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Broken Health Screening Appointments
Among Low Income Families

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Ph.D degree in Social Science

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BROKEN
HEALTH SCREENING APPOINTMENTS
AMONG LOW INCOME FAMILIES

by
Richard Currier

A DISSERTATION
Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of
DOCTOR OF PHILOSOPHY

Department of Social Science

1986

3921633

ABSTRACT

BROKEN HEALTH SCREENING APPOINTMENTS AMONG LOW INCOME FAMILIES

by

Richard Currier

Missed appointments for health care create costly inefficiencies for medical providers, threaten the validity of research efforts, and often subject the person involved to unnecessary morbidity. Many studies have been conducted on appointment keeping behavior of patients to ascertain predictors of persons who fail to appear and who, reportedly, average 15 percent to 33 percent of all scheduled appointments. Most studies focus on demographic factors. Few studies take into account variables related to patient beliefs, social behavioral and perceptual characteristics, aspects of the disease, its therapy, patient-provider interaction, and environment and organizational features of the providing facility. The present study attempts to examine the relationships of a large number of variables included in previous studies believed to be correlates of appointment keeping behavior. The data were collected in a comprehensive survey conducted on eligible Medicaid persons in Michigan who have been scheduled for a health screening appointment. The survey should identify correlatives of appointment keeping behavior. To accomplish this, a cluster analysis was used to form clusters of variables that

illuminate patient attributes relative to appointment keeping.

Few findings of other studies have been confirmed in this research. However, one result is clear, namely, the shorter the time between scheduling and appointment, the more likely it is that an appointment will be kept. For the most part, the 81 variables measured showed little correlation with scheduling outcomes. It seems reasonable to conclude that, for future research on appointment keeping, investigators should explore the contribution of specific factors to appointment keeping behavior.

DEDICATION

to

Fran Gram

who is the music to these words

ACKNOWLEDGEMENTS

The example and encouragement of George W. Fairweather will long be remembered. Six years ago, at Ocean's Edge, when fainter hearts asked, why? He said, "Why not?" For his direction in a course that was long and sometimes stormy, I owe much to Professor Fairweather.

A special thanks is due to Delrose Komosinski who provided timely and expert typing of this manuscript.

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I. INTRODUCTION

Background

Today emphasis in health care is shifting increasingly toward prevention. This is due largely to the growing awareness in the general public that the major sources of illness are damaging personal behavior, e.g., smoking or lack of exercise, and the environment in which we live. To a certain extent, we have control over, or at least power to modify, both sources of ill health in that we can change our behavior or improve our environment. Another important development fostering preventive orientation to health care delivery is advancement made in science whereby it is possible to detect defects and disease in early stages of development when remedial care is most likely to be effective.

Escalating costs in correcting health problems is, perhaps, the strongest force for raising the consciousness of people towards the need for prevention, early detection, and treatment. Government is faced with these costs in providing health care for low income families. The cost of providing comprehensive medical care to the medically indigent can be controlled and even reduced if there is effective cooperation between providers of services and recipients. The need for this cooperation is illustrated most strikingly in a national health screening program supported by federal and state funds for children of low income families. In this study, we will briefly look at the nature of screening, its history, its

current form in the Early and Periodic Screening Diagnosis and Treatment (EPDST) Program, and then focus, primarily, on a major stumbling block in achieving the goals of mass screening, namely, failure to keep scheduled appointments.

Assumptions

There is a vast sea of literature relevant to the problem of missed appointments for health care. This research will attempt to look at, comprehensively, the myriad of variables examined by other researchers in order to identify those variables associated with appointment keeping behavior. To achieve the goal of this study, certain assumptions are necessary.

It is assumed that the attitudes and behavior regarding one's own health care will be extended to one's attitudes and behavior toward health care for the children in one's care. Very little research has been done on this issue. Jayne Linley (1984) found that the mother's view of health and the health care system ultimately determines the kind of health care the child receives. Furthermore, the health behavior of a caregiver is defined by the culture. In most instances, poor health habits, undue risk taking in health matters, delay in seeking health care, and disregard to medical advice are direct reflections of social attitudes (Suchman 1970). Becker, et al, (1977) showed that the health beliefs of the mother are critical in utilization of preventive care for young children. These findings have important implications in the health treatment of children.

The health care provider must take time to include the caregiver in the planning process for health care of the child, promote caregiver interactions, elicit caregivers reviews about the child, provide to the caregiver an understanding of the health needs of the child and, in general, provide encouragement.

II. BACKGROUND OF THE PROBLEM

History of Health Screening

From ancient times, efforts were made to screen out members of a society as a method of prevention. Isolation, banishment, and even death were effective in achieving this purpose. Leprosy, for example, was effectively controlled in Europe, in part, by isolating lepers in leprosaries, which, by the 13th century, could be found everywhere throughout Europe (Winslow 1923).

Late 18th and early 19th century progress focused on environmental sanitation, as it was gradually realized that somehow poverty and filth were associated with disease. This development was stimulated, primarily, by writings of John Howard (1773) on British prisons, by Anthony Cooper's (1802) writings on child laborers in British factories, and by Edwin Chadwick's writing on the conditions of the laboring population of Britain in 1842. Britain's Sanitary Act of 1886 followed by similar legislation in America (Winslow 1923) was the result of this new awareness.

The modern age of preventive medicine must be credited to Louis Pasteur. His studies of fermentation ultimately led to an understanding of the relationship between micro-organism, environment, and host, thereby placing preventive medicine on a truly scientific basis. In the 1880's, vaccination was developed for cholera, anthrax, rabies, diphtheria, typhoid, and smallpox. Koch described the tubercle

bacillus and his theories became the cornerstone of microbiology (Winslow 1923).

With these historic developments, preventive medicine could expand from public health, with its emphasis on environmental efforts, to the early diagnosis and treatment of individual persons. The new understanding, also, provided a foundation for future possibilities of screening large numbers of people, based on the idea of early detection of clinical and laboratory signs before onset of clinical symptoms.

Public Health reached its Golden Age during 1890 - 1910 because of the application of scientific discoveries to the prevention of disease. Malaria, yellow fever, bubonic plague, typhoid, typhus, cholera, diphtheria, smallpox, pertussis, and tetanus were brought under control. More importantly, the success lead to the replacement of a feeling of helplessness to one of great optimism. Armed with new understanding, we were in a position to gain considerable control over our health and well-being.

In 1909, the National Committee for Mental Hygiene (MCMH) was founded by Clifford Beers. The remarkable achievements of preventive medicine and public health provided the philosophical and methodological foundation for this organization. MCMH predicted that mental disorders would be conquered, just like the infectious diseases, if only the American people could be trained to recognize early signs of mental disease (MCMH 1912). It was assumed that what worked for

the disease of the body would also work for those of the mind.

The introduction of science into the realm of preventive health led to pre-occupation with measuring things, charting progress, and generally moving beyond speculation into the realm of quantitative data. This new technology of measurement was soon applied to gauging intelligence and predicting behavior. Early diagnosis and treatment of the criminal and the juvenile delinquent became a priority item with the advent of large numbers of immigrants to urban ghettos (Russell 1912, p. 189). The First World War institutionalized the practice of measuring mind and behavior. Thousands of soldiers were tested for the purpose of military classification (Brigham 1923). The testing of intelligence became generally accepted so that IQ became a household word. About this time, also, the eugenics movement developed and adopted the practice of screening.

In the 1920's, there arose the child guidance movement. This movement served as the major vehicle by which juvenile delinquency was to be controlled. The child guidance movement saw the converging of the three new disciplines of psychoanalysis, juvenile court case work, and psychological assessment. The child psychiatrist, social worker, and psychologist formed an interdisciplinary team that became an arm of the juvenile court (Healy 1948). Freud's emphasis on early childhood was entirely consistent with the preventive goals of Adolph Meyer and other founders of the mental

hygiene movement who, themselves, were crucial figures in organizing the child guidance movement (Stevenson 1948). The American Foundations (especially the Commonwealth Fund and the Rockefeller Foundation) became the primary backers of the new delinquency prevention efforts (Karier 1972). The goal was a child guidance clinic in every community as the best weapon against juvenile delinquency. It was deemed vastly preferable to identify and treat a would-be delinquent rather than wait until the person became a hardened criminal.

In the 1930's and 1940's, the practice of measuring skulls or earlobes as well as the widespread belief in genetic factors in criminality and deviance prediction fell into disrepute. Despite this screening and other brave efforts, there was a gradual waning hope. The techniques of prediction never materialized; juvenile deviance seemed, if anything, to be growing despite the spread of child guidance clinics. It became apparent that, notwithstanding the hopes of the mental hygiene movement and the child guidance movement, nothing comparable to the glorious revolution in public health was on the horizon. Accordingly, sights were set more realistically and greater availability of services to children and families became the goal. Delinquency no longer dominated the concerns of mental health screening. It was believed that psychonalysis helped many, and attention was increasingly turned away from the large number of poor.

After World War II, with the influx of federal dollars, the National Institute of Mental Health (NIMH) was organized

in 1949 and, ultimately, the Community Mental Health Centers Act of 1963 formalized the relationship between federal dollars and psychiatric programs. This gave rise to new interest for a public health model for prevention of mental problems. If the 19th century attributed madness to the lack of discipline, hard work, and the other virtues of rural America, and the early 20th century looked for bad genes, bad hygiene, and lack of education, by the mid-20th century there was a concern, more and more, of early treatment of biochemically based mental disease.

In more recent years, schools of thought in public health made more precise a definition of health screening, health problems to be screened for, and criteria for health screening tests.

Definition of Health Screening

The United States Commission on Chronic Illness, in 1957, proposed a definition of health screening as follows:

"The presumptive identification of unrecognized disease or defects by the application of tests, examinations, or other procedures which can be applied rapidly. Screening tests sort out, apparently, well persons who probably do have the disease. A screening test is not intended to be diagnostic. Persons with positive or suspicious findings must be referred to their physicians for diagnosis and necessary treatment."

Health Problems to be Screened.

Since 1951, scientists have recommended screening for an increasing greater number of conditions. A few of the pediatric conditions suggested for screening (Camp 1957, p. 9), are listed in Table I.

TABLE I

Conditions Currently Recommended For Screening Programs

Hearing	Color Blindness
Vision	Phenylketonuria
Speech	Maple Syrup Urine Disease
Language	Hypercholesterolemia
Development	Hyperlipoproteinemia
School Readiness	Wilson's Disease
Lead Poisoning	Galactosemia
Anemia	Hereditary Angioneurotic
Sex Chromosome Abnormalities	Edema
Congenital Dislocation of Hip	Cretinism
Rheumatic Heart Disease	Mellituria
Inguinal Hernia	Succinylcholinesterase
Congenital Heart Disease	Deficiency
Dental Problems	Glucose-6-Phosphate Dehydrogenase Deficiency
Apgar	Gargoylism
Bacteriuria	Tay-Sachs Disease
Tuberculosis	Learning Disorders
Venereal Disease	

Criteria for Health Screening Tests

Screening seeks to identify a disease or developmental delay at an early state or prior to that point in time when treatment is less effective. The time should ideally be prior to signs and symptoms that would normally be noticed by the individual or guardian since, usually, diagnosis is sought after signs begin to appear.

A careful distinction should be made between health screening and health services. The former is an attempt to find health problems, while the latter is remedial in nature. To meet the objectives of screening, efforts must generally meet certain criteria such as those outlined by William Frankenburg (1978). The criteria are as follows:

1. The Condition Is Potentially Serious.

The seriousness takes into account such factors as remedial costs, if delayed; loss of earning power in the future; spread of disease, if not checked; permanency of the damage; human suffering involved; and the like.

There is a point when the cost of locating a malady outweighs the screening investments. A balance needs to be struck between screening and treatment.

The screening procedures used can effectively identify persons at risk. Most conditions related to health follow a continuum with many shades of gray. It is quite useless to screen for conditions that cannot be identified specifically enough to warrant remedial care.

2. Treatment Is More Effective With Early Intervention Than If Delivered When The Condition Becomes Obvious.

Treating a child for the muscle imbalance in the eye (amblyopia) after the age of five is ineffective. Intervention prior to that age can prevent blindness and may result in restoring normal sight to the eye. This is an example of where a screening test is critical for identifying the individuals needing early intervention.

3. The Condition Is Treatable Or At Least Controllable.

Since health screening is justified as a means of enhancing the health of the individual if a dangerous condition is uncovered, but no treatment is available, it is quite obvious that the very purpose of screening

is defeated. Some may question, as an example, the value of screening for sickle cell anemia since there is no known remedy for this condition. Since sickle cell is genetically based, the objective of screening in this case is not to treat but to control by providing counseling.

4. The Disease Should Be Relatively Prevalent.

The disease of smallpox is now so rare that time, expense, and effort to find cases of it are relatively fruitless. The rarer the disease, the greater are the resources needed to find it. Therefore, a balance needs to be established between the prevalence of a disease, and the amount of resources available to find it.

5. The Procedure Does Not Cause Undue Harm To The Individual Tested.

Invasion of privacy and stigmatization can easily occur on finding sickle cell anemia. Job opportunities may be limited or promotions denied as a result of the disease. Provision must be made to prevent harm to the individual in screening, especially since clients are aggressively sought after in the screening process rather than the reverse, that is, when a client seeks health care for a known and felt health problem.

6. Resources Are Available For Remedial Care When A Problem Is Found.

This requirement for justifying a health screening relates to the previous requirement regarding avoiding harm to the individual being screened. If resources

are not available to the individual being screened, the anxiety of the person is raised by uncovering the health problem.

7. Cost For Both Discovery And Remedy Should Take Into Account Both Monetary And Human Misery Dimensions.

Monetary costs include collecting specimens/information, testing, equipment, maintenance, supplies, administration, follow-up, record-keeping, diagnosis, and treatment to name some of the areas. The investment of human misery in the discovery and treatment process is to be weighed against fiscal considerations.

Screening tests are to be characterized by acceptability, reliability, and validity. The acceptability of a screening test refers to the consensus among health professionals, and the general public as well. Tests that are painful or embarrassing are less likely to be accepted by the public. Reliability refers to consistency of getting the same results from a test when performed by different people. Validity refers to the accuracy of the test in uncovering a specific health condition that needs care. It is not expected that a subsequent diagnosis will agree with findings from a screening process as testing involved in diagnosing a problem are much more elaborate and specific than would be used in a screening program. The problem is not with the false positives, but with the false negatives in which case a health problem goes undetected in the screening.

History of EPSDT in the United States

The Early and Periodic Screening, Diagnosis and Treatment (EPSDT) Program, with its roots in the screening efforts in the past as reviewed above, blossomed in the liberal atmosphere of the 1960's. The civil rights movement, and the ghetto uprisings left, in their wake, a vast array of anti-poverty programs designed to lead to the "Great Society". Unfortunately, there was often a tendency to "blame the victims" (Ryan 1972). Various forms of deviance (school failure or dropout, family breakdown, violence, drug abuse, and the like) were conceptualized as indications of some type of deficiency or deprivation syndrome of poor people. The remedy usually involved doing something to the needy, aimed at improving their lives in some way.

High among the objectives of the "Great Society" was good health to poor children. The Department of Health Education and Welfare (DHEW) formulated the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program, and submitted it to President Johnson who signed it into law in January, 1968. The program was designed as an amendment to Title XIX of the Social Security Act through which payments were made for medical services delivered to the poor. The EPSDT amendment went beyond a mere payment system for medical care requiring states to provide "such early and periodic screening and diagnosis of individuals who are eligible under the plan and are under the age of 21 to ascertain their physical or mental defects and such health

care, treatment, and other measures to correct or ameliorate defects and chronic conditions discovered thereby, as may be provided in regulations of the Secretary." (Public Law 90-248, Sec. 302a)

States are required to provide screening and certain other types of diagnosis and treatment for hearing, dental, and vision problems even if these are not already included in the Medicaid State Plan for Medicaid eligible individuals. Persons under the age of 21 also are to receive all mandated Title XIX services apart from EPSDT, including inpatient and outpatient hospitalization, physician services, laboratory and x-ray services; and family planning. They may also receive other optional services under the State Medicaid plan. The unique aspects of EPSDT include:

- Arrangements for screening when they are not otherwise available.
- Specific standards for screening.
- A systematic attempt to integrate children into health screening, diagnosis, and treatment through outreach, referral, and follow-up.
- Health education.
- Provision for diagnosis and treatment of hearing, dental, and vision problems if they are not otherwise included in the State plan.

The EPSDT program can be briefly conceptualized in the following manner:

Goal:	To improve the health status of Medicaid-eligible children under the age of 21.
Objective:	To prevent chronic disabling illness.
	To increase treatment where appropriate.

To change the attitudes of recipients in the area of health care.

Sub-objectives: To introduce recipients into the health care system as early as possible.

To establish continuity of health care.

To establish a comprehensive evaluative base for health care.

To increase the accessibility and availability of health care systems.

To increase recipient awareness of health measures and encourage their use as appropriate.

The principal assumptions on which the EPSDT program is based are that:

- Health can be improved through medical intervention.
- Medical intervention is best done through the early diagnosis of problems.
- Early diagnosis is best done through preventive screening.
- Preventive screening is best done through a government program.
- Appropriate government programs are not now available.
- If available, this program would be utilized by potential clients.
- Problems uncovered would be treated rapidly.
- Treated problems would be corrected successfully.
- Medicaid-eligible children are most in need of health improvement.
- Medicaid-eligible children are without alternative delivery systems.
- Medicaid-eligible children would use this special government program.

TABLE 2

Inventory of EPSDT Screening Procedures as Typically Used
in State Programs

<u>Screening For:</u>	<u>Purpose:</u>	<u>Age Levels Tested:</u>
Medical History	The medical history is the first step in assessing health status. It provides a profile of a child or youth's previous health care, describes any previous health problems, reviews nutritional habits, and other practices related to health.	Birth to twenty-one years of age.
Physical Examinations	The physical examination helps the screening staff discover those diseases and health problems for which no standard screening tests have been developed, including evidence of child abuse and/or neglect. The examination includes a complete head-to-toe inspection, blood pressure, and observation of movement and coordination.	Birth to twenty-one years of age.
Immunization Status including Diphtheria, Lockjaw (Tetanus), Polio, Measles (Rubeola), German Measles (Rubella), Mumps, Whooping Cough (Pertussis)	A check on immunization status is done to insure that every child is protected from preventable disease at the earliest possible age.	Birth to twenty-one years of age.
Dental Disease Treatment	Since it can be predicted that almost all children will need dental diagnostic and treatment procedures, a component of dental services is included in EPSDT to assure access to dental care	Birth to twenty-one years of age.

TABLE 2 (cont'd.)

<u>Screening For:</u>	<u>Purpose:</u>	<u>Age Levels Tested:</u>
	to establish a permanent dental record, and to refer the child back to the dentist for periodic evaluation and treatment.	
Eye Problems	Eyes are examined to detect visual impairments which could interfere with the development and education of the child.	Six to twenty-one years of age.
Hearing	Hearing is checked to identify children who have reduced hearing sufficient to interfere with their social life and educational achievement.	Birth to twenty-one years of age.
Growth Assessment	Children are measured and weighed to help identify disease or conditions which interfere with normal growth, for example, undernutrition or neglect.	Birth to twenty-one years of age.
Development	Developmental assessment (an appraisal of the child's progress in terms of defined milestone or organic and functional development) is used to identify children who significantly differ from the average in psychological, neurological, emotional, or physical development.	Birth to six years of age.
Tuberculin Sensitivity	In populations where tuberculosis is present, a test for tuberculin sensitivity is used to discover tuberculosis infection.	Birth to twenty-one years of age.
Bacteriuria	A urine specimen is examined to identify individuals who have urinary tract infections, but no symptoms as undetected urinary tract infections can lead to permanent kidney damage.	Birth to twenty-one years of age.

TABLE 2 (cont'd.)

<u>Screening For:</u>	<u>Purpose:</u>	<u>Age Levels Tested:</u>
Anemia	A blood sample is drawn and analyzed to identify iron-deficiency anemia which may result from poor nutritional practices.	Birth to twenty-one years of age.
Lead Absorption	Blood lead level is assessed to prevent disability and death from lead poisoning and to alert public health officials so that they can find the source of the lead poisoning.	One to five years of age.
Sickle Cell	Sickle cell is a genetic condition of the red blood cells found among Black and Mediterranean people. A mild form is called sickle cell trait, and a severe form is called sickle cell anemia. People with sickle cell anemia are referred for the relief of symptoms. People with sickle cell are given information and counseling to help them make informed decisions about reproduction.	Birth to twenty-one years of age.

The testing procedure, purpose, and age levels tested as commonly used in the EPSDT program are indicated in Table 2 (above).

As previously mentioned, the EPSDT program was not a sudden development but had roots in the mass screening developments in the past. From the standpoint of government involvement with its vast resources of billions of dollars, more specific steps of development can be identified. EPSDT reaches back through maternal and child health activities to 1935. In that year, the Social Security Act provided for cash payments to families with dependent children. This action of the federal government forms the corner stone of government involvement in future social programs. Families were paid cash directly to allow them to seek medical care. Many used the money for other needs and health care was sought only at a time of crisis. This act also provided for the Crippled Childrens Program through which states received money to locate children with a variety of disabilities and provide medical, surgical, and corrective services.

During the Second World War, the Emergency Maternity and Infant Care program was enacted to provide for maternal and infant care of servicemen's dependents. Families of servicemen moved to small towns near military bases. This put a heavy strain on local health care systems. In what was the largest public health undertaking at the time, the federal government set up a system of preventive and treatment programs to care for the health of wives and children of

servicemen. Following the war in 1950, the Social Security Act was amended to provide federal funds to states to help meet the cost of medical care for the low income families. Ten years later, the Kerr-Mills Act provided the first program of comprehensive health care for older people. During the years around 1960, a great deal of attention was focused on the difficulties encountered by older people. The Kerr-Mills Act attempted to provide health care for older Americans whose income was too high for public assistance but too low to afford health care. While many states did not implement this program, a model of comprehensive health care to a population in need was created that became the blueprint for Medicaid and its EPSDT component. In 1965, Medicare and Medicaid (Titles XVIII and XIX of the Social Security Act) financed health care for the aged and eligible poor. Medicaid is the parent program for EPSDT.

