OK with you if I tape this interview? (Repeat last part on the tape)

1. What is your title?
2. How long have you been in this position?
3. What is your professional relationship to this clinic, i.e., full-time employee, contracted preceptor, etc.?
3.A. If other than full time employee, please explain.
4. Please tell me what you do (check—both medical education & patient care)
5. What are the biggest challenges you face in doing your job?
6. What resources do you need to do your job that are unavailable now?
7. How is medical education organized in this clinic?
8. If you could improve two things about medical education in this clinic, what would they be?
9. How is patient care organized in this clinic?
10. If you could improve two things about patient care in this clinic, what would they be?

11. If you could change two things about how this clinic is organized, what would they be?
12. Have you been in previous positions within this institution?
12A If yes, what did you do in those positions?
13. Are there any other things that we have not discussed that I ought to know about?
If so, what are they?
14. For administrators: Are there other administrators who are involved in medical education or patient care whom I should talk to?

Patient Interview Guide

(Semi-structured questions will permit follow-up on specific items raised by the interviewee. Written consent forms will have already been signed before starting interview.)

My name is Karen Busch. I am a doctoral student who is also a visiting faculty member from Michigan State University. I am conducting a research study about medical education and patient care. I am not a doctor and will not be discussing any of your medical concerns. The purpose of this study is to understand how medical education and patient care work together in residency clinics. I want to interview you to get your thoughts about how (name of Clinic) operates and how it might be improved. I would like to have your permission to take notes on this interview. Your name will not be used in anything that I write nor will I give your name to anyone else here in the clinic.

Is this your first visit to the clinic?

a. If YES, why did you choose this clinic?

FIRST VISIT QUESTIONS:

- (1) Do you know that this is a residency clinic? What does that mean to you?
(How was it explained to you?)
- (2). What do you think about how the clinic is organized (operated) (run)?
- (3). What went well?
- (4). If you could change any thing in this clinic to make your patient care better, what would it be? Why?
- (5). Do you plan to return?
- (6). Are there any other things that we have not discussed that I ought to know about? If so, what are they?

MULTIPLE VISIT QUESTIONS

b. If NO, how long have you been a patient here?

- (1). How many times have you come to the clinic?
- (2). Why do you come to this clinic?
- (3) Do you know that this is a residency clinic? What does that mean to you? (How was it explained to you?)
- (4). From your visits, what do you think about how the clinic is organized (operated) (run)?
- (5). What works well?
- (6). What could be improved?
- (7). If you could change any thing in this clinic to make your patient care better, what would it be? Why?
- (8). How could this clinic help the residents learn more about treating patients like yourself?
- (9). Are there any other things that we have not discussed that I ought to know about? If so, what are they?

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BIBLIOGRAPHY

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