In the context of this increasing social welfare involvement of the federal government in the lives of the elderly, mothers, and children, the amendment to Title XIX of the Social Security Act (EPSDT) came about in 1967 to provide comprehensive health services for all Medicaid eligibles under the age of 21 years. Because states did not heed the new law, five years later states were required to implement EPSDT or face a penalty of one percent cut of the federal share of their Aid to Families with Dependent Children (AFDC) budgets for every quarter in which they failed to comply with the EPSDT regulations.

Anne-Marie Foltz, who has probably earned the title of historian for EPSDT, notes that the EPSDT amendment slipped through Congress late in 1967 with very little comment. DHEW did not formulate regulations until late in 1971 with a stipulation that full implementation was not required until mid-1973 (Foltz 1982, p. 1).

States responded to the federal law almost as slowly as DHEW. Foltz notes that, five years after the regulations were issued, only two million children out of an eligible population of twelve million were screened. The cost of EPSDT was minimal as federal social programs generally go. As late as 1976, health screening costs were only \$47 million or less than 0.3 percent of Medicaid expenditures (DHEW 1979). The states were slow to respond because of the unknown costs that would result from treating health problems of millions of children found during the mass screening program. Although the federal government paid half of the cost of treatment, a sizeable amount would be left to the state. Perhaps another partial explanation for the slow implementation of EPSDT is the traditional attitude of the American people to resist government involvement in their lives. It is not our purpose to address the issue of why the United States Government has become so involved. For a discussion of this, see the writings of Peter Morris (1969), Daniel Moynihan (1969), and Frances Piven (1971). Due to slow implementation, Congress, in 1973, roundly scolded DHEW and the states (U. S. Comptroller General 1975).

DHEW was accused of "mismanagement" by a House Subcommittee (U. S. Congress 1976).

EPSDT blossomed with a number of other social welfare programs in the 1960's known as the era of the Great Society. A host of scientists, sociologists, economists, and lawyers have written about the shortcomings of the Great Society (e.g. Karen Davis (1972), Charles Haar (1975), Jeffrey Pressman (1973), Gilbert Steinen (1971), and Eli Ginzberg (1972). EPSDT, however, should not be thought of as simply one of the social programs initiated by the Great Society because, as outlined above, the EPSDT program has roots reaching back many years.

Need for Health Screening Among the Poor

Insight into the problems of not showing up is of special urgency in combating the health problems of the poor through comprehensive screening, since the poor need special attention because of the higher incidences of health problems. International statistics on infant deaths show that infant mortality rate in the United States is worse than in 14 other countries (Demographic Yearbook of the United Nations 1973). After infancy, contrast in mortality figures remain. Among children aged 1 to 4 years, minority children die at a rate of 70 percent higher than whites. And, in the 5 to 9 age group, minority children die at a rate of 40 percent higher than white children (National Center for Health Statistics 1975). Special health services help to reverse racial discrimination of

the past 35 percent of the nation's non-white families fall below the poverty line, and almost another 35 percent exist at a near poverty level. For the white population, only 10 percent are below the poverty level and 10 percent are near the poverty level (HEW Report 1967). Figures on how many American mothers die in childbirth show that three times as many non-white as white mothers die (National Center for Health Statistics 1974). Deschin (1967) demonstrated a positive correlation between indigent maternity and high ratio of prematurity, perinatal mortality, drug addiction, and serious housing violations. Many low income mothers appear to be locked into a low health status as they fail to respond to health care when it is made available. In a study of pregnant women from five socio-economic classes, Gallagher (1961) discovered that the mothers in the lowest economic class are the least likely to receive prenatal care, are more likely to have their babies at home, and are less likely to seek immunization shots and check-ups for their infants. Gallagher explains this situation is due to inconvenient health care facilities, lack of motivation, and stringent regulations.

Statistics cited provide an inferential argument linking poverty and health status. There is debate in the literature regarding the precise relationship between poverty and health. It may be useful to focus on how low socio-economic status affects health.

Epidemiological studies point out that the entire range

of medical pathology seems to be affected adversely by low socio-economic status (Morris 1969). In answer to the question, why this is so, Pratt (1977) explains that, "...one of the mechanisms through which poverty adversely affects health is a deficient pattern of personal health care which includes deficiencies in personal health maintenance practices, use of medical services, health knowledge, and health supportive equipment in the home". Poor nutrition affects health status, especially in regard to pregnancy outcome and the incidence of pregnancy complications, according to a study conducted by Singer (1968). Earlier pregnancy and a greater frequency of pregnancy are found among low income women and are found also to mean greater risk for mother and infant (Birch 1970). Physical crowding occurs more frequently among low income groups. This may have significant effect on health status of the people so affected in that it promotes infectious disease and poorer environments conducive to lead poisoning, poor quality/unsanitary food, unsafe water, accidents, and injuries. Damage caused by these factors may result in a lifetime of neurological and neuropsychiatric damage (North, 1973). Every year, thousands of children suffer from lead paint poisoning. In the course of a year, 300 to 400 children die from it, and 6,000 more suffer irreversible brain damage (Green 1976).

Perhaps the Watts area of Los Angeles exemplifies what is meant by a poor environment. This area contains only 17 percent of the city's population but, in category after

category, it harbors nearly 50 percent of the city's ills. It had 48.5 percent of amoebic infections, 42 percent of food poisoning, 44.8 percent of whooping cough, 39 percent of epilepsy, 42.8 percent of rheumatic fever, 44.6 percent of dysentary, 47 percent of venereal disease, 36 percent of meningitis, and 65 percent of reported tuberculin reactors. The death rate in Watts was 22.3 percent higher than the remainder of the city (Hurley 1969). The incident of tuberculosis is four times higher in Watts than in the rest of Los Angeles County (Birch 1970). Watts is not an isolated example. In a Chicano community in California, children display a whole range of vivid contrasts with national averages: four times as much amoebic dysentary, twice as much measles, mumps, and tuberculosis, and 1.4 times as much hepatitis (Urban Health Study 1973). Children reared in such environments are likely to have ill health that will become cyclical.

Major Stumbling Block for Success of EPSDT

This researcher, with many years of experience with the EPSDT program, finds that, when the screening tests and purpose for each are explained clearly (as indicated in Table 2) to a prospective child caregiver, ninety percent respond affirmatively to scheduling a screening appointment. Keeping the appointment, however, is a different issue. Not showing up for appointments averages around 35 percent. The problem of missed appointments is a major stumbling block to the health status of millions of eligible children.

The individual involved suffers damage by way of unchecked health problems that may be difficult or impossible to solve with long delay. The provider of care also is hurt because the time set aside for an appointment often is not effectively utilized. Finally, the community itself suffers because a resource available for the betterment of its members is not adequately used.

Where studied, the missed appointment problem has usually been in the context of treating chronic conditions that require prolonged treatment. The extent of missing appointments can be inferred from the fact that, in general psychiatric clinics, 20 percent to 57 percent of the patients fail to keep appointments after the initial visit (Blenkner 1954, Dodd 1971, Overall and Aronson 1963). Similarly, in group psychotherapy from 35 percent to 50 percent of the patients fail to attend meetings (Berne 1955, Sethne and Harrington 1971). The picture is even less encouraging in the outpatient treatment of alcoholism, in which from 52 percent to 75 percent of the patients fail to show for continued treatment (Baekeland, Lundwell and Shanahan 1975, Blane and Meyers 1964). Similarly, 37 percent to 60.2 percent of tuberculosis patients fail to follow through on treatment (J. Newman and Spares 1956, Wilmer 1956). In the equally life-threatening condition of hypertension, from 20 percent to 50 percent of the patients do not show for treatment recommended (Armstrong, et. al. 1962).

Thus, it is clear that failure to keep appointments

to follow through even on known and, at times, life-threatening situations is a major problem throughout the health care industry. Such a state of affairs is of particular concern at the present time, which is marked by a simultaneous repeat increase in curative and preventive know-how and costs. It seems important for the effective and efficient use of these resources to be able to distinguish the person likely to keep appointment for health services from those who will not. It is equally important to identify the clinic and treatment features that promote the not showing up behavior on the part of the client so that they can be changed.

It appears sufficient evidence exists to justify a special national effort to provide health services to low income families. For the past 10 years, Congress has, in fact, authorized such an endeavor through the EPSDT program. The objectives of this program are to prevent chronic and disabling illness; to change the attitudes of recipients in the area of healthcare; to introduce recipients into the health care system as early as possible; to establish continuity of health care; and to increase recipient awareness of health measures and encourage their use as appropriate (Michigan EPSDT Annual Report 1980). These goals are unattainable for millions if appointments are not kept.

A Review of Previous Studies on Failure to Keep Appointments

The purpose of this present study is to provide a road map through the mountains of studies conducted on the issue of keeping medical appointments. Previously, studies have

used a fragmented approach in that a limited number of variables were considered in an effort to assess their impact on appointment keeping behavior. This present study will look, comprehensively, at all the factors included in other studies to assess the association of these variables with failure to keep appointments.

For the sake of clarity and ease of management in conducting a literature review of previous studies, variables examined by researchers will be broken down into eight general categories suggested by Haynes (1976). These include features of the patient (demographic and social behavior); features of the medical provider; features of the disease or reason for appointment; features of the patient/provider interaction; features of the therapeutic regimen; features of the medical facility and administrative process; features of access to the facility; and environmental features.

Features of the Patient

Demographic data on patient dropouts are available in a large number of studies but are often inconsistent and unenlightening. It appears on the whole, however, that younger age correlates with higher rates of broken appointments in a variety of settings (Jonas 1971, Shronick 1977, Hertz 1977, Hurtado 1973). Delk (1975) found that the mean age of those who kept appointments was six years greater than that of patients who dropped out of treatments with over 61 percent of discontinuers being 25 years of age or

younger. Studies have found that patients 45 years of age or older generally have lower rates of missed appointments (Gates 1976). Age is not a good predictor in the pediatric population, although some studies show a higher failure rate when the patient is less than one year old. Low socioeconomic status correlates with broken appointments in studies conducted by Alpert (1964), Badgley (1961), Hoenig (1966), and Fiester (1975) as does educational level. Level of education is shown to influence appointment keeping behavior. Stine, et al (1968) showed a significantly increased incidence of failed appointments in patients who did not complete high school compared to a group of high school graduates. When age, education, and socio-economic status are accounted for, race is probably unimportant (Delk 1975, Adler 1962). However, widely desperate conclusions have been reached on the issue of race as it relates to missed appointments. Three studies suggest that non-white populations have a significantly increased rate of missed appointments (Alpert 1964, Badgley 1961, Jonas 1971). In a more recent analysis of this issue, Hertz and Stamps (1977) found that low income patients and patients from ethnic minorities are more likely to break appointments. They reviewed over 3,000 patient visits to a Model City's Health Center which serves, primarily, low income groups and welfare recipients. Hertz and Stamps found that difference in the kept appointment rates of different ethnic groups does not reflect a true ethnic

difference in health behavior. Craig (1976) notes that low income, inner city black patients are, at least, as capable as other patient groups of sustained therapeutic contact. In view of this, clinics that serve such patients and set, as their goals, episodic, crisis-oriented services may be underscoring people who could benefit from a more long-term therapeutic experience.

Patient demographic variables of gender, occupational status, marital status, and religion appear to have little correlation with attendance behavior (Baekeland 1975, Gates 1976, Dervin 1978). In sum, age, education, and socio-economic status are probably the only consistently important demographic influences on appointment keeping behavior.

Fewer studies are available that examine the social behavior characteristics of the patient, but trends can be identified. Patients perceptions of the seriousness and susceptibility of a disease and belief in the efficiency of therapy appear to be an important correlate of compliance with medical recommendations in general, including appointment keeping behavior (Tash 1960, Kegeles 1973, Haefner 1970). Furthermore, the correlations found, and some experimental results, suggest that effective interventions can be based on altering these beliefs. For example, efforts to increase the patient's perception of the threat posed by his/her illness have been helpful in childhood obesity (Becker 1977). Controversy exists, however, regarding the chronology of these beliefs and whether they precede health behavior or

develop simultaneously (Taylor 1979). The patient's knowledge of his/her disease and therapy appear to correlate with appointment keeping (Tagliacozzo 1978, Caldwell 1970), and educational efforts can improve broken appointment rates (Glowgow 1970, Shmarak 1971). Such efforts might focus especially on patients who have dropped out in the past, as these are likely to repeat the behavior (Baekeland 1975). While education helps to modify a person's behavior in regard to appointment keeping, it does not suggest that action will follow on other health related behavior. Personal practices, such as dietary patterns and other long-established habits, were not markedly influenced by changes in belief induced by education (Haefner 1970). Probably habits and long-established behavioral patterns engage many motives that include, but go beyond, health care. Altering a person's beliefs about health may be sufficient to change actions that are largely motivated by health matters but will, usually, be insufficient to alter behaviors that simultaneously satisfy a variety of motives (Haefner 1970).

Features of the Provider

Most studies focus on the characteristics of the patient in predicting appointment keeping behavior, however, characteristics of the provider are also important predictors. Hoenig (1966) found that female therapists treating female patients experienced higher appointment keeping rates than other sex pairings. In general, male therapists, in the psychiatric literature, are more likely to lose their

patient (Baekeland 1975). Age of the clinician is only weakly correlated with appointment keeping with kept appointments favoring the older health care practitioner (Hurtado 1973). Data comparing physicians assistants or nurse practitioners with physicians are few. However, in studies where practitioners or physicians assistants were allocated randomly to providers, rates of missed appointments and dropouts were as good or better for the mid-level practitioner as for physicians (Spitzer 1974, Bessman 1974, Burnip 1976).

Attitude and behavior of the provider of care is an even higher predictor of appointment keeping behavior than the socio-economic status of the patient. Although looked at principally, but not exclusively, in the context of out-patient psychotherapy, important findings have been reported by Baum 1966, Sethna 1971, Dinnen 1971, and Howard 1970. According to their findings, some of the characteristics of the therapist who is apt to drive his/her patient out of treatment include the following: ethnocentrism; unconcern for, or dislike of, or boredom with the patient; and negative feelings about the use of medication and/or reluctance to give it. The therapist is also apt to be made moody, to instruct his charge inadequately (especially with regard to the use of medication), to cancel appointments, to be permissive, introverted, and detached. The kind of person to whom this therapist is most likely to give less attention to is the lower socio-economic status patient.

It is, of course, difficult to know how much a patient's propensity to miss an appointment is simply the result of attitudes he/she brings, or how much it is a reaction to boredom, incomprehension, and dislike on the part of the practitioner.

Of the variables which have been found to be significantly related to a patient's decision to keep appointments, change of provider of care appears to be of paramount importance (Delk 1975). This holds true for patients involved with psychiatric treatment in which good interpersonal relationships with the patient must be developed and maintained to be effective. Findings such as this in the psychiatric literature may not hold for patients seeking care from other medical specialties. In cases where provider replacement is unavoidable, the impact on the patient can be softened somewhat by strengthening those elements in the treatment program that enhance the perception of continuity in the eyes of the patient. The provider also can ease the situation by taking time to study the patient's case history and consult with his/her perceptor before initial contact with a patient.

Features of the Disease

Some features of the patient's malady may have a bearing on clinic attendance. Patients with a psychiatric diagnosis appear to have higher rates of failed appointments than those without a psychiatric diagnosis (Alpert 1964, Delk 1975). Rubenstein (1976) found adult asthmatics to have a higher rate of failed appointments and late arrivals than patients

with other allergic diseases. The numbers, however, were very small, and the series was uncontrolled for many important factors. John Walsh, et. al. (1967) studied 12,364 visits to outpatient clinics. His study tracked appointment keeping behavior for a variety of specific health services. These include health care related to general services: medicine, dental, pediatrics, perinatal, ophthalmology, orthopedic, general surgery, otolaryngology, urology, dermatology, tuberculosis, and Hansen's disease. He found that the more specialized a service was, the more likely the patient would keep an appointment. Thus, the highest rate of missed appointments was for general medical services (25 percent), pediatrics (10 percent), general surgery (9 percent), and dispensation of medication (15 percent). In contrast, the highest kept appointments were for such specific services as Hansen's disease, tuberculosis, urology, and dermatology for which the missed appointments were, overall, 1 percent, 2 percent, and 3 percent, respectively.

Walsh found that nearly one in every ten patients cancels or fails to keep his/her appointment for one reason or another. For every patient who cancels an appointment, three fail to cancel and fail to keep their appointments.

Duration of illness was found to be unimportant (Badgley 1961, Glick 1965), but patients with chronic disease have been found to have fewer broken appointments than patients

with acute illness (Hurtado 1973, Shah 1977). Also of importance is the presence of symptoms or a specific concern. Sackett (1976) reports that patients with a specific complaint have a compliance with appointments between 70 to 87 percent, compared with studies of patients without a specific complaint with an appointment compliance of 47 percent. Related to this finding, appointments for screening or diagnosis are broken more often than those for physical examination as follow-up of illness (Gottlieb 1962); patients with severe functional impairments do not keep their appointments as faithfully as patients with intermediate degrees of impairment (Glowgow 1973); and patients capable of full time work do not keep their appointments as well as those with intermediate degrees of impairment (Glowgow 1973).

Features of the Therapeutic Regimen

Features of the therapeutic regimen may also have an influence on missing appointments. When medication is prescribed, patients sustain higher rates of appointment keeping (Dodd, J. 1971). Craig (1976), on the other hand, found a more complex effect. Although a significantly large proportion of non-psychotic patients receiving no medication dropped out before the fourth session, one-half of the fifty patients who remained in treatment also received no medication. The interpretation, according to Craig, might be that, although the prescription of medication exerts an important influence on the non-psychotic patient's early contacts with a clinic, this influence diminishes in importance as a

relationship develops between patient and therapist. Such an interpretation is congruent with observations of placebo effect and is consistent with Frank's (1968) observation that, in brief, psychotherapy, symptomatic improvement in the first four visits tends to be nonspecific, but that improvement beyond the fourth week seems to depend on the emergence of a therapeutic system embracing identifiable characteristics of the patient, his/her therapist, and, perhaps, other participants in his/her life. In view of findings such as these, the appropriateness of the use of medication or placebo as part of the initial therapeutic contract with medically oriented patients may need to be reconsidered. This is especially true since evidence suggests that overt use of a placebo (i.e. with the patient's full knowledge and consent) seems to have a powerful therapeutic effect when patient expectations are congruent with its use (Park 1968).

Cost, duration, and side effects of therapy correlate negatively with appointment keeping behavior (Rickels 1968), Winkelman 1964). Compliance with medication regimen, however, does not necessarily correlate with clinic attendance. More study is needed on this issue, because researchers focus on clinic attenders rather than both attenders and non-attenders (Hayes 1976).

Features of the Patient-Therapist Interaction

Very little data are available on the question of patient-therapist interaction as predictor of appointment

keeping behavior. Psychiatric literature has dealt with this issue to some extent. Patient satisfaction with the visit, therapist or clinic, not surprisingly, does correlate with lower appointment failure rates (Alpert 1964, Haynes 1976), and specific attempts at patient education can improve failure rates (Glogow 1970). The latter finding, however, has not been consistent, and it may be that subgroups of patients respond differently to educational efforts (Tagliacozzo 1974).

Feister (1975) investigated the joint interaction of patient input (demographic and pre-therapy expectations), therapist input (demographic), and therapy process (patient perspective) as related to the outcome of early psychotherapy termination. He found evidence that the process of dropping out operates differently at separate community mental health centers. Even though no overall differences in dropout rates were observed at the two centers, the existence of different therapist input, patient input, and therapy process variables indicates the significance of the setting in explaining the dropout phenomenon. The two settings examined were a hospital-based center, and a community mental health center. Feister (1975) suggests the difference in therapist input and therapy process found at these two settings are much more important than patient input in understanding patient dropout behavior. He found, for example, that the community mental health center consisted of state workers who were older, more experienced, upper-class background

and with traditional training.

In regard to satisfaction, older adolescents and females were found to express the greatest satisfaction (Litt 1984). This may reflect the fact that contraceptive patients fall into this category. Patients who make their own appointments are more likely to both keep their appointment and be satisfied with the services received (Litt 1984). Irwin, et. al (1981) found, however, that adolescents whose parents made the appointment are exceptions to Litt's finding, as in this case, the adolescent is more likely to keep the appointment. Furthermore, adolescents who had a good self-image, and those scoring high on the test of personal freedom, were more satisfied with their care than those lacking these characteristics. Young males showed the lowest satisfaction in health services received. Satisfaction is associated with length of time for waiting, thoroughness of treatment and explanation of medical problems (Litt 1984).

The types of services to be offered at a visit, and the patient's expectations of a visit may both be significant factors (Baekeland 1975). A successful method to reduce broken appointments in psychiatry clinic utilized a patient interview before the onset of actual therapy to communicate to the patient realistic expectations of the process and outcome of his/her therapy (Hoehn-Saric 1964). Barry (1984) made use of this find by designing a study in which, prior to induction into the health care system, a patient is exposed to an educational process. The

purpose of the education session was to prepare the patient, by way of altering erroneous and unrealistic expectations which, if left unaddressed, can lead to patient frustration and subsequent noncompliance. Four hundred sixty patients were each randomly assigned to one of three groups. One group viewed a 20 minute videotape introducing the clinic, its staff, and services, and how to utilize the staff during and outside office hours. A second experimental group received the same information in pamphlet form. The control group received no information about clinic functions, except that which was requested by the patient. Eleven months after onset of the study, all patient charts were reviewed. Compared with both the no-treatment control group, and the pamphlet experimental group significantly fewer new patients viewing the induction videotape missed subsequent scheduled appointments ($P .025$). This same group had a significantly lower number of missed appointments during the study period ($P .05$).

Access to the Facility Features

To some extent, factors related to access have been studied. Distance from the clinic has not, contrary to expectations, been found to affect appointment keeping (Feister 1974, Bigger 1976). In 1962, Hoenig, et al, found almost one-fifth of new outpatient appointments in the psychiatric department of a Manchester hospital were not attended. Hoenig looked at the distance from the clinic as a possible influencing variable. His findings

are as follows in Table 3.

TABLE 3

Distance of Patient From Clinic

Distance in Miles	Psychiatric Patients				Neurological	
	<u>Attenders</u>		<u>Non-Attenders</u>		<u>Non-Attenders</u>	
Less than 1	16	11%	17	11%		
1-3	51	34%	61	41%		
4-5	29	19%	31	21%	43	45%
6-8	17	11%	12	8%		
8-9	10	7%	9	6%		
9+	27	18%	20	13%	52	55%

This table shows there is remarkably little difference between two psychiatric groups in the distance of the patient's home from the clinic. However, when the neurological non-attenders were compared with the psychiatric non-attenders, it was found that, in the psychiatric group, only 13 percent lived more than 9 miles away, while among the neurological group, 55 percent did so. Availability of transportation has not been carefully studied, but is occasionally cited by patients in surveys of failed appointments (Alpert 1964). The presence of a telephone in the home, through which a patient has easier access to the providers, has shown some predictive value for clinic attendance even without telephoned reminder systems (Hansen 1953, Shepard 1976, White 1967). Lack of a telephone can also be a factor in a patient's

failure to cancel appointments he/she cannot keep (Walsh 1967).

Features of Facility and Administrative Process

Most of the traditional approaches to the problem of appointment keeping behavior have ignored organizational factors that may be implicated in differentially high broken appointment rates. Rather, the conclusion that low-income patients break appointments more frequently than others has become accepted in such a way that, in many articles dealing with care delivery to lower income patients, an implicit assumption is made that the broken appointment rate will be high. This alleged tendency of low-income patients to break appointments is explained in a variety of ways including ethnic background, low education levels, cultural barriers, low harmony in family relationship, social disorganization, and other factors related to urban living. Too few researchers have carefully analyzed the relationship between the type of health care most often delivered to these low-income population groups, and the facility's impact upon broken appointments. The most traditional appointment mechanism for the large hospital-based outpatient clinic that serves a low-income population is the block method, which acts as a further confounding variable of higher broken appointment rates, and which only serves to further support the belief related to the appointment keeping behavior of low-income patients.

Features of the facility and its administrative and

scheduling procedures have an enormous impact on attendance rates and are important because they can be manipulated by providers to improve attendance. Studies often omit facility and administrative process features when reporting an appointment failure, but facility related features may be, at least, if not more, important than patient factors. Clinic waiting time, for example, is important in studies where it was examined (Badgley 1961, Finnerty 1973). Waiting time is a function of the scheduling system, of patient lateness for appointments and physician lateness. Wolkon (1972) suggests that longer waiting times frustrated a client's dependency and affiliation needs. On the other hand, it may be that clients with longer waiting times before their first clinic appointments resolved their crisis on their own. More research is needed to clarify what happens during waiting time.

The issue of appointment scheduling to minimize the occurrence of missed appointments is almost entirely neglected in the health care delivery and management literature. The status quo is one of individualization based on local patient habits and physician or business management personnel preference. More research is needed to devise some broad guidelines that can be effectively incorporated into a wide variety of practice types.

One of the few research efforts in this area was undertaken by Shonick and Klein (1977). They proposed appointing an expected number of patients for a given clinic

session. The expected number is calculated from the sum of probability of 0.80 for keeping the appointment; then these five would total four patients expected to show (5×0.80). For an additional group of patients each with a probability of showing of 0.90, seven additional appointments could be made to yield an additional 6.3 expected patients (7×0.90) resulting in a total of 10.3 expected kept appointments out of a total twelve actually scheduled. The key to this system is the capability to establish, with some accuracy, a probability that any given patient will fail to keep an appointment. Whether or not this can be done in a rapid, cost effective manner remains to be additionally established.

The above method essentially overbooks appointments to compensate for the probable number of missed appointments at a time when other patients are predicted to fail to show. Simply overappointing by the same gross percentage as that of expected missed appointments results in patient visits at a time when there is no appointment vacated by a failure, thus considerably lengthening patient waiting time. For overappointing to be most effective, it must be scheduled at those times during which the highest probability of a missed appointment occurs.

Similarly, the practice of allowing for walk-in patients or patients without appointments at the same rate as missed appointments is inefficient. Walk-in appointments and missed appointments cannot and, generally, do not occur at

the same time. Thus, this practice leads to excess patient waiting times on some days and idle physician time on others.

Another scheduling variation, used in recent years, is the "modified wave system". This system schedules several patients at the beginning of each hour and half-hour, then leaves frequent gaps during the ensuing 30 to 60 minutes for walk-in patients, or for patient visits that are longer than expected. In addition, if any given patient fails to keep an appointment, there is always another patient present to reduce idle time. For example, if one is seeing patients every 10 minutes, then two patients could be scheduled at 9:00, none at 9:10, and one patient at 9:20. Some have criticized this system because of the built-in waiting time for patients scheduled at the beginning of the hour. However, if excessive initial overbooking is avoided, waiting time should not be inordinate and considerable operating flexibility is achieved.

A last suggestion is the elimination of automatic reappointing of patients who have failed to keep an appointment. This practice is common in university ambulatory care clinics and, as shown by Hofmann and Rockart (1969), leads to inordinately high rates of broken appointments. If a patient misses an appointment, notification of the failure and a request to reschedule a visit, if desired, should be sent. The responsibility for rescheduling is then placed upon the patient with the hope that the patient-initiated appointment is more likely to be kept.

Practical and theoretical considerations in scheduling were reviewed also by Rockart and Hofmann (1961) who demonstrated the effectiveness of individual vs. "block" scheduling in reducing broken appointment rates. Both physician and patient were found to be more punctual under the individual appointment system. Reduction of waiting time by this method has been demonstrated by a number of researchers (Johnson 1968, Rosenblut 1972). Where this system is used in clinics serving low-income families, broken appointment rates compare favorably with rates reported from other settings, and the researchers suggest that, in many cases, the style of medical care delivery may prove to be more important than demographic variables in influencing appointment failure rates (Finnirty 1973, Hertz 1977). Referral source has some effect on attendance with referrals from emergency rooms showing lower appointment keeping rates, and those from a specific referring provider showing higher rates (Hofmann 1969, Shah 1977). Time between scheduling and the appointment has an influence. In general, the longer the interval, the greater the number of broken appointments (Hagerman 1978, Nazarian 1974). This appears to be especially true with regard to follow-up appointments after mass health screening (Glogow 1973). On the other hand, patients with very frequent appointments are more likely to miss at least some of them (Delk 1975). The use of home visits or personal contact has been successfully used to minimize broken appointments (Curry 1968, Hildebrandt 1975). In

at least some settings, the provision of neighborhood clinics in familiar surroundings with a highly involved staff has resulted in dramatic reduction of broken appointments in comparison with previously used central facility (Curry 1968).

One of the most studied administrative procedures is that of reminding the patient, either by mail or phone, as a method of reducing broken appointments. Reminding clients has been most successful in reducing no shows. Reductions in broken appointment rates on the order of 20 percent have been reported (Schroeder 1973, Nazarian 1974, Levy 1977). Mailed reminders appear to be generally effective as telephone reminders. Shepard and Mosely (1976) provided cost estimates in their evaluation which showed the mailed notice to be less expensive than telephone reminders. Levy and Claravall (1977) found telephone reminders to be effective when the interval between appointments was greater than two weeks, but not if the interval was less than two weeks. In contrast, the use of retrospective reminders, i.e., notification of patients after missed appointments to ascertain their reasons for absence and to offer a new appointment, has been ineffective (Hurtado 1973).

Features of the Environment

Weather (excluding extremely severe conditions such as heavy snowfall) probably has very little influence on appointment keeping (Badgley 1961), Hurtado 1973). Family

size shows a fairly consistent relationship with appointments with large families having more broken appointments (Alpert 1964), Badgley 1961). The presence of small children may be especially relevant in explaining broken appointments (Alpert 1964). The time of day and day of the week have a minor, if any, role in appointment failure rates (Gates 1976, Oppenheim 1979). The expectation of friends may exert an influence (Gray 1966), however, family stability as recorded by a variety of measures appears much more to influence appointment keeping rates (Alpert 1964, Stine 1968). Stability measures used included such variables as marital status, length of time on a job, frequency of moving, and the like. The less socially stable a patient was, the more likely he/she was to miss an appointment. Occupational stability appeared to be a more consistent predictor of missing appointments for treatment of alcohol and drug addiction than in other kinds of patients. Occupational and residential stability appear to carry more weight than does marital stability. The poor ability of the unstable person or patient to form ties with others (he/she tends to be single, separated, or divorced) is reflected in the weakness of his/her attachment to his/her therapist, and, thus, such a person is more inclined to miss appointments (Quatrone 1973). Further investigation is needed to identify cause of the instability or isolation. Is it the result of personality characteristics (e.g., those associated often with marital disruption), or is it because of lower socio-economic

status. It may, in fact, be a combination of these variables.

While we direct our attention to the issue of accounting for features that are related to appointment failures for a balanced view of the problem, we should be aware that it cannot be assumed that the dropout gets no benefit from treatment. Similarly, it cannot even be assumed that the patient who does not show up for treatment is a total loss. Many patients on a waiting list for psychiatric treatment improve without specific treatment. Endicott and Endicott (1963) found that such patients are better educated and rate lower on depression and hostility and higher on self-esteem, adaptation to reality, defense, and ego strengths than those who fail to improve.

Despite spontaneous improvement and entry or re-entry into treatment, on the average, the dropout seems to do worse than his/her counterpart who perseveres in treatments (Renton 1963). Elopers from a general psychiatric hospital were found to be unimproved at a six months follow-up while a control group of patients discharged with medical advice fared significantly better (Pam 1973). Similarly, among alcoholics, both in inpatient and outpatient settings, dropouts have a worse outcome than program completers (Bowen 1968, Tomsovic 1970). The situation is far worse for heroin addicts. Patients who complete hospital detoxification are about three times as likely to be drug free a year later as those who do not finish it (Raynes 1972).

Research on those who miss appointments or dropout of treatment has been primarily concerned with psychiatric problems, alcoholism, or drug abuse. Further, research is necessary to establish the consequences of missed appointments and dropout of treatment for other health problems.

Specific Hypotheses

Based on findings from studies reviewed, and the many years of experience in the field of health screening on the part of this researcher, there should be significant positive correlation between appointment keeping behavior and the following variables:

1. Appointment keeping behavior will have a significant positive correlation with the patient's age, education, socio-economic status, the occupational status of his/her father and income, but no significant relationship with gender, race, religion, place of dwelling, language, or place of birth.

Furthermore, the following social behaviors and perceptions of the patient will have a significant positive correlation with appointment keeping, namely, belief of disease as serious; belief of personal susceptibility to specific diseases; belief of susceptibility to disease in general; belief regarding efficacy of treatment; belief regarding belief in therapist's ability; knowledge of disease and therapy; level of intelligence; previous use of facility; previous dropout; general attitude toward health professionals;

drug dependence; and ownership of a thermometer. There will be a significant negative correlation between appointment keeping and belief regarding therapy as painful, belief in supernatural causes of disease, and being head of the household.

2. There will be a significant positive correlation between appointment keeping, and the following characteristics of the provider of care, namely, age, years from completion of training, continuity of service, attitude/behavior, and patient load. There will be no relationship with the race or gender of the provider.
3. There will be a significant positive correlation between appointment keeping, and the following characteristics of the disease and diagnosis, severity, duration, previous therapy, symptoms, clinical improvement, urgency of appointment, consequences of missed appointment, and functional impairment caused by the disease.
4. There will be a significant positive correlation between appointment keeping, and the following characteristics of the therapeutic regimen, namely, whether or not medication is prescribed, dosage, and prescription of a diet. There will be a significant negative correlation between appointment keeping, and the duration of the treatment, cost, side effects, and degree of behavioral change required.
5. There will be a significant positive correlation between

appointment keeping, and the following characteristics of patient-therapist interaction, namely, satisfaction with visit to clinic, expectations met, comprehensiveness of services offered during the visit, patient education, and level of supervision.

6. There will be a significant positive correlation between appointment keeping, and the following characteristics of access to the health care facility, namely, availability of transportation and the telephone in the home, but a negative correlation with distance of home from the clinic, and indirect costs.
7. There will be a significant positive correlation between appointment keeping, and the following characteristics of the facility/administrative process, namely, clinic waiting time, referral sources, referral to specific provider vs. referral to clinic, time for scheduling appointment, patient-staff ratio, scheduling method (block vs. individual time), availability of parking, frequency of appointments, use of prospective reminders, and retrospective reminder, but a negative correlation with scheduling errors.
8. There will be a significant positive correlation between appointment keeping, and the following characteristics of the environment, namely, influence of family and friends, family stability, family size, time of day of appointment, day of week of appointment, illness in

family, performance of children in school, and presence of both parents in the home, but a negative correlation with weather and time on public assistance.

III. METHODOLOGY

Sampling

Selection of a Sample.

The State of Michigan maintains a Client Information System (CIS) on all families and individuals enrolled in public assistance programs. Current policy on periodicity for health screening recommends that each child receive a comprehensive assessment every two years, or every six months if a child is under one year of age. In the CIS master file, a record is kept on birth date and health screening history of approximately one half million children and youths below twenty-one years of age.

Each month a list of children to be screened is sent to the local screening agencies throughout the State. The computer is programmed with the following criteria for the selection of the names that appear on the lists:

- Select any recipient never having been screened and belonging to a new CIS case.
- Select any recipient never having been screened and currently at a recommended screening age.
- Select any recipient less than one year old and not having a screening during the past six months.
- Select any recipient less than one year old and having their last screening six months ago.
- Select any recipient not having a screening in the past two years.
- Select any recipient not having a screening in the past two years and is currently at a recommended age for screening.

- Select any recipient older than five months, has never been screened, and was notified for a screening one year ago.
- Select any recipient less than one year old at last screening, the last screening was one year or more in the past, and was last notified for a screening one year ago.
- Select any recipient one year or more at the last screening, the last screening was two years ago, and one year has passed since the last notification for screening.

From this list, an outreach worker in each of five regions in the State randomly selected seventy families to be included in this study for a statewide sample total of 350 participants. If a family was found to be ineligible for screening, then another name was randomly drawn. There are a variety of reasons why a family that may have fallen into the sample is ineligible. The computer list is generated in the middle of the month, and many families listed lose their eligibility at the end of the month. Case load changes on an average of 30 percent each month so that a sizeable number become ineligible for Medicaid benefits. Screening appointments cannot be arranged quickly enough to guarantee service before the end of the month for all the families listed. Thus, about 30 percent contacted are, in fact, not eligible for screening.

It is also not uncommon that a family is listed as due for screening when, in fact, the family was screened a few months before the date listed for contacting. This may be due to leaving a public assistance program and then returning to the rolls. The computer automatically prints out

new cases without regard for screening history. Furthermore, a family may be listed as eligible because the health screening report never was entered into the computerized case file of the family. In other cases, a family may have already left the county so that contact was impossible. Low-income families have a history of mobility. In some cases, the address given in the client's CIS file is that of a friend or relative who receives and transmits to the family the monthly check. In some cases, it is impossible to find or contact, directly, the family listed on the monthly computer printout. These are examples where it becomes necessary to randomly select another family to reach the quota of seventy clients per region.

The sample was drawn from a period so as not to include either August or December. Statewide statistics indicate that there is virtually no fluctuation in the ratio of appointments not kept from month to month except in August and December. During these two months, for the past ten years, notable fluctuation in the ratio of appointment keeping occurs. In August, families are much more likely to keep their appointments probably because of their concern in preparing children for school. Michigan law requires that immunizations be up to date before a child may attend school. In December, families are less likely to keep their appointment. This is probably due to the increased activities occurring during this holiday season. Excluding these two months, broken appointments average almost 37 percent

of appointments made with a fluctuation of a plus or minus three percentage points.

Training of Interviewers

After an agreement was received from the health officers in each of the agencies chosen, this researcher met with and trained surveyors in each region. The surveyors were introduced to the project by presentation of a general overview of the study as follows:

Persons who make appointments and fail to keep them cause disruption to the delivery of health services and sometimes damage to themselves because of untreated health problems. The disruption to health services is costly, because time set aside for a patient by a trained health professional is not effectively used. In the EPSDT program, a missed appointment translates into a wasted \$70-\$80. In making an appointment, it is important for the outreach worker to know whether or not a person is going to show for screening. Understanding factors that point to a successful scheduling outcome is the goal of this survey.

In this study, a very small sample of the thousands of families on public assistance will be surveyed to obtain insight in the thinking of the group as a whole. Furthermore, information gained will be important to administrators in arranging health services to achieve maximum effect and efficiency. To achieve these goals, it is important for the surveyors to follow specific guidelines, so that the opinions of the persons surveyed come through with as little static (caused by the surveyor) as possible, and the information gained is genuinely useful for future planning of health services.

Following the introduction, the surveyors received specific instructions about procedures for sampling, record management, scheduling, and questionnaire administration. A practicum on administration of the questionnaire was held among the surveyors to insure consistency.

Sampling:

Each month, the surveyors received duplicate lists of families to be contacted for screening for the given month. The surveyors took one copy, cut it so that one family appears on one slip of paper, placed the slips into a box, and, finally, drew out seventy names. This list became the sample for the study. The surveyors drew more names according to the criteria noted above, under "Selection of a Sample", until the five regions in the State had a valid sample of seventy names. A letter (Appendix A) was sent inviting the family to participate in the health screening, along with a Client Questionnaire (Appendix B) to be filled out. Included in the letter was a brochure explaining health screening. At least three days after the letter was sent, the surveyors called the client to schedule the family for a health screening and to administer the Client's Opinion Survey (Appendix C). When the Opinion Survey was completed, the surveyor asked for the numbers checked or circled by the client on the Client Questionnaire that had been sent along with the letter inviting the client to participate in the screening. Finally, the surveyors filled out the Medical Outreach Worker Questionnaire (Appendix D). The surveyors then highlighted the name of the surveyed family on the screening schedule so that, depending on the response received, the family was placed into one of four groups, namely:

1. Those who refused to participate.

2. Those who accepted an appointment and did not keep it without prior notice.
3. Those who accepted an appointment and called to cancel or change it.
4. Those who accepted an appointment and kept it.

Scheduling Procedures:

Scheduling procedures took place before any questionnaires were filled out. Attention of the client was called to the brochure on health screening contained in the letter. The series of tests to be given were explained, and the purpose of the screening was identified as an effort to detect health problems in children so that health care can be given when a health problem was still in its early stages. The client was then asked whether or not he/she would like to schedule the children for a screening. If the client declined to do so, the scheduling procedures ended. If the client was willing, then the client was asked what day would be convenient. When the client selected a day, he/she was asked whether a morning or afternoon appointment would be preferred. A schedule was made according to the response received. The client was then offered transportation, and it was arranged if requested. Whether or not the family signed up for screening, the interviewers proceeded to the administration of the questionnaire.

Questionnaire Administration:

The surveyors used the letter, previously sent as a guide, and reviewed with the client the salient points contained in the letter, namely:

- An opinion survey is being conducted of a few families on their feelings about health care services.
- The purpose of the survey is to find ways to improve health services to your children.
- It will take about ten minutes for the interview.

After eliciting from the client his/her willingness to cooperate, the explanation continued:

- The survey is about free health screening available to your children.
- Your answers to the questions on the survey will be confidential, and your name will not be put on the questionnaire.
- Your answers will not be shared with, and have nothing to do with, the Department of Social Services, and they will not affect your eligibility for assistance or Medicaid in any way.
- The information given is for statistical purposes only.
- This effort is an attempt to hear the client side of health services set up for Medicaid recipients like yourself.

The surveyors then explained to the client that he/she will make a series of statements. To each, the client was asked to respond with his/her opinion as "Always", "Often", "Sometimes", "Rarely", and "Never", as the case may be. The interviewer read each statement carefully to the client and repeated it, if requested to do so. The interviewer avoided rephrasing, expanding, or commenting on statements read to the client. If the client was puzzled, the problem was often solved by rereading the question more slowly. Answers given by the client were check off by the interviewer.

At the conclusion of the opinion survey, the outreach

worker asked the client to read off the numbers of answers checked or circled in the Client Questionnaire (Appendix B). The worker waited for the client to finish if this questionnaire was not completed, and then took down the responses. This ended the interviewing process.

A second visit was made by this researcher to all regions while the data was being collected to insure conformity to instructions. Surveyors raised questions about fine detail of the instructions indicating every effort was being made to follow procedures as previously outlined. As an example, in Delta County, one of the families refused to participate, in which case the surveyor drew another name to complete the requested sample of seventy.

Scope of the Study:

Although the EPSDT is a nationwide program, this study focused only on Michigan. The population of this state is concentrated in the Southeast portion, as nearly half of all persons in Michigan live in the counties located in the Southeast section of the State, and more than 30 percent live in urban settings. As one moves Northwest across the State, the counties become, generally, more and more rural.

For the purpose of managing health related programs in the 45 health jurisdictions, the Michigan Department of Public Health divided the state into five regions. All counties in the Upper Peninsula are included in the First Region. The Second Region includes thirty-five counties located in the northeast area of the Lower Peninsula.

Eighteen counties, beginning with Manistee and moving south along the west border, constitute the Third Region. The Fourth Region includes the counties of Washtenaw, Wayne, and Monroe. The remaining counties, Shiawassee, Genesee, Livingston, Oakland, Macomb, and St. Clair make up the Fifth Region. In order to reflect a statewide scope, a public health agency from each of the Regions was selected to be included in this study. The selection of each agency was based on which jurisdiction was closest to the mean in terms of the percentage of eligible families participating in the health screening. In Region II, Grand Traverse and Alpena health jurisdictions had the same level of participation. In a random drawing, Grand Traverse was picked. The health jurisdictions chosen in each Region are as follows:

Region I	-	Delta Menominee
Region II	-	Grand Traverse/Lellanau/Benzie
Region III	-	Barry-Eaton
Region IV	-	Monroe
Region V	-	St. Clair

Type of Participants:

The study includes only low-income families in Michigan that have been certified as eligible for Medicaid. The description of the population eligible to receive EPSDT screening is best taken from the Michigan Department of Social Services guidelines for determining the Medicaid eligibility. The salient features of that determination process are as follows:

1. The family resides in Michigan. This requirement is taken to mean the family lives within the state and, at least, one member is looking for work or the family intends to remain indefinitely. If the family leaves Michigan, verification of intent to return is necessary. Institutionalized persons automatically meet the residency requirements.
2. The client must be a citizen of the United States. Under this provision, tourists, visitors, or persons on a student visa are not qualified.
3. For the EPSDT program within Medicaid, the client must be below 21 years of age.
4. For the EPSDT program within Medicaid, deprivation may be grounds for eligibility. Deprived here refers to lack of parental care or support through absence, death, incapacity, or unemployment of a legal parent.
5. All children receiving eligibility for EPSDT must be living with a specified relative.
6. To be eligible for EPSDT, a child must be living in a "suitable home". Unsuitability is determined by the juvenile court.
7. Young adults, ages 18 through 20 years, must be a full-time student in high school or in an equivalent level of vocational or technical training, and can be reasonably expected to complete high school or vocational/technical school before reaching age 19. A person is considered still attending school if absence is due to illness, convalescence, or family emergency.

The fundamental basis for determining eligibility, however, is income. Definition of the eligible population for EPSDT screening is usually those who fall below the poverty line. The current designation of poverty level in the United States refers to a non-farm family of four members with an income less than 3,600 dollars with a 500 increment for each additional member. Under this criteria, about 10 percent of the population and 14 percent of the children in the United States are below the poverty level (White House

Conference on Children, Washington 1970).

Variables Included in This Study:

As mentioned in the Introduction, researchers have found there are a myriad of factors that influence the behavior of a person regarding the keeping of an appointment for health services. Using Haynes (1976) classification, these factors are grouped into general categories reflecting eight features. The hypothesis of this study is that all of these selected features will have a significant correlation with a client's appointment keeping behavior for a comprehensive health screening in the EPSDT program. The eight behavior features in this study together with variables to be measured under each are as follows:

1. Patient Features:

Patient features include both demographic and social behavioral variables.

A. Demographic Variables:

Age	Race
Sex	Religion
Education	Urban vs. Rural
Socio-economic Status	Language
Occupational Status of Father	Place of Birth
Income	

B. Social Behavior and Perception Variables:

Belief of Disease as Serious

Belief of Personal Susceptibility to Specific Diseases

Belief of Susceptibility to Disease in General

Belief Regarding Efficacy of Treatment

Belief in Supernatural Causes

Belief in Therapist's Ability

Knowledge of Disease and Therapy

Intelligence

Previous Use of Facility

Previous Dropout

General Attitude Toward Health Professionals

Drug Dependence

Head of Household

Ownership of a Thermometer (proxy for health
"concern")

2. Provider Features:

Age

Race

Years From Completion of Training

Gender

Attitudes and Behavior

Patient Load

3. Features of Disease:

Diagnosis

Severity

Duration

Previous Therapy

Symptoms ("Complaint" vs "Lanthanic")

Clinical Improvement

Urgency of Appointment

Consequences of Missed Appointment

Functional Impairment

4. Features of Therapeutic Regimen:

Medication

Whether or Not Medication Prescribed

Duration

Costs

Side Effects

Dosage

Prescription of Diet

Degree of Behavioral Change Required

5. Features of Patient-Therapist Interaction:

Patient's Satisfaction With Visit to Clinic

Patient's Expectations Met

Comprehensiveness of Services Offered During the Visit

Patient Education

Level of Supervision

6. Access Features:

Distance From Clinic

Indirect Costs

Availability of Transportation

Telephone in the Home

7. Features of Facility/Administrative Process:

Clinic Waiting Time

Referral Source

Referral to Specific Provider vs. Referral to Clinic

Time From Scheduling to Appointment

Patient-staff Ratio

Scheduling Method (Block vs. Individual Time)

Availability of Parking

Use of Prospective Reminders

Retrospective Reminders

Scheduling Errors

8. Features of Environment:

Weather

Influence of Family and Friends

Family Stability

Family Size

Time of Day of Appointment

Day of Week of Appointment

Illness in Family

Performance of Children in School

Presence of Both Parents in the Home

Time on Public Assistance

Scoring and Field Testing of Survey Instrument

Scoring:

The survey instrument was designed to assign the highest score (5) to reflect the most favorable response for an item. As an example, if a respondent indicated transportation is always available, a score of five (5) would be assigned. If, on the other hand, a respondent indicated that no transportation is available, a score of one (1) would be assigned. The outcomes for program participation are scored from the lowest level of refusal to accept

health screening to the highest score for those who accept an appointment and keep it. Participants in this study are divided into four groups:

1. Those who refuse to participate.
2. Those who accept an appointment and do not keep it without previous notification.
3. Those who accept an appointment and call into cancel or change it.
4. Those who accept an appointment and keep it.

Field Testing of Survey Instrument:

Prior to conducting the research, a field testing of the survey instrument was conducted. Twenty-five interviews were conducted in which two persons scored the responses. The scores obtained indicated a rater reliability of 98 percent. Some questions, following the field test, were shortened to increase sharpness and clarity. An instrument reliability was tested by administering the questionnaire to twenty-five individuals and re-administering it in an hour or more later to see if response to the questions had changed. The reliability of the instrument was found to be 97 percent.

Method of Analysis

The data were cluster analyzed according to the Tryon and Bailey method (1970). This analysis serves to describe general interrelationships among the variables included in the study. A cluster analysis requires a number of variables, the correlations (Pearson product moment) among them, and the clusters. The nature of the clusters is immaterial. The variables ought to be in standard form, i.e. with a

mean of 0 and a standard deviation of 1 since the results are in terms of correlations. While refusing or accepting an appointment, changing it or not changing it, or keeping or not keeping an appointment are dichotomous variables, there is an underlying continuous scale with a low score (1) of referring an appointment to a high score (4) of accepting and keeping an appointment. A tetrachordal correlation, consequently, can be computed and the correlation is an estimate of a Pearson product moment correlation.

IV. RESULTS

The results of this study will be presented in two sections. The first section will consist of looking at the various items used to measure the significance of eight features hypothesized as related to appointment keeping behavior. The eight features divide the multiple variables affecting appointment keeping behavior into eight categories of variables mentioned earlier, namely, those related to the patient, providers of care, the disease, the therapeutic regimen for treating the disease, patient-therapist interaction, access to the clinic, facility/administrative process, and the environment. The second section includes the clusters formed by the measures used in testing the hypotheses listed below.

Test of Hypotheses

The first hypothesis focused on patient related variables in terms of their correlations with appointment keeping behavior. The first hypothesis stated that appointment keeping behavior has a significant positive correlation with the patient's demographic characteristics of age, education, socio-economic status, occupational status of father and income, and that no significant relationship with gender, race, religion, place of dwelling, language, or place of birth would be found. The following characteristics of the patient will have a significant positive correlation with

appointment keeping, namely, belief of disease as serious, belief of personal susceptibility to specific diseases, belief of susceptibility to disease in general, belief in thereapist's ability, knowledge of disease and therapy, intelligence, previous use of facility, previous dropout, general attitude toward health professionals, drug dependence, and ownership of a thermometer. There will be a significant negative correlation between appointment keeping and belief regarding therapy as painful, belief in supernatural causes of disease, and being head of a household.

The test of hypothesis regarding demographic characteristics and the correlation with appointment keeping is displayed in Table 4. The distribution, in percent, of participant's responses to each demographic item is given in Table 5.

It was assumed that the older a parent was the more responsibility would be demonstrated in looking out for the preventive health care needs of their children insofar as keeping medical appointments. However, Table 4 shows that education and socio-economic status, that is, the highest level of income reached, the level of skill attained by the father, the level of income for 1984, had no significant relationship with appointment keeping behavior.

Since only 7 percent of the respondents were male and 3 percent Black, gender, and race are not adequately sampled in this study. On the other hand, the hypothesis that stated no significant relation exists between appointment

TABLE 4

Test of Patient Demographic
Characteristics and Appointment Keeping

Patient Related Measures	Correlations With Appointment Keeping
Age	-.01
Sex	.04
Level of Education	-.07
Socio-economic Status	.03
Occupation State of Father	.03
Level of Income for 1984	-.06
Race - White	-.00
Black	.01
Other	.03
Religion - Protestant	-.14
Catholic	.13
Other Religion	.07
No Religion	-.05
Living in an Urban vs Rural Area	-.00
Speaks Another Language Other Than English	.02
Born Outside of Michigan	.01

N=336

keeping and gender, race, religion, place of dwelling as urban vs. rural, ability to speak a language other than English, and place of birth is supported by findings in this study.

Table 4 shows that demographic characteristics of the patient are of little or no help in predicting successful outcomes in appointment scheduling. There is a 50 percent change that, out of eleven demographic measures used, at least one would have been significant by chance (Fairweather 1978). The correlations with these variables are so low, however, that not one significant association occurred.

TABLE 5

Distribution of Responses on Each
Demographic Measure by Percent

Demographic Measures	Response Distribution				
Age (in years)	13-17 3	18-24 33	25-34 43	35-44 16	45+ 6
Gender	Male 7	Female 93			
Level of Education	Fifth Grade or Less 6	Some High School 27	High School Grad. 44	Some Col- lege 18	College Graduate 5
Socioeconomic Status (Highest Yearly Income)	Less than \$5,000 35	5,000 9,999 32	10,000 14,999 14	15,000 19,999 5	20,000 10
Occupation of Father	Unskilled 19	Semi- skilled 33		Skilled 46	
Level of Income for 1984	Less than \$5,000 44	5,000 9,000 37	10,000 14,999 11	15,000 19,999 2	20,000 3
Race	White 89	Black 3		Other 8	
Religion	Protestant 34	Catholic 25	Other 22	No Reli- gion 19	
Urban Versus Rural Living	Within City 59	1 Mile From City 8	1-5 Miles 13	5-10 Miles 12	11+ Miles 8
Speaks Foreign Language	Yes 12		No 88		
Born Outside of Michigan	Yes 76		No 24		

TABLE 6

Test of Patient Related Social Behavior or
Perception Variables and Appointment Keeping

Patient Social Behavior or Perception Related Measures	Correlations With Appointment Keeping
Belief of Disease as Serious Threat to Health	.04
Belief of Personal Susceptibility to Specific Diseases	.11
Belief of Susceptibility to Disease in General	.09
Belief Regarding Efficacy of Treatment	.02
Belief Regarding Therapy as Painful	.04
Belief in Supernatural Causes of Disease	.07
Belief in Therapist's Ability to Heal	.02
Knowledge of Disease and Therapy	-.01
Intelligence	-.01
Previous Use of Health Care Facility	.10
Previous Dropout From Treatment Used Previously	.09
General Attitude Toward Health Professionals	.02
Drug Dependence	-.04
Head of Household	.03
Ownership of a Thermometer (proxy for health "concern")	-.03

N=336

TABLE 7

Distribution of Responses on Each
Social Behavior or Perception Measure by Percent

Social Behavior or Perception Measures	Response Distribution by Percent				
	Always	Often	Sometimes	Rarely	Never
Belief of Disease as Serious Threat to Health	15	17	37	14	16
Belief of Personal Susceptibility to Specific Diseases	39	4	8	8	40
Belief of Susceptibility to Disease in General	46	30	15	6	3
Belief Regarding Efficacy of Treatment	39	36	21	1	3
Belief Regarding Therapy as Painful	11	8	41	24	15
Belief in Supernatural Causes of Disease	10	4	28	16	40
Belief in Therapist's Ability to Heal	19	28	44	2	7
Has Above Average Knowledge of Disease and Therapy	14	22	39	12	12
Has Above Average Intelligence	22	26	37	7	7
Previous Use of Health Care Facility	48	20	18	7	7
Previous Dropout From Treatment Used Previously	0	1	11	40	47
General Attitude Toward Health Professionals as Friendly	39	34	24	1	0
Drug in Use in Previous Sicknesses	9	9	50	16	15
Head of Household	56	5	16	3	15
Ownership of a Thermometer (proxy for health "concern")	80	10	7	1	2

N=336

The hypothesis regarding social behavior characteristics of the patient and the correlation with appointment keeping is displayed in Table 6. The distribution, in percent, of participant's responses to each social behavior measure is given in Table 7.

It was anticipated that parents who believed that they or their children could easily become susceptible to diseases in general, or to specific diseases (like heart trouble, cancer, or diabetes), and who believed the consequences of getting a disease would be serious would, most certainly, be anxious to keep appointments for health services. This study found no such relationship, consequently, the original hypothesis is not supported.

A patient's belief regarding the efficacy of treatment, in general, or in a therapist's ability to heal did not correlate positively with appointment keeping. No relationship whatever was found. Likewise, there was no significant correlation with appointment keeping, and an above average intelligence or knowledge of disease, and how to care for it.

Past practices of the patient are not helpful in predicting appointment keeping. The hypothesis that previous use of a facility, previous keeping of appointments, general positive attitude toward health professionals, and prescription of drugs in previous visits to the doctor would have a significant positive correlation with appointment keeping was not at all supported. It was, also, assumed that parents who owned a thermometer to check for fever in their children

would have a tendency toward preventive mode of behavior in health concerns, generally. This hypothesis was also not supported by the data.

A significant negative correlation was expected between keeping appointments for health services and belief that therapy would be painful, that sickness is a punishment from God, and parents preoccupied with other duties as head of the household. This negative association was not found in this data.

There were fifteen measures of social behavior characteristics of the patient. Not even one was found to be significant. This is surprising as one would expect one significant finding to occur by chance in just ten measures of a feature (Fairweather 1978).

The second hypothesis of this study projects a significant positive correlation between appointment keeping and certain characteristics of the health care provider, namely, age, years since formal training was completed, attitude toward the patient, and patient load. No relationship was projected for race or gender of the health care worker.

The hypothesis regarding provider characteristics and the correlation with appointment keeping is displayed in Table 8. The distribution, in percent, of responses regarding provider characteristics is given in Table 9.

Only one measure used to assess provider impact on clients' appointment keeping behavior was significant. The number of years a person has been on the job

TABLE 8

Test of Provider Related Characteristics
and Appointment Keeping

Provider Characteristics Measures	Correlation With Appointment Keeping
Age	-.02
Race	-.01
Years From Completion of Training	-.01
Gender	.04
Years Medical Worker Has Been on the Job	-.16*
Attitude Toward Patient	-.09
Number of Patients on Caseload	-.01

N-336

*Significant at the .05 level of confidence

correlated negatively with appointment keeping. This finding is exactly opposite to the original hypothesis. It may indicate a burn-out condition that can result in providing health care over the years to patients perceived to be unresponsive.

A significant positive correlation between appointment keeping and the provider's age, attitude toward the patient, and patient load did not materialize. No significant correlation was found in these measures. The projection of no significant relationship with race or gender, however, was supported by the data. The measure is poor since 96 percent of the providers were white and 99 percent were female.

TABLE 10

Test of Characteristics of the Disease
and Appointment Keeping

Disease Characteristic Measures	Correlations With Appointment Keeping
Diagnosis of the Disease	.10
Severity of the Disease	.11
Previous Therapy Received	-.03
Symptoms of the Disease ("Complaint" vs. "Lanthanic")	-.09
Clinical Improvement With Treatment	.08
Urgency of Appointment for Case	.08
Seriousness of Consequences of Missed Appointment	.05
Functional Impairment Caused by the Disease	.01

N=336

Out of the eight measures to assess provider impact on appointment keeping, only one was found to have minimum significance. There is a 30 percent possibility that this would occur simply by chance (Fairweather 1978). The finding, therefore, is very weak.

In the third hypothesis of this study, it is suggested that there is a significant positive correlation between appointment keeping and the following characteristics of the disease, namely, its diagnosis, severity, duration, previous therapy, symptoms, clinical improvement, urgency of appointment, consequences of missed appointment, and functional impairment caused by the disease. The

TABLE 11

Distribution of Responses to
Disease Characteristics by Percent

Disease Characteristic Measures	Response Distribution				
	Always	Often	Some- times	Rarely	Never
Diagnosis of the Disease is Physical in Origin	42	16	26	7	8
Severity of the Disease	17	15	18	14	35
Previous Therapy Received	35	14	18	15	17
Symptoms of the Disease ("Complaint vs "Lantanic')	5	5	23	21	44
Clinical Improvement With Treatment	45	27	22	3	2
Urgency of Appointment for Care	13	16	40	17	13
Seriousness of Consequences of Missed Appointment	24	13	36	13	13
Functional Impairment Caused by the Disease	2	4	19	16	58

N=336

hypothesis regarding characteristics of the disease, and the correlation with appointment keeping is displayed in Table 10. The distribution, in percent, of responses regarding characteristics of the disease is given in Table 11.

Illnesses that are physical in origin are, perhaps, easier to recognize and effects of treatment are easier to

observe than illnesses that are from emotional or mental disturbances. Based on this assumption, it was hypothesized that persons who dealt, primarily, with health problems diagnosed as physical in origin would be more likely to keep their appointment for preventive health services. The data of this study did not support this assumption. Furthermore, the severity of a health condition, or the duration, had no detectable influence on appointment keeping behavior, contrary to our original hypothesis.

Persons who have had the habit of going to visit the doctor in order to receive therapy in the past, or who visit the doctor and undetected health problems are discovered, were assumed to be more prone to keeping appointments than those who did not go to the doctor as a rule, or have not experienced the benefit of early detection and treatment of a health problem. This has not been found to be true. In this study, it appears that previous behavior patterns of this nature are of no value in predicting the successful outcome of scheduling an appointment.

Some people receive treatment at the medical clinic and are able to observe improvement as a consequence of the services. Others are inclined to seek appointment with the doctor because the health condition is viewed to be urgent and in need of immediate attention. While supposed to be persons who have had these experiences are more apt to keep medical appointments than others, data from this study does not support this contention.

Perhaps, even more surprising, persons who report that there would be serious consequences if they missed medical appointments, or those who are functionally impaired by a health problem, are no more inclined by these factors to keep agreed upon appointments than those not so affected. None of the hypotheses regarding characteristics of the disease and their impact on appointment keeping were supported by the study. In taking eight measures to assess the impact of characteristics of the disease on appointment keeping behavior, there is a 30 percent possibility that, at least, one of the measures would be significant based simply on chance (Fairweather 1978). This did not occur and serves to underscore the lack of any association between appointment keeping and disease characteristics such as origin, severity, duration, urgency, and the like.

In the fourth hypothesis of this study, it is proposed that there is a significant positive correlation between appointment keeping and the following characteristics of the therapeutic regimen, namely, whether or not medication is prescribed, dosage, and prescription of a diet. Also, that there is a significant negative correlation between appointment keeping and the duration of the treatment, cost, side effects, and degree of behavioral change required. The hypothesis regarding characteristics of the therapeutic regimen, and the correlation with appointment keeping is displayed in Table 12. The distribution, in percent, of responses regarding characteristics of the therapeutic regimen

TABLE 12

Test of Characteristics of the Therapeutic
Regimen and Appointment Keeping

Therapeutic Regimen Measures	Correlation With Appointment Keeping
Whether or Not Medication is Prescribed in the Treatment of a Disease	.02
Duration of the Treatment	.07
Cost of the Treatment	.13
Side Effects From the Treatment	.18*
Dosage Needed for Treatment	.13
Prescription of Diet for Treatment of the Disease	.10
Degree of Behavioral Change Required in Following Therapeutic Regimen	.18*

N=336

*Significant at the .05 level of confidence

is given in Table 13.

In our original hypothesis, it was pointed out that significant positive correlation exists between appointment keeping and prescription of medication that is at a low dosage, and recommendation of a particular diet in treating a health condition. It was believed that these actions of the doctor would not cause undue difficulty to the patient and would likely give the patient a certain satisfaction that something was being done to remedy a health problem. This hypothesis was not supported by the data in this study.

TABLE 13

Distribution of Responses to
Therapeutic Regimen Characteristics by Percent

Therapeutic Regimen Measures	Response Distribution				
	Always	Often	Some- times	Rarely	Never
Whether or Not Medica- tion Prescribed in the Treatment of a Disease	10	12	45	21	10
Duration of the Treat- ment in Terms of Brevity	32	20	29	7	10
Cost of the Treatment in Terms of Being Low	27	11	25	17	20
Side Effects From the Treatment	22	16	31	12	19
Dosage Needed for Treatment in Terms of Being Low	29	16	37	9	8
Prescription of Diet for Treatment of the Disease	24	2	9	6	57
Degree of Behavioral Change Required in Following Therapeutic Regimen	32	18	27	12	9

N-336

Militating against a favorable outcome in scheduling an appointment would, presumably, be items that would initiate or cause considerable inconvenience to the patient, such as the long duration of the treatment, high cost, unwanted side effects, and serious disruption of daily routine. The hypothesis about duration of the treatment, cost, and disruption of routine was not supported by the data, however, there is

a significant negative correlation between appointment keeping, and the incidence of side effects from previous treatments. There is 30 percent chance that one significant finding would occur coincidentally in seven measures on a factor (Fairweather 1978). Consequently, it must be concluded that chance might play a big role in this statistic.

In the fifth hypothesis, it is proposed that there is a significant positive correlation between appointment keeping and the following characteristics of patient-therapist interaction, namely, satisfaction with visit to clinic, expectations met, comprehensiveness of services offered during the visit, patient education, and level of supervision. The hypothesis regarding patient-therapist interaction characteristics, and the correlation with appointment keeping is displayed in Table 14. The distribution, in percent, of responses regarding patient-therapist interaction characteristics is given in Table 15.

Most people attend a medical clinic where they receive satisfaction with the services, fulfill expectations they bring to the clinic, obtain all types of services they need, and receive a reasonable explanation from the health care provider on what their health problem is and how the treatment prescribed will be effective. Where all these conditions are met, it would appear that appointments are more likely to be kept. Our data indicates there is no significant correlation between these patient-therapist interaction characteristics just described and appointment keeping.

TABLE 14

Test of Patient-Therapist Interaction
Characteristics and Appointment Keeping

Patient-Therapist Interaction Measures	Correlations With Appointment Keeping
Patients Satisfaction With Visit to Clinic	.02
Patients Expectations Met at the Clinic	.01
Comprehensive Services Offered During the Visit	-.03
Patient Education Received From Therapist	.03
Therapist Follows Up Closely on Patient	.16*

N=336

*Significant at the .05 level of confidence

Only one measure showed any significant association with appointment keeping and patient-therapist interaction. It appears that, when the doctor takes particular interest in a patient enough so as to follow-up in some way to insure that the treatment regimen is effective, this person is more inclined to keep medical appointments. There is a 20 percent chance that, out of five measures taken to assess the impact of a factor, one of the measures would be significant (Fairweather 1978). Therefore, the above finding is deemed to be a weak finding.

The sixth hypothesis suggests that there is a significant positive correlation between appointment keeping and

TABLE 15

Distribution of Responses to Patient-Therapist
Interaction Characteristics by Percent

Patient-Therapist Interaction Measures	Response Distribution				
	Always	Often	Some- times	Rarely	Never
Patients Satisfaction With Visit to Clinic	55	23	14	3	2
Patients Expectations Met at the Clinic	47	26	20	4	2
Comprehensive Services Offered During the Visit	48	23	23	3	2
Patient Education Received From Therapist	56	19	19	2	4
Therapist Follows-Up Closely on Patient	35	17	25	10	11

N=336

the following characteristics of access to health care facility, namely, availability of transportation and telephone in the home, but a negative correlation with distance of home from the clinic and indirect care. The hypothesis regarding accessibility of the health care facility, and the correlation with appointment keeping is displayed in Table 16. The distribution, by percent, of responses regarding facility accessibility is given in Table 17.

The data supported the original hypothesis that predicted a significant positive correlation between the availability of a telephone in the home and appointment keeping. This is not surprising, because the availability of a

TABLE 16

Test of Facility Accessibility
and Appointment Keeping

Facility Accessibility Measures	Correlations With Appointment Keeping
Distance From Clinic	-.12
Indirect Costs	.17*
Availability of Transportation	-.14
Telephone in the Home	.18*

N=336

*Significant at the .05 level of confidence

TABLE 17

Distribution of Responses to Facility
Accessibility Characteristics by Percent

Facility Assess Measures	Response Distribution				
	One Mile or Less	1-2	2-4	4-8	8+
Distance From Clinic in Miles	15	12	17	16	40
	Always	Often	Some-times	Rarely	Never
Indirect Costs to Patient	7%	9%	32%	10%	41%
Availability of Transportation	16%	7%	24%	17%	35%
Telephone in the Home	28%	4%	6%	10%	52%

N=336

telephone makes it easier to remind clients of their appointment and, conversely, it is easier for the client to call in to cancel or reschedule as needed.

The hypothesis regarding the availability of transportation, however, was not supported. It was assumed that, if transportation was readily available, the patient would be more inclined to keep prearranged appointments. It is apparent from the data that other factors rather than easily available transportation must be sought to predict scheduling outcomes.

Distance between the home and the clinic did not prove to be significant as originally hypothesized. However, there was a significant positive correlation between successful scheduling outcomes and reduction of indirect costs to the patient. Although the Medicaid eligible family does not have to pay for health care services received, there are indirect costs such as paying for transportation, hiring a baby sitter, eating lunch out, investment of effort to dress the children, fill out forms, and, in general, manage the many details to keep an appointment and follow-up as needed with health care. The finding indicates that reduction of these indirect costs correlates with more successful scheduling outcomes. That two of the four scales used to measure importance of facility accessibility were significant is an important finding. This finding is significant at the .01 level of confidence. It is clear that accessibility is an important consideration in scheduling appointments.

In our seventh hypothesis, it is predicted that there is a significant positive correlation between appointment keeping and the following characteristics of the facility/administrative process, namely, clinic waiting time, referral source, referral to specific provider vs. referral to clinic, time from scheduling to appointment, patient-staff ratio, scheduling method (block vs. individual time), availability of parking, use of prospective reminders, and retrospective reminder, but a negative correlation with scheduling errors.

The hypothesis regarding characteristics of the facility/administrative process and the correlation with appointment keeping is displayed in Table 18. The distribution, in percent, of responses regarding characteristics of the facility/administrative process is given in Table 19.

The hypothesis predicting that patients will not keep their appointments if, in the past, the doctor made a mistake in scheduling, e.g., giving a wrong time or day to see the patient, was upheld by the data of this study. A significant negative correlation of $-.16$ was found between appointment keeping and incidence of errors.

Two other measures of the facility/administrative process factor were also found to be significant as predicted in the original hypothesis. It has been found that an adequate number of staff persons is important in attracting people into the clinic. The most important finding in the study involves the time factor between scheduling

TABLE 18

Test of Facility and Administrative Process
Characteristics and Appointment Keeping

Facility/Administrative Process Measures	Correlations With Appointment Keeping
Clinic Waiting Time	.04
Referral Source for Selecting A Clinic	-.10
Referral to Specific Provider vs. Referral to Clinic	.12
Patient-Staff Ratio	.18*
Scheduling Method (block vs. individual time)	.15
Availability of Parking	.12
Use of Prospective Reminders	.01
Retrospective Reminders	-.04
Scheduling Errors	-.16*
Number of Days Between Scheduling and Appointment	.54*

N-336

*Significant at the .05 level of confidence

and the appointment itself. The shorter this time is the more likely the client will keep the appointment. A correlation of .54 was found indicating a highly significant association. Thus, the immediacy of a service or event, the more likely participation will follow.

The hypothesis that waiting time in the clinic is an important factor influencing appointment keeping did not prove to be so. Likewise, no significant correlation was

TABLE 19

Distribution of Responses to Facility/
Administrative Process Characteristics by Percent

Facility/Administrative Process Measures	Response Distribution				
	Always	Often	Some- times	Rarely	Never
Clinic Waiting Time in Terms of Short Time	23	20	41	9	7
Referral From Family or Friends in Selecting a Clinic in Terms of Importance	27	19	33	7	14
Preference for a Referral to Specific Provider vs. Referral to Clinic	39	16	32	6	7
Specific Time Schedu- ling an Appointment is Set	57	13	16	6	6
Adequate Number of Staff	53	24	18	2	1
Availability of Parking Close to Clinic	69	17	10	1	1
Uses Doctor Prospective Reminders	30	9	18	13	29
Doctor Uses Retrospective Reminders	16	5	18	13	47
Scheduling Errors Made by Doctor	32	18	15	7	26
	5 Days or Less	6-10 Days	11-14 Days	15+ Days	
Number of Days Between Scheduling and Appoint- ment	27	18	12	25	

N=336

found with the method used in scheduling, such as referral to a specific provider versus referral to a clinic, or scheduling by block method versus assignment of a specific time to an individual.

The convenience of a parking area close to the clinic was found not to be a critical consideration. Prospective reminders from the doctor or retrospective notices for missed appointments also were of small consequence. Recommendations from other family members, relatives, or friends about a specific clinic did not prove to have significant influence in keeping an appointment. These findings were contrary to the original hypothesis.

Out of ten scales used to measure the impact of facility/administrative process, three were found to be significant at the .05 level of confidence. To find three measures out of ten valid in measuring this factor is significant at the .01 level of confidence (Fairweather 1978).

The last hypothesis of this study predicts that there is a significant positive correlation between appointment keeping and the following characteristics of the environment, namely, influence of family and friends, family stability, family size, time of day of appointment, day of week of appointment, illness in family, performance of children in school, and presence of both parents in the home, but a negative correlation with weather (in terms of the patient's own assessment as being good or bad), and time on public assistance. The hypothesis regarding characteristics of the

environment and the correlation with appointment keeping is displayed in Table 20. The distribution, in percent, of responses regarding characteristics of the environment is given in Table 21.

TABLE 20

Test of Characteristics of the
Environment and Appointment Keeping

Environment Measures	Correlations With Appointment Keeping
Weather	-.05
Influence of Family and Friends	.05
Family Stability	-.02
Family Size	.03
Time of Day for the Appointment	-.02
Day of Week for the Appointment	-.02
Illness in the Family	.13
Performance of Children in School	.14
Time on Public Assistance	-.04

N=336

The highest association between appointment keeping behavior and items used to measure the influence of the environment was found with the presence of illness in the family, and the poor performance of children in school. The association, however, was not large enough to be significant contrary to our original projection. There was even a far less association with items hypothesized as

TABLE 21

Distribution of Responses to Characteristics
of the Environment by Percent

Environment Measures	Response Distribution				
	Always	Often	Sometimes	Rarely	Never
Importance of the Influence of Family and Friends in Selecting a Clinic	27	19	33	7	14
Goes to a Doctor When There is Illness in the Family	44	19	27	6	5
Goes to a Doctor When Performance of Children in School is Poor	24	8	26	17	23
Family Stability in Terms of the Oldest Child in the Home	0-3 Years 23	3-6 21	7-9 17	10-12 12	13+ 26
Family Size by Number of Members	1-2	3-4	5-6	7-8	9+
	19	53	22	4	2
Time of Day for Appointments	Before 10 AM	10-12 PM	12-2 PM	2-4 PM	After 4 PM
	19	28	19	24	7
Day of Week for Appointments	Mon.	Tues.	Wednesday	Thurs.	Fri/Sun
	23	16	25	16	14
Time on Public Assistance in Years	Less Than 1	1-2	2-3	3-5	5+
	38	15	11	14	20

N=336

significant, namely, family stability measured in terms of the oldest child living at home, family size, and time of day or week of the appointment. The length of time spent on public assistance and bad weather conditions were assumed to be important negative factors leading to broken appointments. The study found that these variables have no significant influence on appointment keeping excluding severe weather conditions.

None of the nine scales for measuring the influence of environment were significant. There is a 30 percent chance that, with this number of scales, at least one would be found to be significant (Fairweather 1978). This statistic underscores the independence of environmental factors and appointment keeping behavior.

In concluding this section on testing of the eight hypotheses, it should be noted that, out of eight categories of variables, namely, those related to the patient, providers of care, the disease, the therapeutic regimen, patient-therapist interaction, access to clinic, facility/administrative process, and the environment, five contained at least one scale that was significant. Of these five, only access to the facility and facility/administrative process had enough significant scales to be considered important measures of appointment keeping behavior. Table 22 lists variables found to be significantly correlated with appointment keeping. Taken as a whole, the most important contribution of this study is in terms of what is not related to

TABLE 22

Variables Found to be Significantly
Correlated With Appointment Keeping
at the .05 Level of Confidence

Variables	Correlations With Appointment Keeping
Years Medical Worker Has Been on the Job	-.16
Side Effects From the Treatment	.18
Degree of Behavioral Change Required in Following Therapeutic Regimen	.18
Therapist Follows Up Closely on Patient	.16
Indirect Costs	.17
Telephone in the Home	.18
Patient-Staff Ratio	.18
Scheduling Errors	-.16
Number of Days Between Scheduling and Appointment	.54

appointment keeping. The few significant scales found, however do provide some clue to predicting successful scheduling, especially in regard to the element of time between scheduling and appointment.

Relationship Among Measures

In the second portion of this analysis, we will look at the relationship among the measures used in testing the original hypothesis. This second level analysis involves conducting a cluster analysis according to the B. C. Tryon and Bailey (1970) method. As noted in the previous chapter, in a cluster analysis of variables using the B. C. Tryon

TABLE 23

Variables Found to be Significantly
Correlated With Appointment Keeping
at the .10 Level of Confidence

Variables	Correlation With Appointment Keeping
Years Medical Worker Has Been on the Job	-.16
Side Effects From the Treatment	.18
Degree of Behavioral Change Required in Following Therapeutic Regimen	.18
Therapist Follows Up Closely on Patient	.16
Indirect Costs	.17
Telephone in the Home	.18
Patient-Staff Ratio	.18
Scheduling Errors	-.16
Number of Days Between Scheduling and Appointment	.54
Previous Contact With Clinic	-.14
Home Close to Clinic	-.12
Transportation Available	-.14
Doctor Prescribes a Diet	.10
Missed Appointments Previously	-.09
Avoids the Health Department	.10
Tends to Stay Well	.09
Tends Toward a Particular Sickness	.11
Physical vs. Mental Cause of Sickness	.10
Sickness Tends to be Serious	.11
Low Cost for Care	.13

TABLE 23 (cont'd.)

Variables	Correlation With Appointment Keeping
Dosage Prescribed is Low	.13
Recommendation From the Family	-.10
Appointment With a Specific Doctor	.12
Appointment at a Specific Time	.15
Parking Close to Clinic	.12
Visits the Same Doctor	.13
Difficulty in School Results in Visit With Doctor	.14
Attitude of Outreach Worker	.09
Time of Day for the Appointment	-.13
Protestant	.14
Catholic	.13

Out of the 81 variables included in this study, only 9 were found to be significant at the .05 level of confidence. When looked at from the .10 level of confidence, 32 variables were found to be significant as indicated in Table 23 (above).

approach, composite groups of similar variables are objectively formed rather than based on preconceived notions. These groups will be formed so that variables assigned to each cluster are similar within themselves but different from other groups. The analysis is based on the degree of collinearity among the definers of the group. "Generally, collinearity is defined by the line graph of the correlation coefficients of two variables with all the variables in the study, their correlation profiles. Collinear variables have the same profile of correlations. . . Clusters of collinear variables have two objective characteristics of similarity: they correlate positively with each other, and they follow the same pattern of correlations with other variables. They also are objectively different from other clusters of collinear variables because their common correlation profiles have a different shape from that of other clusters" (Tryon and Bailey 1970, p. 47). Measure was also made on the relational strength between clusters. This was done by computing the interdomain correlations.

When a cluster analysis was done to discover correlations among the many variables used in this study, forty-eight or over half of the variables were eliminated because their commonalties were too trivial (that is, less than .20) to be meaningful. These variables include the following:

- gender of the client
- ability to speak a foreign language
- born in the state of Michigan

- time of the day for the appointment
- day during the week of the appointment
- occupation of the father
- frequency of visiting a medical clinic
- distance from home to the clinic
- location of home in terms of urban or rural
- number of years on public assistance
- availability of transportation
- availability of phone in the home
- prescription of medication at the time of clinic visit
- previous record of missing medical appointments
- previous use of the clinic
- tendency to stay well
- seriousness of the sickness
- effectiveness of treatment
- painfulness of treatment
- belief in reward for good behavior
- belief in doctor's ability to heal
- being head of the household
- ownership of a thermometer
- physical causation of sickness
- improvement after following doctor's instruction
- perceived seriousness of missing a medical appointment
- prescription of weak medication
- treatment time is short
- cost of treatment is low
- close check kept by the doctor

- recommendation from family regarding a clinic
- Doctor calls to remind client of appointment
- weather conditions
- influence of family regarding keeping an appointment
- policy of going to the doctor in time of sickness
- policy of taking child to doctor when doing poorly in school
- education of the outreach worker
- gender of the outreach worker
- race of the outreach worker
- caseload of the outreach worker
- attitude of the outreach worker in terms of making health screening required
- time of day for the screening appointment
- previous history of screening
- religion of client
- race of the client

This does not mean that these variables are not important but only that, because of their independence, they cannot be used to measure the same phenomenon as the clusters. The remaining variables form into nine independent clusters which are listed in Table 24 that follows. To further appreciate the findings of this cluster analysis, it is necessary also to examine the interdomain correlations. Table 25 contains the correlations between oblique cluster domains.

TABLE 24

Nine Clusters of Scale or Variable Scores

Cluster	Loading
Cluster I - Participation in Health Screening	
1. The client is willing to accept and keep a screening appointment.	0.78
2. The client keeps an appointment when fewer days intervene between scheduling and appointment.	0.63
Cluster II - Health Care Provider and Patient Information	
1. The expectation of the client are met.	0.83
2. Client is satisfied with the medical clinic.	0.75
3. Client receives all the services needed at the clinic.	0.64
4. Waiting time for services is short.	0.43
5. Health professional takes time to explain a condition and how to care for it.	0.40
Cluster III - Client's Intellectual Ability	
1. The client has a high IQ.	0.03
2. The client has a knowledge of sicknesses and how to care for them.	0.58
Cluster IV - Maturity of the Client	
1. Clients tend to be 25-34 years of age or older.	0.77
2. The oldest child in the family tends to be 13 years of age or older.	0.69
3. The size of the family is generally 3-4 members.	0.37
4. The highest income for a given year is less than \$10,000.	0.37
Cluster V - Health Status of Client	
1. Client does not have a tendency to a particular sickness, e.g., heart problems, cancer, diabetes, or the like.	0.68
2. Past sicknesses have not been severe.	0.64
3. Client lives closer to the large urban center of the state.	0.55
4. Treatment in the past for health problems did not produce side effects.	0.52
5. Little change in routine resulted from treatment ordered by a doctor.	0.51

TABLE 24 (cont'd.)

Cluster	Loading
6. The doctor is accurate in scheduling an appointment.	0.47
7. Sickness does not require immediate attention.	0.46
8. The doctor does not prescribe a diet as a treatment.	0.45
9. The origin of the sickness is through physical causes.	0.35
Cluster VI - Experience of Health Care Workers	
1. The health care worker tends to be 34-55 years of age.	0.71
2. Years on the job are less than three years.	0.70
Cluster VII - Financial Resources	
1. The highest income for a given year is less than \$10,000.	0.64
2. Income for 1984 is less than \$10,000.	0.63
3. Time on assistance tends to be short.	0.37
Cluster VIII - Therapeutic Regimen	
1. Treatment for a health problem was received in the past.	0.63
2. Drugs were needed in the treatment.	0.56
3. Health problem was unknown prior to visit with a doctor.	0.56
4. Mobility was hindered by health problem.	0.50
5. Sicknesses in the past tend to be long.	0.42
Cluster IX - Availability of Health Care Provider	
1. There is adequate staff to provide health care.	0.64
2. A specific time is set aside for the patient by the doctor.	0.45
3. A specific doctor is made available as desired.	0.36

Cluster Description

Cluster I - Participation in Health Screening

Only one variable out of the 81 included in this study had a similar collinearity with the major outcome variable, namely, participation in preventive health care screening.

TABLE 25
Correlations Between Oblique Cluster Domains

Clusters	1	2	3	4	5	6	7	8	9
I. Participation in Health Screening	1.00								
II. Provider/Patient Interaction	.01								
III. Intellectual Ability	.01	.10							
IV. Maturity of the Client	-.04	-.03	-.14						
V. Health Status	.15	.25*	-.10	.05					
VI. Worker's Experience	-.23	-.04	.00	.01	.06				
VII. Client's Financial Resources	.07	.08	-.24	.45*	.03	.01			
VIII. Therapeutic Regimen	-.15	-.20	.05	-.22	-.07	.16	-.13		
IX. Availability of Provider	.28*	.26*	.01	.11	.33*	-.12	.12	.13	1.00

*Significant at the .05 level of confidence

This variable pertains to the time element between scheduling and appointment. The client is more likely to keep an appointment when fewer days intervene from the time of scheduling. The cluster is called "Participation in Health Screening" because this is the pivotal variable that best defines the cluster. In general, what this analysis says is that the best approach to promoting preventive health care screening among low-income families is whatever works, and the worker is advised to get the family in as quickly as possible because what worked to get the agreement for participation from the family will not work for long.

Not only do the other 79 variables fail to have a similar collinearity with the first cluster, but, also, none of the other cluster domains, with the exception of the ninth cluster, have any significant correlation with Cluster I, namely, "Participation in Health Screening".

Cluster I has an extremely small (.01) association with provider/patient interaction (Cluster II). The second cluster includes such seemingly important measures as the extent to which patient's expectations are met, satisfaction with services received, desire for comprehensive services, length of time spent waiting for services, and education received regarding a health condition and how to care for it. The lack of correlation here is something of a surprise.

The association is even less (.01) between program participation and the client's intellectual ability as defined in Cluster III. It appears that higher intellectual skills

or even above average knowledge of sicknesses and how to care for them are not useful in predicting those who will participate in a preventive health program such as health screening.

The finding, just described, in associating Cluster I with Cluster III receives greater affirmation in the association between Cluster I and Cluster IV. The correlation with this cluster is negative ($-.04$). It appears that the maturity of the client in terms of chronological age of the parent and children, size of family, and level of income have no significant association with appointment keeping and brevity of time between scheduling and appointment.

A very slight negative correlation ($-.04$) exists between Cluster IV described as the "Maturity of the Client" and program participation. The lack of meaningful association between program participation and the maturity of the client signifies, in effect, that older parents who have older children are no more inclined to keep their appointments for health screening than younger families. Furthermore, larger families are no more responsive than smaller ones. Families with higher incomes do not keep appointments more so than those with lower incomes.

A much higher association ($.15$) exists between the health status and health screening participation. This association, however, is too small to be significant. The important items included in Cluster V is that the client does not have a tendency to a particular sickness, e.g., heart

problems, cancer, diabetes, and the like. A host of other variables serve to further define the measuring of health status. These include severity of past sicknesses, proximity to urban centers, lack of side effects from previous treatments received, minimal change in routine due to treatment regimens, care of doctors in scheduling appointments, lack of urgency for attention to the health problems, lack of need for a diet in treating the condition and cause of the disease is physical rather than mental or emotional.

The participation in health screening, as defined in Cluster I, is associated with younger workers who are relatively new on the job. These two variables make up the sixth cluster which has a negative correlation ($-.25$) with Cluster I, however, is not large enough to have significance.

There is very little association ($.07$) between a client's financial resources as defined in Cluster VII and program participation. The amount of income for 1984, or the brevity of time the family is on public assistance do not, as a cluster, score associate meaningfully with scores on the first cluster.

Cluster I has some association ($.15$) with Cluster VIII. The correlation, however, is negative. It is of interest to note not only the lack of significant association with participation in health screening, but, also, that the association is negative for the variables that compose Cluster VIII, namely, frequency of receiving treatment for health problems in the past, frequency of drugs used

for treating a health problem, knowing the existence of a health problem prior to visiting with a doctor, the impairment of mobility due to the illness, and the length of time for mobility.

Only one cluster was found to have a significant correlation (.28) with Cluster I, "Participation in Health Screening". This cluster is called the "Availability of the Provider" and includes the adequacy of staff available at the health clinic, setting aside a specific time for the patient, and making an appointment with a specific doctor. The association indicates the importance of having adequate staff to give personal attention to clients as soon as possible to insure program participation. The finding clearly constitutes a common sense approach to insure the success of any program.

Cluster II - Health Care Provider and Patient Interaction

The title assigned to Cluster II is "Health Care Provider and Patient Interaction" because the cluster is principally defined by "meeting the expectations of the client" at the clinic as the pivotal variable and, further defined, by the level of client satisfaction and comprehensiveness of services. Of less importance, but also included in this cluster, are variables related to the waiting time for services, and the care providers take to explain what the health problem is and what the treatment for it will do.

Cluster II is one of two that remains intact out of the eight theoretical clusters with which we began this

study. The only variable in the original cluster that lacked collinearity was the variable regarding close follow-up on the patient by the doctor.

Cluster II had a small, but insignificant, relationship with Cluster III. The interaction between provider and patient as defined in Cluster II had little or no bearing on the level of the client's intelligence or how much the client knew about sickness or how to care for it. The same holds for "Maturity of the Client" as defined in Cluster IV. Age of client, size of family, age of children, or income do not have association with provider/patient interaction.

There is, however, a significant association between Cluster II and the health status of the client as defined in Cluster V. Thus, it follows that when a client's expectations are met, he/she is satisfied with the medical clinic, receives all the services needed, waits for a short time for health care, and receives adequate explanation from the doctor about his/her health problem and what the treatment will do. Furthermore, this same client does not have a tendency to a particular sickness, e.g., heart problems, cancer, diabetes, and the like, has not had severe sickness in the past, lives closer to large urban centers, experienced few side effects from past treatments, has had little change in routine due to treatment ordered by the doctor, has little need for immediate attention, is not placed on a diet, experienced few, if any, errors in scheduling by the doctor, and suffers from health problems due to physical causes

rather than mental or emotional. This finding is what one would have expected since a less frequent contact with the health care system, because of a low morbidity rate, would likely result in less friction because of unmet needs and, consequently, greater satisfaction with health services generally.

Cluster II has a slight negative association with Cluster VI, "Worker's Experience". Because the correlation is insignificant, nothing can be concluded between provider/client interaction as defined in Cluster II, and the age or years of experience of the health care worker. The same must be said regarding client's financial resources as defined in Cluster VII and provider/patient interaction. The correlation between these clusters is .08. The level of income or time on public assistance has no significant association with provider/patient interaction factors.

There is a negative correlation (-.20) between Cluster II and Cluster VIII, but the association is not large enough to be significant. The relationship was, however, larger than with most of the other clusters. Provider/patient interaction, as defined in Cluster II, is somewhat associated negatively with clients who received treatment for health problems in the past, who needed drugs in the treatment regimen, who were unaware of health problems prior to visiting the doctor, who had long sicknesses in the past, or whose mobility was hindered by health problems.

Cluster II, "Provider/Patient Interaction", had its

strongest association (.26) with Cluster IX, "Availability of the Provider". This association is significant at the .05 level of confidence. Thus, when a client's expectations are met, he/she is satisfied with the medical clinic, receives all the services needed, waits a short time for health care, and receives adequate explanation from the doctor about his/her health problems and what the treatment will do. This same client experiences adequacy of staff at the doctor's office and is able to receive services from a specific doctor at a specific time.

Cluster III - Client's Intellectual Ability

This cluster was named "Client's Intellectual Ability" because the defining pivotal variable is based on the intellectual level of the client. A further definer variable is the knowledge the client has regarding sicknesses and how to care for them. No other variable had a collinearity similar to these two. The correlations of this cluster with the eight others were too small to be significant. The highest correlation (-.24) occurred with Cluster VII, "Client's Financial Resources". The level of intelligence and knowledge of how to care for sicknesses correlated negatively with level of income and time spent on assistance. The association, however, may be one of chance rather than of predictive value due to its lack of significant correlation.

Although Cluster III had low association with the other clusters, generally, there was a negative correlation of -.14 with Cluster IV, "Maturity of the Client", and a -.10

with the health status of the client as defined in Cluster V. Furthermore, a trivial correlation of less than .05 was found between the Client's Intellectual Ability and the Worker's Experience (Cluster VI), the Therapeutic Regimen (Cluster VIII), and the Availability of the Provider (Cluster IX).

Cluster IV - Maturity of the Client

This cluster is so named because of the age of the client is the defining variable. The age of the oldest child in the family serves as further definition of this cluster. Two other scales were found to have similar collinearity, namely, the size of the family, and the highest yearly income received.

The highest correlation that occurred among the cluster domains was found between Cluster IV and Cluster VII, "Client Financial Resources". The clients who tend to be older and have older children also had a higher income in 1984, and tend to stay on public assistance for a shorter period of time. The only surprise, perhaps, is the larger size of families, however, the median size of the household in the sample population consisted of three to four members.

Cluster IV had a negative but reasonably high correlation (-.22) with Cluster VIII, "Therapeutic Regimen". Older clients with older children and larger families with higher incomes tend to have received treatment in the past, used drugs for health reasons, have health problems unknown prior to a visit with the doctor, have mobility impaired because

of a health problem, and tended to have longer bouts of illness. The association, however, is not strong enough to be significant.

Cluster IV had only trivial relationship with Cluster V (Health Status), Cluster VI (Worker's Experience), and Cluster IX (Availability of the Provider). As mentioned regarding client's intellectual ability, so also client's maturity are not at all associated with health status of the client as defined in Cluster V.

Cluster V - Health Status of Client

This cluster, comprised of nine scales, is the largest of the nine clusters. Its name is determined by its pivotal variable, namely, the client's tendency to a particular sickness, e.g., heart problems, cancer, diabetes, and the like. This cluster is further defined by the two variables of tendency to less severe sicknesses, living in more urban settings, and lack of side effects from treatment regimens in the past. The collinearity of five other variables were similar to this cluster and, consequently, were included. These variables are, namely, little change in routine resulting from treatment ordered by the doctor, accuracy in scheduling appointments, sickness needs less immediate attention, prescription of a diet as treatment, and origin of the sickness from physical rather than from emotion or mental causes.

Cluster V had a significant correlation (.33) with Cluster IX, "Availability of the Provider". This finding illustrates that when adequate staff is available and

personal attention given to the patient by way of getting services from a specific doctor at a specific prearranged time, the patient will not have a tendency toward a major illness, nor severe bouts with sickness, will receive fewer side effects from treatment, will have less disruption in his/her life, will not require immediate attention for sicknesses which will, most likely, be from physical causes, and will not end up on a diet to correct health problems. This seems to be a very reasonable association of notions.

The association of Cluster V with Clusters VI, VII, and VIII was trivial. Health status of the client is not affected by the medical outreach worker's age or years on the job, nor is it affected by the client's level of income or years on public assistance.

Cluster VI - Experience of Health Care Workers

Cluster VI is comprised of only two scales. It has a pivotal variable based on the age of the worker. A further definer of this cluster is the number of years the medical social worker has been on the job. This cluster had no significant association with any of the other eight clusters.

Cluster VII - Client's Financial Resources

The defining variable for Cluster VII is the highest income a client received for any given year. The level of income for 1984 serves also to define this cluster. Those with higher incomes, as would be expected, also spent less

time on public assistance. This latter variable serves as the third scale comprising this cluster.

Cluster VII had a negative correlation (-.13) with Cluster VIII, "Therapeutic Regimen". Persons with higher incomes and less time on public assistance tended not to have had treatment for health problems in the past, did not need drugs for treatment of health problems, knew of health problems before visiting with a doctor, tended not to have mobility impaired by a health problem, and tended to have brief episodes of illness. The correlation among these two cluster domains, however, is not high enough to be significant and, therefore, may be only of chance occurrence.

There is also a similar correlation (.12) of Cluster VII with Cluster IX, however, it is in the opposite direction. Thus, persons with more financial resources tend to receive health services from doctors with adequate staff, have a specific appointment time, and a specific doctor. This tendency is, however, too low to be considered statistically significant.

Cluster VIII - Therapeutic Regimen

The defining variable for Cluster VIII is that "treatment for a health problem was received in the past". Two other variables serve to give further definition. These are that drugs were needed in the treatment regimen, and the health problem was unknown prior to a visit with a doctor. Two other variables had collinearity similar to this cluster, namely, mobility hindered by the health

problem, and tendency of the illness to be long. Clients who have received treatment for health problems in the past, who needed drugs in the treatment, who were unaware of a health problem prior to visiting the doctor were impaired in their mobility by the health problem, and whose past illness were long in duration tend, also, to go to doctors who have adequate staff and received personal attention as defined in Cluster IX. The correlation (.13), however, between Cluster VIII and Cluster IX is too small to be significant.

It is of interest to note that the "Therapeutic Regimen" Cluster is the second of two from the original eight theoretical clusters that survived the cluster analysis. Some of the variables from the original cluster were eliminated because of lack of collinearity. These include cost of treatment, side effects resulting from drugs taken, level of dosage needed, prescription of a diet, and the degree of mobility impaired by a health problem. These variables, as mentioned earlier, were either eliminated because of lack of commonalty, or were included in other clusters.

Cluster IX - Availability of Health Care Provider

The adequacy of clinical staff serves to define this last cluster. Assigning a specific time for an appointment verses block scheduling further defines the meaning of this cluster. Included, also, is a third variable, namely, assignment to a specific doctor rather than to a

clinic for health services.

Two of the variables in this cluster are from the original cluster designated as "Facility and Administrative Process". Other variables, from the original theoretical cluster, that did not prove to be collinear with Cluster IX, "Availability of the Health Care Provider" include waiting time at the clinic, recommendation of the clinic from family and friends, availability of parking, use of prospective and retrospective members, scheduling errors, and the number of days between scheduling and appointment. What was formerly considered one of the large and more important clusters has, in fact, become a very small cluster of scales. However, it has been found, in its reduced size, to be correlated with more of the other clusters than any other.

Summarily, a sharp difference is evident between conceptual clusters and those found statistically. Six of the original eight clusters failed to survive as meaningful categories of scales to give insight into appointment keeping behavior. The original clusters eliminated included patient features, provider features, features of the disease, access features, features of the facility/administrative process, and features of the environment.

Out of the 15 social behavior and perception variables originally thought to be important in predicting appointment keeping, only four were retained as having sufficient commonality with other variables to be included in the clusters.

These four are: belief in the susceptibility to particular diseases, knowledge of disease and therapy for them, level of intelligence, and prescription of drugs by the doctor. It appears that a lot of caution should be taken in using social behavior factors in predicting scheduling outcomes.

The same must be said for variables related to access to the clinic. None of the variables originally identified as important survived in statistically formed clusters.

The statistically formed clusters focus our attention on issues directly related to provision of health care services. Cluster I suggests timely service; Cluster II looks at patient satisfaction issues; Cluster V points to the level of need for health services; Cluster VIII reflects on previous use of the health care system; and Cluster IX underscores need for the availability of adequate staff for direct personal services to the patient. The statistically formed clusters gave a basis for a more realistically formed theoretical framework for understanding health related behavior of Medicaid eligible clients, specifically in regard to appointment keeping.

V. DISCUSSION

For the sake of clarity due to the vast number of studies on the appointment keeping issue, it is helpful to use the original categories of variables suggested by Haynes (1976) as a guide for developing a contrast between findings of this study and those of earlier studies. These categories include features of the patient (both demographic and social behavior) features of the medical provider, features of the disease or reasons for appointment, features of the patient/provider interaction, features of the therapeutic regimen, features of the medical facility and administrative process, features of access to the facility and environmental features.

Demographic data on patient dropouts are available in a large number of studies but often are inconsistent and unenlightening. The present study supports this general conclusion. A number of researchers (Jones 1971, Shonick 1977, Hurtado 1973) found higher rates of broken appointments among the younger age patients. This study found a negative ($-.01$), although insignificant, correlation with age level and appointment keeping.

In regard to education, Stine (1968) showed a significantly increased incidence of failed appointments in patients who did not complete high school compared to a group of high school graduates. This study shows a negative correlation ($-.07$) between the level of education

and appointment keeping. It appears that the level of education is not a predictor of health related behavior in terms of this study.

Socio-economic status is an important predictor of keeping or not keeping appointments according to a number of researchers (Alpert 1964, Badgley 1961, Hoenig 1966). Only a slight positive correlation (.03) could be detected between socio-economic status and appointment keeping. It was far from being large enough to be considered significant.

Researchers are sharply divided as to the importance of race as predictor of appointment keeping. Three studies suggest that non-White populations have a significantly increased rate of missed appointments (Alpert 1964, Badgley 1961, Jones 1977). More recently, Hertz and Stamps (1977) found that low-income patients and patients from ethnic minorities are more likely to break appointments. Craig (1976) found that low-income, inner city Black patients are at least as capable as other patient groups of sustained therapeutic contact. This study is inconclusive on the issue since only 3 percent of the population included in the study was Black.

Patient demographic variables of gender, occupational status, and religion appear to have little or no effect on attendance behavior according to Baekeland (1975), Gates (1976), and Dervin (1978). This study concurs with the findings of these researchers.

It is harder to measure the characteristics of a patient; fewer studies consequently have been done in this area. Tash (1969), Kegeles (1973), and Haefner (1970) found perceptions by the patient of the seriousness and susceptibility of a disease and belief in the efficacy of therapy has an important correlation with medical recommendations in general, including appointment keeping behavior. This study did not support that position. The highest correlation among these three factors, just mentioned, was found to be .11, namely, between belief in the seriousness and the susceptibility of a disease in the efficacy of treatment and appointment keeping. This is far from a significant association.

Tagliacozzo (1970) suggests educational efforts can improve the rate of broken appointments because there is a correlation between the patient's knowledge of disease and how to care for it. This study found a $-.01$ correlation between knowledge of a disease and appointment keeping. This is hardly enough of an indication to justify an educational campaign. Haefner (1970) found that altering a person's belief regarding health matters does not automatically translate into changed behavior. Findings in this study strongly suggests Haefner's remarks.

Most studies limit the investigation to variables that pertain to the patient; few focus on provider related characteristics. It has been found (Hoenig 1966) that female therapists treating female patients experienced higher

appointment keeping rates than other sex pairings. Nothing can be said to dispute his finding from later in his study since only 1 percent of providers were male.

Age, according to Hurtado (1973), is weakly associated with appointment keeping, favoring the older health care practitioner. In this study, the tendency is in the opposite direction, but the association ($-.02$) is so small that nothing can be concluded.

The attitudes of the provider has had important influence on keeping appointments according to Baum (1966), Sethman (1971), and Dervin (1971). These studies measured the influence of ethnocentrism, unconcern for, dislike of, or boredom with the patient. In this study, the key attitudinal measure was the invoking of economic penalty for families who did not participate in health screening by way of withdrawing from them their eligibility for public assistance. This attitude was viewed as one using force to get compliance versus convincing a family to value health screening and, consequently, to attend freely. Those who took the educational sales approach were less effective as there was a $-.09$ correlation with appointment keeping. The association, however, was too small to permit this inference.

It seems a wise policy to make health screening optional because the overall aim of EPSDT is to achieve prevention as a life style. A comprehensive screening is only a small part of this difficult goal. Use of force, may in fact, be counter productive in the long run.

Characteristics of the disease provide little clue to appointment keeping behavior. Duration of an illness was found unimportant (Badgley 1971, Glick 1965). An association of .13 was found between appointment keeping and the duration of the illness. This was not high enough to merit a significant correlation. Findings in this study agrees with that of other researchers regarding this issue.

Sackett (1976) reports that patients with a specific health problem have a compliance with appointments between 70 to 78 percent, compared with studies of patients without specific complaint who have an appointment compliance of 47 percent. No such finding is found in this study. Only a .09 correlation could be found between appointment keeping and previous knowledge of a health problem. This association is too small to be meaningful.

Glowgow (1970) reported that patients with severe functional impairments do not keep their appointments as faithfully as patients with intermediate degrees of impairment. This seems logical enough, but the association between impairment and appointment keeping in this study is a meager .01 percent which is hardly significant. Impairment should not be considered in predicting appointment keeping behavior.

Researchers have examined variables related to the therapeutic regimen to find clues to appointment keeping. The effort has had limited success. Dodd (1971) found that patients sustain higher rates of appointment keeping

when medication is prescribed. This study found only a .02 correlation. It, therefore, seems a waste of time to concentrate on those clients already on or who have been on a drug therapy. Frank (1968) found that, initially, medication influenced appointment keeping but, over time, other factors became significant for insuring continued fidelity to appointments. Although this study found no significant relationship between medication prescription and appointment keeping, incentives given out at screening may have some effect. Researchers feel that something tangible, even a placebo, would be advisable to insure appointment keeping. An incentive such as toothbrush, vitamins, food items, and the like would be a sensible practice to try in spite of the fact that a significant correlation was not found in this study.

Cost, duration, and side effects have been found to be significantly correlated negatively with appointment keeping behavior (Rickels 1968, Winkelman 1964). The only item in these three variables found to be significant is side effects due to a treatment regimen. This study concurs with other researchers concerning the negative correlation with side effects. Increased cost of treatment has a respectable .13 percent correlation with broken appointments, but this is not high enough to be considered significant. Duration of treatment achieved only .07 correlation with appointment failures.

The literature available on patient-therapist interaction variables relative to appointment keeping has been almost exclusively concerned with psychiatric services. A cross study comparison of this study with the literature is weak due to the very different situations. Alpert (1964) and Haynes (1976) found a significant correlation between satisfaction with visits to the doctor and appointment keeping. Data in this present study showed an extremely small (.02) correlation with satisfaction and screening attendance. A similar low (.03) correlation existed between attendance and education of the client given by the therapist. Glowgow (1970), on the other hand, found that when the therapist takes time to educate the patient concerning the health problem, appointment keeping behavior improves. Tagliacozzo (1974), as did this study, could not find evidence of this.

Meeting the expectations of the patient is significantly correlated with appointment keeping according to Barry (1984). He found that when time was taken to explain to the patient exactly what to expect at the clinic, a significantly higher number of patients kept their appointments. This has not proven to be a significant factor in this study as clinic attendance correlated only .01 percent with the level of expectations being met.

A considerable number of studies focused on access to the health care facility as a key factor. This present study found no significant correlation with distance from the patient's home to the clinic. In fact, what

correlation that existed is a negative association (-.12). Thus the trend is: the closer the clinic is the less likely an appointment will be kept. It could be that families living at greater distances appreciate the service more because health care services are not readily available. This, of course, is guess work. Other researchers (Feister 1974, Bigner 1976), however, concur with this present study concerning the existence of no correlation between distance traveled and appointment keeping.

Very little study has been done on the availability of transportation as a variable related to appointment keeping. Alpert (1964) found a significant correlation. This study showed a negative although insignificant correlation (-.14) between the availability of transportation and appointment keeping.

The presence of a telephone in the home is an important means of access to the facility, not only to make appointments, initially, but, also, to change or cancel them. It is, likewise, an important item for access from the clinic to the family to remind the patient of a forthcoming appointment. All studies reviewed found the telephone to be a critical element in a successful appointment keeping efforts. This study concurs with other researchers on this issue. With the breakup of the telephone system, and its accompanying price increase, a greater number of homes of low-income families are losing telephone services. This is not a hopeful trend for programs such as EPSDT.

Variables related to the facility and its administrative procedures have been found to have an enormous impact on attendance. The largest correlation found in this study pertain to the administrative process of scheduling appointments. It was found that a very high significant correlation (.54) exists between appointment keeping and the number of days that intervene between scheduling and the appointment. The longer the interval, the greater the number of broken appointments. Other researchers (Hagerman 1978, Nazarian 1974) found this association. This is especially true with regard to follow-up appointments after mass health screening (Glowgow 1973). It is consistent with a short range perspective low-income families are often forced to adopt because they do not have the resources for long range planning. A relatively immediate appointment fits into this style of living.

This study found two other variables to be significant relative to facility/administrative process. These are: the sufficiency of staff to provide services, and the frequency of errors made in scheduling. Where there are adequate number of staff persons to do the job and fewer errors made, the more likely an appointment will be kept. It is, consequently, counter productive to reduce staff because scheduled patients are not keeping their appointments and, as a result, more errors are made because the remaining staff is put under greater stress in trying to carry the load. The solution is to find more effective ways of

either getting the patient to come for the appointment or taking the service to the patient. The use of home visits or personal contact has been successfully used to minimize broken appointments (Hildebrandt 1975). In at least some settings, the provision of neighborhood clinics in familiar surroundings with a highly involved staff has resulted in reduction of broken appointments in comparison with previously used central facility (Curry 1968).

Although other researchers (Badgley 1961, Finnirtty (1973) found that waiting time was an important issue in appointment keeping, this study is unable to corroborate the finding. A correlation of only .04 existed between waiting time and successful other scheduling outcome. To increase professional staff utilization, Shonick and Klein (1977) experimented with a "block time" scheduling system where a number of patients are given the same time for an appointment. This has the effect of extending the waiting time for patients. The "block system" resulted in a markedly improved appointment utilization level. The improved utilization of appointment time is due to overbooking. Key to this system is the capability to establish, with some accuracy, a probability that any given patient will fail to keep an appointment. Whether or not this can be done in a rapid, cost effective manner remains to be established as is evident from this present study. This study found a small positive correlation with appointment keeping and block scheduling (.15). Contrasted with this is a small

positive correlation (.12) scheduling success when a client is referred to a specific doctor rather than to a clinic in general. These correlations are not large enough to be significant. This contradicts the findings of Rockart and Hofmann (1961) who found appointment with a specific provider resulted not only in the patient being prompt for the appointment, but the promptness of the provider was also significantly improved. Finnerty (1973) found little difference in appointment keeping patterns between low and middle class income groups when personal attention was given by way of providing a specific time with a specific provider. This study does not include middle income families, but only the poorest of the poor. Findings regarding the facility/administrative process, however, underscored the need felt by low-income families for personal attention rather herded in with the assumption that low-income patients break appointments more frequently than others due to their ethnic background, low education levels, cultural barriers, low harmony in family relationships, social disorganization, and other factors related to urban living.

A nearly universal practice in the Michigan EPSDT program is calling or sending reminders to insure that clients will keep their appointment. This present study found only trivial relationship between prospective (.01) and retrospective reminders (-.04). This practice is among the most studied of the administrative procedures. Levy (1977) reported a 20 percent reduction in appointment

failures through the use of prospective reminders. Mailed reminders appear to be generally as effective as telephone reminders. Extended use of prospective reminders appear to be increasingly effective. The findings of this study may reflect the result of using this practice over a period of years and often with the same family. Use of retrospective reminders, i. e., notification of patients after missed appointments to ascertain their reason for absence and to offer a new appointment, has been ineffective (Hurtado 1973).

At first thought, it would seem that people are greatly influenced by the weather in their behavior. Some health workers report that on beautiful, sunny days attendance at a health screening clinic is often very poor. In contrast, on a day that a family would be expected to stay home because of snow, cold, or rain, the clinic is often filled to capacity. A number of medical social workers have made this observation. One may conclude that weather has an influence on the mood of individuals, but it is clear that it does not determine behavior. This study, however, found no such relationship ($-.05$) of significance between appointment keeping and weather (barring severe conditions). Other researchers (Badgley 1961, Hurtado 1973) found the same.

In scheduling families for health screening, workers often make special effort to get larger families in because of the larger number of individuals involved.

According to Badgley (1961), large families miss their appointments much more frequently than smaller ones. Therefore, the total number of screenings may not be improved at all by concentrating on large families. This study found virtually no (.03) correlation with family size and appointment keeping habits. Alpert (1964) suggests that presence of small children in the family are especially relevant to broken appointments. No evidence supporting this notion can be found in this present study.

The time of day or day in the week that an appointment is scheduled has no meaningful correlation (-.02) with a successful outcome. Oppenheim (1979) reported the same finding. This finding should alert workers scheduling appointments that they cannot depend heavily on the influence of a client's friends or neighbors to convince him/her of the value of health screening. Each person is to be treated individually and made to understand what is in health screening, and why it needs to be done. Furthermore, it does not follow that, if a client is not attracted to a screening clinic because of encouragement of friends or neighbors, the client will also not be repealed by bad reports from these same friends or neighbors.

Summary

Large industrial nations such as Britain, France, the United States, and others are faced with an exploding cost for health care. This is due to the increasing prevalence of health problems because of increasing concentration of

people in urban areas, the environmental pollution resulting from industrialization, stress due to rapid social change, as well as other factors. Rapidly increasing costs are a by-product of rapid advance in technologies that inevitably accompanies the process of industrialization. New and costly techniques and machines are invented that, at the same time, raise expectations that improved health care will be available to everyone.

Government, business, and the citizenry in general are becoming increasingly aware that new technologies cannot be translated immediately into better health services to all. The "writing on the wall" is that there clearly will be a limit to the availability of health services. Increasingly, as unsavory as it may be, decisions will be made as to who will continue in sickness or disability, or be allowed to die, and who will be restored to a healthy life. Already an estimated 20 percent of Americans have little or no access to health care because they cannot afford insurance. As pointed out in the Introduction of this study, the incidence and prevalence of health problems among the poor is much higher and often serves to lock individuals into a lifetime of poverty.

It was in this context that this study was undertaken. Since focus on remedial health care is becoming increasingly unrealistic, physically speaking, attention and available resources must be redirected toward prevention. Health problems must be found early when treatment is more effective

and cheaper. It is precisely for this purpose that a massive health screening program (EPSDT) was authorized by Congress in 1967. The effort was directed at low-income families as the most vulnerable segment of the population. Out of the twelve million eligible, only two million were screened (Dew 1979) in the early years of this program.

In the many years of experience for this researcher, when the health screening is explained adequately, most families indicate a readiness to participate. However, when the time for the screening arises, a large percent (35 percent to 50 percent) fail to keep the appointment. The problem of missed appointments is a major stumbling block for impacting on the health status of millions of eligible children. Not only does the client suffer because of undiscovered or unchecked health problems, but also, the provider of care is hurt because the time set aside for an appointment is not effectively utilized. It is of critical importance that some light be cast on what are the key factors that relate to keeping or not keeping appointments.

This study has been an effort to provide this insight. Of the eight clusters originally proposed as important categories of variables to explain appointment keeping behavior, only some items in the cluster of variables related to features of facility/administrative process, namely, an adequate number of staff, specific time and specific

provider for the appointment were found to be significant. The strongest correlation for appointment keeping was with the time factor between scheduling and appointment. The shorter the time, the better the outcome is. Generally speaking, this study did not find much help for those seeking answers by looking at a large array of variables in an attempt to reduce broken appointments. Specific advice that flows for this study is -- do not sit back and try to manipulate people into the health screening clinic by prejudging behavior according to theories or impressions regarding certain variables. Rather, get directly involved with the families and do what needs to be done including educating/directing the family but, also, change the system to meet the needs. It seems clear to this researcher, both from this study and from years of experience, people want personal and immediate attention. They want follow-up care with continuity from health care workers that are professional and in adequate numbers. Where families find this, response will not be lacking.

Although there are a multitude of studies focused on the appointment keeping problems, certain cautions should be kept in mind in making comparisons of this study with others. Bearing these cautions in mind, the reader will be in a better position to interpret constructive findings of this study versus those conducted by other researchers.

Most studies interested in appointment keeping behavior have been concerned about persons with psychiatric,

alcoholic, or drug related problems. People with such problems usually need to go through a long series of appointments to treat their chronic condition. Researchers are anxious to discover, not only the variables affecting initial treatment of the health problem, but, often, what causes the patient to drift away or stop treatment altogether, expressed through the behavior of missing appointments. This study is concerned with the behavior of keeping an initial appointment for health screening. That may or may not result in multiple follow-up appointments for health care due to problems uncovered in the screening tests. It is very likely that this type of appointment cannot be equated with appointments that are serial in nature.

The subjects of this present study are the poorest of the poor. As explained in the section on Methodology, the income of families must be minimal to qualify for a meager welfare grant. Many families receiving higher incomes are not eligible for assistance but are still very much living in poverty with little or no resources available for health services. In contrast, most studies are conducted on a cross section of the population in general. There may or may not be a significant contrast between the behavior of very low, low, and middle class patients relative to health care. The contrasting findings of this study with others may, in fact, be reflecting significantly different populations from which samples are drawn for study.

A third very important caution is to keep in mind that the appointments for health screening studied are, basically, a preventive health care measure. We live in a society that has traditionally practiced episodic health care. When a problem becomes apparent to an individual, then and only then does that individual make an effort to seek out diagnosis and follow-up health care. Prevention is comparatively new and few people, including educated and of considerable income, are tuned into it. Knowledge of prevention is not automatically translated into changed behavior.

In this environment, the need for a comprehensive health screening as a preventive measure is barely accepted. Agreement for an appointment may be only one of convenience to get a person off the telephone or away from the door step. It is difficult, at best, to make an across the board comparison between appointment keeping between those who have known, and often painfully felt health problems, and those who have no inkling of a health condition. Corresponding the lack of prevention in practice in the general population is the fact that the people included in this study are forced to live on a day-to-day survival level and, consequently, are even less conditioned to the notion and practice of prevention against some future possible health problem.

Finally, given this situation just explained, the initiative for an appointment for a health screening is nearly always taken by someone other than the family.

Usually this is done by by a field worker for the health clinic. The client must be convinced of the value of the health screening, and the response is, perhaps, based more often to please the worker than on conviction as to the worth of the screening procedures. In appointment keeping studies, generally, the sample is shown from those who, for the most part, take initiative on their own to contact the doctor and, consequently, are subject to a minimal pressure to keep an appointment.

The cautions, just discussed, give a clue about what should be done in future studies. There may be important differences between initial appointments and serial appointments for health care. Some attention (Walsh 1967) has been given to appointment keeping for a variety of health services, but the variable of initial versus serial appointment was not considered. This issue is a critical one in a health screening program such as EPSDT which operates on one time only appointments followed by a repeat two or more years later.

More attention needs to be given on the issue of income as determinant of behavior relative to appointment keeping, specifically, or health behavior generally. Do we, in fact, tend to blame the victim who, in this case, is poor because he/she supposedly is irresponsive? Neglecting health care is only evidence of this lack of responsibility. If those better off behaved in the same irresponsible way, it is because they are too busy to attend to everything. Are

there, in fact, differences in health related behavior in the low and middle classes, and what are the prevailing assumptions about such behavior?

More study needs to be conducted on preventive related health behavior. This is especially urgent because, as noted earlier, costs for health care is exploding along with curative technology. Most health problems are not from disease causing microorganisms, but stem from environment and behavior over which we have direct or indirect control. Both knowledge of prevention and translation of the knowledge into practice are important issues for the future.

Most of the variables related to appointment keeping included in this study have been less than helpful in predicting scheduling outcomes. After turning over so many stones, it is impossible not to notice issues that are interesting, to say the least, and inviting for future research. A review of some of these issues will be illustrative.

Stine (1968) found that the level of education is significantly correlated with appointment keeping. In this present study, no such relationship is to be found. At issue here is the question: Does higher levels of education inevitably lead to improvement in behavior in general, or in practice of preventive health care specifically? Information on this issue would provide some guide as to the approach that should or should not be used for inducing

behavioral change regarding health matters.

Similar to the education issue is the leve of income. Alpert (1964) found a significant correlation with the level of income and appointment keeping. This present study did not find this relationship. More study is needed on the matter to find at what level of income no difference of behavior is detected if, indeed, there is a relationship. Would low-income people, in fact, use additional money for health improvement? It should be noted that a large percent (35 percent to 50 percent) do not keep appointments when, in fact, there are no out-of-pocket expense to the family. Level of income, therefore, would not seem to be a vital issue in this situation.

There is sharp division among researchers regarding the significance of ethnic origin and appointment keeping. Unfortunately, nothing can be learned from this study because only 3 percent of the sample was Black. Further, research is needed to resolve the ethnic factor.

There are many studies on the demographic variables and their association with appointment keeping, mainly because these are easy to study. More attention should be given to the socio-behavioral variables. These are difficult to study because they are very hard to measure in an objective way. Furthermore, there does not appear to be a clear connection between belief and behavioral patterns. More information needs to be provided on this vital link.

In research alone on characteristics of the provider and appointment keeping, the most puzzling finding is the negative association between years on the job and successful outcome of scheduling. This may reflect the presence of burn out on a job that has a lot of built-in frustrations. As an example, the worker is required, as a premise of employment, to reach a certain quota of screenings per month but the family is free to accept or refuse the program. Furthermore, even after accepting, there is no penalty for not keeping the appointment. Adding to this frustration is the plight of the worker who, in some cases, have no health insurance and, consequently, cannot avail themselves of medical and dental services. Another source of frustration results from the patronizing service low-income families are often accorded by professionals in the health care system who, sometimes, view low-income people as irresponsible. Workers scheduling families with such experience from professional health care workers receive the brunt of the reaction. The scheduler is caught in a conflict over which he/she has no control. Further study is needed to design mass screening programs to reduce the number of built-in frustrations. Furthermore, a study should be conducted on how tensions that cannot be eliminated can be, at least, minimized so that burn out does not occur.

Dodd (1971) found that prescription of a medication results in a higher return of kept follow-up appointments.

While this study did not support this, more study should be done on the use of incentives other than medicine to insure fidelity to appointments. It would be most useful to know what positive incentives, in terms of the amount and method of distribution, would be most effective to insure the success of a mass screening program.

Most of the available literature regarding patient-therapist interaction is concerned only with psychiatric services. This is understandable due to both the length and complexity involved in a successful psychiatric treatment regimen. Encounters with medical providers are, generally, brief and, often, quite impersonal. This present study does not find any significant correlation between variables related to the patient-therapist interaction and appointment keeping with one exception. It was found that, when a provider did close personal follow-up on a patient, that patient is more likely to keep his/her future appointments. More study should be done on variables related to patient-therapist interaction variables in situations other than for psychiatric services. This is an area that is still relatively unknown but of great importance in guiding persons working in the health care system.

This study found its highest correlation with appointment keeping between the brevity of time between schedules and the appointment. Furthermore, sufficiency of staff and accuracy of scheduling were also important. These findings

point to the importance of providing immediate and professional service to insure compliance. A study should be conducted as to how a clinic based service, such as health screening, can be taken and the families for whom it is intended so that the service can be immediately available. As an example, experimental mobile clinics can be set up in neighborhoods to reduce access barriers and provide more direct and personal attendance to eligible families.

While attempts have been made to measure the influence of 80 variables, an appointment keeping for health screening among low-income families, the number of variables that could be studied is by no means exhausted. The number of influences that impact on a person's daily life are potentially limitless. The question that needs to be asked is, what practical gain can there be by expanding the variables to an increasing number?

Suggestion was made earlier that, in measuring determinants of appointment keeping behavior, further investigation may be useful in such areas as serial appointments, preventive versus curative behavior, medical versus psychiatric appointments, and the like. However, one finding in this study should be kept clearly in mind, namely, no significant correlation exists between attitudes, behaviors, and perceptions. This means, in effect, that researchers are headed in the wrong direction to investigate attitudes to predict behavior, to behavior to predict perceptions.

More concretely for administrators of health care programs, effort aimed at attitude or perception change in order to achieve a more desirable appointment keeping behavior will probably be ineffective in achieving this goal. Appointment keeping behavior demands a multivariate approach that deals with attitude, perception, and behavior. Central concentration, if improved appointment keeping is the goal, should be on behavioral changing issued directly.

This finding is in agreement with Leedom's (1980) research on energy conservation behavior. This research involved giving extensive information about the importance of energy conservation in order to change the attitude of the individuals involved. The researcher hypothesized that, with a better knowledge concerning the consequences of wasteful use of energy, change of behavior toward one of conservation would surely follow. This did not occur. Those directly involved in activities of energy conservation, however, did, in fact, change their behavior in this direction.

Lounsbury (1972) had similar findings. A study was designed to see if attendants in two mental retardation training schools could plan job training programs for other attendants and whether attitude, personal history, and job satisfaction variables were related to planning activity. Lounsbury found training suggestion ratings were not related to tenure and, similarly, not related to attitude or job satisfaction.

Behavior, attitude, and perception are not only unrelated to each other but, also, unrelated as a variable in different social settings. Thus, the behavior of an individual may be changed through a program of activities so that behavior regarding medical appointments greatly improves. It does not follow that this person will also improve in appointment keeping for school, jobs, or other types of activities. Furthermore, if a person's attitude toward a doctor is improved, it does not necessarily follow that his/her attitude toward self or other professional people will change. Tucker (1974) documented this in a study on Methods of Teaching. Where attitudes of students changed, they did so only in the specific area of attitudes towards the teacher. The attitudes of the student toward him/herself or towards other aspects of the environment were not significantly affected. Furthermore, Tucker (1974) confirmed the findings of Leedom and Lounsbury regarding the correlation of behavior and attitude. Students who improved their performance in studies did not change their attitude.

Similar findings were reported by Fairweather (1964, 1969) in studies of community placement of persons with mental illness. He found that, although participants of his study indicated satisfaction with a community program, a high level of performance did not follow, at least, in regard to returning to the hospital and sustained employment. Patients expressed gratification at being in the

community, but these attitudes were unrelated to whether or not they remained there or were employed (Fairweather 1969, p. 276).

Fairweather (1964, p. 278) found that adjustment to the community is relatively independent of attitudes about hospital personnel and treatment programs. He cites the example where the behavior of an inmate assigned to a laundry job in a hospital is not predictive of the person's behavior on a laundry job in the community. He found that the relative independence of hospital behavior, perception, and community adjustment is attributable, somewhat, to very different situations, namely, to a shift from a member of the majority in the hospital to a minority in the community, and to the fact that attitudes, fantasies, and behaviors, even with the same situation, are, at least, only marginally related (Fairweather, 1969, p. 282).

Perhaps the wrong questions are being asked. A focus on appointment keeping is frequently done because it is an obvious aspect of a health care practice; it involves financial loss as well as possible damage to the patient's health. In conducting a preventive program such as health screening, which in Michigan costs eleven to twelve million dollars a year, the focus should go beyond whether or not a person keeps an appointment to look at whether, over time, the screening did in fact prevent damage to the person's health and decrease the escalating cost of health care services. The national health screening program, namely,

EPSDT, has been in existence for over ten years. To date, no comprehensive study has been made to measure the impact of the program on the health and well being of those who in fact did keep their appointments for comprehensive screening.

APPENDICES

APPENDIX A

Letter of Invitation to Participate in
Health Screening and the Survey

Dear _____:

Your children are eligible for a complete health screening that includes vision and hearing tests, nutritional assessment, tests for diabetes, and a comprehensive physical exam - to name some of the screening tests. These tests are conducted at no cost to you.

We are anxious to make these screening services as convenient as possible for you and other families. I would also like to invite you to give your opinion in an Opinion Survey about health services which you have received. Your responses will help us improve our services.

The opinions you express in our survey are completely confidential. They will not be shared with the Department of Social Services and will have no effect on the assistance you are now getting.

It is especially important that I hear from you, because we are asking the opinions of only a few families and feel that the opinions of many families will be reflected.

Your help is important to us in this survey and is greatly appreciated.

Sincerely,

Health Screening
Coordinator

APPENDIX B

Client Questionnaire

1. What is your age group?
a) 13-17 years b) 18-24 years c) 25-34 years
d) 35-44 years e) 45 years or older
2. Your gender? a) Male b) Female
3. In addition to being an American, what is your ethnic group or ancestry?
a) White b) Black c) Spanish American
d) Asian e) Other
4. What is your religion?
a) Protestant b) Catholic c) Jewish
d) Other e) None
5. Do you speak or understand a language other than English?
a) Yes b) No
6. Were you born in Michigan? a) Yes b) No
7. The number of persons in your family living in this household is?
a) 1-2 b) 3-4 c) 5-6 d) 7-8 e) 9 or more
8. The oldest child in this family living in this household is?
a) 0-3 years b) 3-6 years c) 7-9 years
d) 10-12 years e) 13 years or older
9. Your appointment with the doctor generally is?
a) Before 10 A.M. b) 10 A.M.-12 P.M. c) 12:01-2 P.M.
d) 2:01-4 P.M. e) 4:01 P.M. or later
10. Your appointment with the doctor is generally on?
a) Monday b) Tuesday c) Wednesday
d) Thursday e) Friday or weekends
11. What is the last grade of school you completed?
a) 8th grade or less b) Some high school
c) Graduated high school d) Some college
e) Graduated college
12. Which of the following income groups represents your highest income for any year?
a) Under \$5,000 b) \$5,000-9,999 c) \$10,000-14,000
d) \$15,000-19,999 e) \$20,000 and over

13. Which of the following income represents the income of your family for 1984?
a) Under \$5,000 b) \$5,000-9,999 c) \$10,000-14,999
d) \$15,000-19,999 e) \$20,000 and over
14. The occupation of your father was that of a?
a) Unskilled worker b) Semi-skilled worker
c) Skilled Worker
15. You have had the same doctor for?
a) Less than 2 years b) 2 years but less than 4 years
b) 4 years but less than 6 years d) 6 years but less than 8 years e) 8 years or more
16. You go to a medical clinic for yourself or with your child(ren)?
a) Once a year b) Twice a year c) 3 times a year
d) 4 or 5 times a year e) 6 times or more a year
17. Which of the following items describes the place where you live?
a) Within the city/village limit b) Within 1 mile from the city/village limit c) Between 1 and 5 miles from the city/village limit d) Between 6 and 10 miles from the city/village limit e) More than 11 miles from the city/village limit
18. The number of miles from your house to the health screening clinic is?
a) Less than 1 mile b) 1 mile but less than 2
c) 2 miles but less than 4 d) 4 miles but less than 8 e) 8 miles or more
19. You have been on public assistance for?
a) Less than 1 year b) 1 year but less than 2
c) 2 years but less than 3 years d) 4 years but less than 5 e) 5 years or more
20. Transportation is unavailable to you to go to the medical clinic?
a) Always b) Often c) Sometimes d) Rarely e) Never
21. You have no telephone in your home?
a) Always b) Often c) Sometimes d) Rarely e) Never
22. Your doctor does not prescribe medication when you visit him/her?
a) Always b) Often c) Sometimes d) Rarely e) Never
23. Your doctor does not put you on a diet when you visit him/her?
a) Always b) Often c) Sometimes d) Rarely e) Never

24. You miss appointments with the doctor?
a) Always b) Often c) Sometimes d) Rarely e) Never
25. You avoid the health department for services?
a) Always b) Often c) Sometimes d) Rarely e) Never

APPENDIX C

Client's Opinion Questionnaire

1. You tend to stay well and not get sick.
a) Always b) Often c) Sometimes d) Rarely e) Never
2. Most sicknesses do not seriously affect a person's health and well being.
a) Always b) Often c) Sometimes d) Rarely e) Never
3. You do not tend to get a particular sickness, for example, heart problems, cancer, diabetes, or the like.
a) Always b) Often c) Sometimes d) Rarely e) Never
4. Treatment for most sicknesses are effective.
a) Always b) Often c) Sometimes d) Rarely e) Never
5. Treatment used to relieve sickness is not painful.
a) Always b) Often c) Sometimes d) Rarely e) Never
6. God rewards those who do good with good health.
a) Always b) Often c) Sometimes d) Rarely e) Never
7. Doctors have ability to heal.
a) Always b) Often c) Sometimes d) Rarely e) Never
8. You have an above knowledge of sickness people get and how to care for them.
a) Always b) Often c) Sometimes d) Rarely e) Never
9. You have an above average intelligence.
a) Always b) Often c) Sometimes d) Rarely e) Never
10. Health care professionals are friendly and capable.
a) Always b) Often c) Sometimes d) Rarely e) Never
11. In the treatment of your health problems, drugs are needed.
a) Always b) Often c) Sometimes d) Rarely e) Never
12. You are head of the household.
a) Always b) Often c) Sometimes d) Rarely e) Never
13. It is important to have such items as a thermometer to keep check on the state of your health and that of your children.
a) Always b) Often c) Sometimes d) Rarely e) Never

14. The doctor says sickness you have had were due to physical causes and not to mental or emotional stress.
a) Always b) Often c) Sometimes d) Rarely e) Never
15. Your past sicknesses have not been severe.
a) Always b) Often c) Sometimes d) Rarely e) Never
16. You have received treatment for a health problem in the past.
a) Always b) Often c) Sometimes d) Rarely e) Never
17. The doctor finds health problems that you did not know you had.
a) Always b) Often c) Sometimes d) Rarely e) Never
18. Your health problem improves after you do what your doctor says.
a) Always b) Often c) Sometimes d) Rarely e) Never
19. Your past health problems have not required immediate attention from the doctor.
a) Always b) Often c) Sometimes d) Rarely e) Never
20. Missing an appointment with the doctor would be serious.
a) Always b) Often c) Sometimes d) Rarely e) Never
21. Your health problems, in the past, made it hard for you to get around.
a) Always b) Often c) Sometimes d) Rarely e) Never
22. The doctor prescribes weak medication for your health problem.
a) Always b) Often c) Sometimes d) Rarely e) Never
23. The treatment prescribed by your doctor lasts a short time.
a) Always b) Often c) Sometimes d) Rarely e) Never
24. The cost of visiting your doctor is low.
a) Always b) Often c) Sometimes d) Rarely e) Never
25. Treatment ordered by your doctor has no side effects.
a) Always b) Often c) Sometimes d) Rarely e) Never
26. The dosage of medication prescribed by your doctor is low.
a) Always b) Often c) Sometimes d) Rarely e) Never
27. In following the treatment ordered by your doctor, there is little change of your routine.
a) Always b) Often c) Sometimes d) Rarely e) Never

28. You have been satisfied with the medical clinics you have visited.
a) Always b) Often c) Sometimes d) Rarely e) Never
29. Your expectations were met when you made a visit to a medical clinic.
a) Always b) Often c) Sometimes d) Rarely e) Never
30. You can get all the medical services you need when you visit the medical clinic you attend.
a) Always b) Often c) Sometimes d) Rarely e) Never
31. The doctor takes time to explain to you what he does, and why he wants you to do certain things.
a) Always b) Often c) Sometimes d) Rarely e) Never
32. The doctor keeps a close check on you in regard to following his directions.
a) Always b) Often c) Sometimes d) Rarely e) Never
33. Even though Medicaid pays for health services, there is no cost to you.
a) Always b) Often c) Sometimes d) Rarely e) Never
34. When you go to your medical clinic, you wait a short time for services.
a) Always b) Often c) Sometimes d) Rarely e) Never
35. Recommendation from family or friends is important to selecting a clinic for yourself.
a) Always b) Often c) Sometimes d) Rarely e) Never
36. You much prefer being sent to a specific doctor rather than merely sent to a clinic for services.
a) Always b) Often c) Sometimes d) Rarely e) Never
37. Your doctor has enough staff to adequately serve all patients that come.
a) Always b) Often c) Sometimes d) Rarely e) Never
38. Your doctor sets a specific time to see you exclusively.
a) Always b) Often c) Sometimes d) Rarely e) Never
39. Parking close to the medical clinic has been available.
a) Always b) Often c) Sometimes d) Rarely e) Never
40. Your doctor calls or sends notices to remind you of your appointment.
a) Always b) Often c) Sometimes d) Rarely e) Never

41. Your doctor calls or sends notices when you miss an appointment.
a) Always b) Often c) Sometimes d) Rarely e) Never
42. Your doctor does not make a mistake in scheduling your appointment.
a) Always b) Often c) Sometimes d) Rarely e) Never
43. If the weather is bad, you would still keep a medical appointment.
a) Always b) Often c) Sometimes d) Rarely e) Never
44. The influence of family and friends is important to you in keeping your appointment with the doctor.
a) Always b) Often c) Sometimes d) Rarely e) Never
45. Your sicknesses have lasted a short time.
a) Always b) Often c) Sometimes d) Rarely e) Never
46. You go to the doctor when there is a sickness in your family.
a) Always b) Often c) Sometimes d) Rarely e) Never
47. If your children are not doing well in school, you take them to your doctor.
a) Always b) Often c) Sometimes d) Rarely e) Never

APPENDIX D

Medical Outreach Worker Questionnaire

1. Medical Outreach Worker's age?
a) 18-24 years b) 25-34 years c) 35-44 years
d) 45-54 years e) 55 years or more
2. Number of years since high school graduation?
a) 0 to less than 1 year b) 1 to less than 2 years
c) 2 to less than 3 years d) 4 to less than 5 years
e) 5 years or more
3. Medical Outreach Worker's gender? a) Male b) Female
4. Ethnic origin of medical social worker is?
a) White b) Black c) Spanish American d) Asian
e) Other
5. Medical Outreach Worker's years of outreach work?
a) 0 to less than 1 year b) 1 to less than 2 years
c) 2 to less than 3 years c) 4 to less than 5 years
e) 5 years or more
6. The number of families I am given each month to contact on an average is?
a) 0-99 b) 100-149 c) 150-199 d) 200-299
e) 300 or more
7. I feel that EPSDT should be required for families to receive their welfare check?
a) Always b) Often c) Sometimes d) Rarely e) Never
8. The number of days from the date of scheduling this appointment to and including the day of the appointment is?
a) 5 days or less b) 6 to 10 days c) 11 to 14 days
d) 15 days or more e) No appointment needed
9. Outreach Outcome - The Client:
a) Refused an appointment for screening.
b) Accepted an appointment but did not keep it without previous canceling or changing it.
c) Accepted an appointment but called to cancel or change it.
d) Accepted an appointment and came in on the day of the appointment.
10. Date of Interview: _____
11. Date of Appointment: _____

12. Time of Appointment: _____ A.M. _____ P.M.

13. My region is:

a) Delta-Menominee

b) Grand Traverse

c) Barry-Eaton

d) Monroe e) St. Clair

BIBLIOGRAPHY

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- Adler, L. M., Goin M. Yammamoto, J., Failed Psychiatric Clinic Appointments. California Medicine, 1963, 99:388.
- Alpert, J. J., Broken Appointments. Pediatrics, 1964, 34:127
- Armstrong, M. L., Bakke, J. L., Dodge, H., Conrad, L. L., Freis, E. D., Fremont, R. E., Kirkendall, W. M., Pilz, C. G., Ramierz, E. A., Richardson, D. W., and Williams, J. H., Double Blind Control Study of Hyptertensive Agents. Archives of Internal Medicine, 1962, 110, 222-239.
- Badgley, R. F., Furnal MA. Appointment Breaking in a Pediatric Clinic. Yale Journal of Biological Medicine, 1961, 34:117.
- Baekeland, F., Lundwall, I., Dropping Out of Treatment: A Critical Review. Psychology Bulletin, 1975, 82:738.
- Baekeland, F., Lundwall, L., Dropping Out of Treatment: A Critical Review. Psychology Bulletin, 1975, 82:738.
- Barry, Daniels, Effecting Change in Outpatient Appointments. Journal of Family Practice, May, 1984, 18(5), p. 739-42.
- Baum, O. E., Felzer, S. B., D'Zmura, T. L., and Shumaker, E. Psychotherapy, Dropouts and Lower Socioeconomic Patients. American Journal of Orthopsychiatry, 1966, 36, 629-635.
- Becker, M. H., Maiman, L. A., Kirscht, J. P., et al. A Test of the Health Belief Model in Obesity. Journal of Health Social Behavior, 1977, 18:348.
- Becker, M. H., Nathanson, C. A., Drachman, R. H., and Kirscht, J. P., Mother's Health Beliefs and Children's Clinic Visits. Journal of Community Health, 1977, 3:125.
- Berne, E., Group Astendance: Clinic and Theoretical Considerations. International Journal of Group Psychotherapy, 1955, 5, 392-402.
- Bessman, A. N., Comparison of Medical Care in Nurse Clinician and Physician Clinics in Medical School Affiliated Hospitals. Journal of Chronic Disease, 1974, 27:115.

Bigger, J. F., A Comparison of Patient Compliance in Treated vs Untreated Occular Hypertension. Ophthalmology, 1976, 81:277.

Birch, Herbert G., and Gussow, Joan Dye, Disadvantaged Children and School Failure, New York, Harcourt, Brace, and World, 1970, p. 243.

Blane, H. T., & Meyers, W. R., Social Class and the Establishment of Treatment Relations by Alcoholics. Journal of Clinical Psychology, 1964, 20, 287-290.

Bowen, W. T., & Androes, A Follow-up Study of 79 Alcoholic Patients: 1963-1965. Bulletin of the Menninger Clinic, 1968, 32, 26-34.

Burnip, R. Erickson R., Barr, G. D., et al, Well-Child Care by Pediatric Nurse Practitioners in a Large Group Practice: A Controlled Study in 1,152 Preschool Children. American Journal of Disadvantaged Child, 1976, 130:51.

Caldwell, J. R., Cobb, S., Dowling, M. D., et al., The Dropout Problem in Antihypertensive Treatment. Journal of Chronic Diseases, 1970, 22:579.

Camp, Bonnie W., Pediatric Screening Tests. Charles C. Thomas Publisher, Springfield, IL, 1957, p. 9.

Crag, T. J., Huffine, C. L., Correlates of Patient Attendance in an Inner City Mental Health Clinic. American Journal of Psychiatry, 1976, 133:61.

Davis, Karen and Schoen, Cathy, Health and the War on Poverty: A Ten Year Appraisal; Washington, D. C. The Urban Institute, 1972.

Delk, J. L., Johnson, W. E., Treatment Continuers and Discontinuers in an Adult Outpatient Psychiatry Clinic. Journal of Arkansas Medical Society, 1975, 72(2):92.

Demographic Yearbook of the United States, New York, 1973.

Dervin, J. V., Stone, D. L., Beck, C. H., The No-Show Patient in the Model Family Practice Unit. Journal of Family Practice, 1978, 7:1177.

Dinnen, A., Change of Therapists as a Cause of Absence From Group Psychotherapy. British Journal of Psychiatry, 1971, 119, 625-628.

Dodd, J., A Retrospective Analysis of Variables Related to Duration of Treatment in a University Psychiatric Clinic. Journal of Nervous and Mental Disorders, 1971, 151:75.

Endicott, N. A., & Endicott, J., "Improvement" in Untreated Psycyhiatric Patients. Archives of General Psychiatry, 1963, 9, 575-585.

Fairweather, G. W., Social Psychology in Treating Mental Illness. University Microfilms Limited, High Wycomb, England, 1964, p. 211.

Fairweather, G. W., Community Life for the Mentally Ill. Aldine Publishing, Chicago, IL, 1969, p. 262.

Fairweather, G. W., Experiemental Methods for Social Policy Research. Pergannon Press, New York, 1977, p. 353.

Fiester, A. R., Mahrer, A. R., Giambra, L. M., et al, Shaping a Clinic Population: The Dropout Problem Reconsidered. Journal of Community Mental Health, 1974, 10:173.

Fiester, A. R., Rudestam, K. E., A Multivariate Analysis of the Early Dropout Process. Journal of Consulting Clinical Psychology, 1975, 43:528.

Foltz, Anne-Marie. An Ounce of Prevention, MIT Press, Cambridge, MA, 1982, p. 1.

Frank, J. D., The Influence of Patients' and Therapists' Expectations on the Outcome of Psychotherapy. British Journal of Medical Psychology, 1968, 41:349-356.

Frankenburg, William K., and Camp, Bonnie. Pediatric Screening Tests. Charles C. Thomas Publisher, Springfield, IL, 1978, p. 10.

Gallagher, E. B., & Kanter, S. S., The Duration of Out-Patient Psychotherapy. Psychiatric Quarterly Supplement, 1961, 35, 312-331.

Gates, S. J., Dolborn, D. K., Lowering Appointment Failures in a Neighborhood Health Center. Medical Care, 1976, 14:263.

Genzberg, Eli, and Solow, Robert M., The Great Society: Lessons for the Future, New York, Basic Books, 1974.

Glick, B. S., Dropout in an Outpatient Doubleblind Study. Psychosomatics, 1965, 6:44.

Glowgow, E., Effects of Health Education Methods on Appointment Breaking. Public Health Report, 1970, 85:441.

Glowgow, E., Noncompliance - A Dilema. Sight Saver Report, 1973, 43-29.

Gottlieb, S., Kramer, H., Compliance With Recommendations Following Executive Health Examinations. Journal of Occupational Medicine, 1962, 4:709.

Gray, R. M., Kesler, J. P., Moody, P. M., Effects of Social Class and Friend's Expectations on Oral Polio Vaccination Participation. American Journal of Public Health, 1966, 56:2028.

Green, L. W., The Potential of Health Education Includes Cost-Effectiveness. Hospitals, 1976, 50(9):57.

Harr, Charles M., Between the Idea and the Reality: A Study in the Origin, Fate and Legacy of the Model Cities Program. Boston, Little, Brown and Company, 1975.

Haefner, D. P., Kirscht, J. P., Motivational and Behavioral Effects of Modifying Health Beliefs. Public Health Report, 1970, 85:478.

Hagerman, G. A., Testing of the Mailed Appointment Reminder in Family Practice. Journal of Family Practice, 1978, 7:199.

Hansen, A. C., Broken Appointments in a Child Health Conference. Nurses Outlook, 1953, 1:417.

Haynes, R. B., A Critical Review of the "Determinants" of Patient Compliance With Therapeutic Regimens. In: Sackett, D. L., Haynes, R. B., eds. Compliance With Therapeutic Regimens. Baltimore, Johns Hopkins University Press, 1976.

Healy, W., and Breener, A., The Child Guidance Clinic: Birth and Growth of an Idea. Orthopsychiatry, 1948.

Hertz, P., Stamps, P. L., Appointment Keeping Behavior Re-evaluated. American Journal of Public Health, 1977, 67:1033.

Hildebrandt, D. E., Savis, J. M., Home Visits: A Method of Reducing the Preintake Dropout Rate. Journal of Psychiatric Nursing, 1975, 13(5);43.

Hoehn-Sarrie, R., Frank, J. D., Imber, S. D., et al, Systematic Preparation of Patients for Psychotherapy, and Effects on Therapy Behavior and Outcome. Journal of Psychiatric Res., 1964, 2:267.

Hoen-Sarie, R., Frank J. D., Imber, S. D., et al, Systematic Preparation of Patients for Psychotherapy, and Effects on Therapy Behavior and Outcome. Journal of Psychiatric Res., 1964, 2:267.

Hoenig, J., Raff, N., The Non-attending Psychiatric Out-patient - An Administrative Problem. Medical Care, 1966, 4:96.

Hofmann, P. B., Rockart, J. F., Implications of the No-show Rate for Scheduling OPD Appointments. Hospital Program, 1969, 50:35.

Howard, K., Rickels, K., Mock, J. E., Lipman, R. S., Covi, L., and Bauman, N. C. Therapeutic Style and Attrition Rate From Psychiatric Drug Treatment. Journal of Nervous and Mental Disease, 1970, 150, 102-110.

Howard, K. I., Orlinsky, D. E., and Hille, J. A., The Patient's Experience of Psychotherapy: Some Dimensions and Determinants. Multivariate Behavioral Research, 1968, Special Issue, 55-72.

Hurley, Roger, Poverty and Mental Retardation: A Casual Relationship. New York, Random House, 1969, p. 134.

Hurtado, A. V., Greenlick, M. R., Colombo, T. J., Determinants of Medical Care Utilization: Failure to Keep Appointments. Medical Care, 1973, 11:180.

Johnson, W. L., Rosenfeld, L. S., Factors Affecting Waiting Time in Ambulatory Care Services. Health Services Research, 1968, 3:286.

Jonas, S., Appointment Breaking in a General Medical Clinic. Medical Care, 1971, 9:82.

Karier, C., Testing for Order and Control in the Corporate Liberal State. Educational Theory, 1972, 22 (Spring):155-180.

Kegles, S. S., Why People Seek Dental Care: A Test of Conceptual Formulation. Journal of Health Human Behavior, 1973, 4:166.

Leedom, Nancy J., Energy Conservation Education: A Task-Oriented Approach, Master's Thesis, Michigan State University, 1980.

Linley, Jayne., Mother's Attitude Regarding Health Care for Their Children. AMCN, 1984, Jan-Feb., Vol. 9:1, p. 37-39.

Litt, Iris, Cuskey, Walter, Satisfaction With Health Care. Journal of Adolescent Health Care, 1984, 5:196-200.

Lounsbury, Karen M., Survey of Attitudes, Job Satisfaction and Training Suggestions of Attendants in Mental Retardation Training Schools, Dissertation, Michigan State University, 1972, p. 42.

Moynihan, Daniel P., Maximum Feasible Misunderstanding. New York: The Free Press, 1969.

Michigan EPSDT Annual Report, Michigan Department of Public Health, Lansing, p. 2.

Morris, Peter and Martin, Reis., Dilemmas of Social Reform, New York: Atherton Press, 1969.

National Center for Health Statistics, Vital Statistics of the United States. HEW, Washington, D.C.: U. S. Printing Office, Volume W., Part A, 1974.

National Center for Health Statistics, Monthly Vital Statistics Report Fund, Mortality Statistics. HEW, Washington, D.C., U. S., Printing Office, Volume 23, No. 11, 1975.

National Committee for Mental Hygiene, 1912, Origins, Objects and Plans. Publication No. 1, New York, p. 20.

Nazarian, L. F., Mechaber, J., Charney, E., et al: Effect of Mailed Appointment Reminder on Appointment Keeping. Pediatrics, 1974, 53:349.

Newman, J., and Sparer, P. J., Verbal Behavior and Other Correlates of Adjustment to Hospitalization Among Tuberculosis Patients. In: P. J. Sparer, Ed, Personality, Stress and Tuberculosis. New York: International Universities Press, 1956

Oppenheim, G. L., Bergman, J. J., English, E. C., Failed Appointments: A Review. Journal of Family Practice, 1979, 8:789.

Overall, B., and Aronson, H., Expectations of Psychotherapy in Patients of Lower Socioeconomic Class. American Journal of Orthopsychiatry, 1963, 33, 421-430.

Pam, A., Bryskin, L., Rachlin, S., and Rosenblatt, A., Community Adjustment of Self-discharged Patients. Psychiatric Quarterly, 1973, 47, 175-183.

Park, L. C., Covi, L., Non-blind Placebo Trial: An Exploration of Neurotic Patients' Responses to Placebo When its Inert Content is Disclosed. Archives of General Psychiatry, 1965, 12:336-345.

Piven, Frances Fox, and Cloward, Richard A., Regulating the Poor: The Functions of Public Welfare. New York: Pantheon, 1971.

Pratt, T. C., Linn, M. W., Carmichael, J. S., and Webb, N. L., The Alcoholic's Perception of the Ward as a Predictor of Aftercare Attendance. Journal of Clinical Psychology, 1977, 33, 915-918.

Pressman, Jeffrey L., and Wildarsky, Aaron B., Implementation: How Great Expectations in Washington Are Dashed in Oakland or Why It's Amazing That Federal Programs Work at All. Berkeley, University of California Press, 1973.

Quatrone, D., Profile of Active and Terminated Patients in a Methadone Maintenance Program. Proceedings of the Fifth National Conference on Methadone Treatment, 1973, 1, 760-766.

Raynes, A. E., Patch, V. D., and Fisch, A., Distinguishing Features of Heroin Addicts Benefitting From Detoxification. Proceedings of the Fourth National Conference on Methadone Treatment, 1972, 465-467.

Renton, C. A., Affleck, J. W., Carstairs, F. M., and Forrest, A. B., A Follow-up of Schizophrenic Patients in Edinburgh. Acta Psychiatrica Neurologica Scandinavia, 1963, 39, 548-600.

Rickels, K., Hesbacher, P., Vandervort, W., et al., Tybamite: A Perplexing Drug., American Journal of Psychiatry, 1968, 125:320.

Rockart, J. F., Hofmann, P. B., Physician and Patient Behavior Under Different Scheduling Systems in a Hospital Outpatient Department. Medical Care, 1961, 7:463.

Rosenblut, A., Jonas, S., Wassertheil, S., et al, OPD Waiting Time Reduced by Use of an Individual Appointment System.

Rubenstein, H. S., Behavior in a Medical Clinic of Patients With Well Controlled Asthma. Lancet, 1976, 1(7967):1011.

Russell, W., Recent Progress and Further Needs in the Recognition, Examination and Commitment of the Insane. Proceedings of the Mental Hygiene Conference, National Committee for Mental Hygiene, New York, 1912, p. 189.

Ryan, W., Blaming the Victim, Pantheon Books, 1971, New York.

Sackett, D. L., The Magnitude of Compliance and Non-Compliance. In: Sackett, D. L., Haynes, R. B., eds., Compliance With Therapeutic Regimens. Baltimore: John Hopkins University Press, 1976

Schroeder, S. A., Lowering Broken Appointment Rates at a Medical Clinic. Medical Care, 1973, 11:75.

Sethna, E. R., and Harrington, J. A., A Study of Patients Who Lapsed From Group Psychotherapy. British Journal of Psychiatry, 1971, 119, 59-69.

Shah, C. P., MacBride, J. R., Lamb, G. A., Appointment Systems: Why Does A Patient Not Return? Canadian Journal of Public Health, 1977, 68:148.

Shepard, D. S., Moseley, T. A. E., Mailed vs. Telephoned Appointment Reminders to Reduce Broken Appointments in a Hospital Outpatient Department. Medical Care, 1976, 14:268.

Shmarak, K. L., Reduce Your Broken Appointment Rate: How One Children and Youth Project Reduced its Broken Appointment Rate. Public Health, 1971, 61:2400.

Shmarak, K. L., Reduce Your Broken Appointment Rate: How One Children and Youth Project Reduced its Broken Appointment Rate. Public Health, 1971, 61:2400.

Shonick, W., Klein, B. W., An Approach to Reducing the Adverse Effects of Broken Appointments in Primary Care Systems: Development of a Decision Rule Based on Estimated Conditional Probability. Medical Care, 1977, 15:419.

Shonick, W., Klein, B. W., An Approach to Reducing the Adverse Effect of Broken Appointments in Primary Care Systems. Medical Care, 1977, 15:419.

Spitzer, W. O., Sackett, D. L., Sibley, J. C., et al. The Burlington Randomized Trial of the Nurse Practitioner. New England Journal of Medicine, 1974, 290:251.

Steiner, Gilbert, The State of Welfare, Washington, D. C., The Bookings Institute, 1971.

Stevenson, G., Child Guidance and the National Committee for Mental Hygiene. Orthopsychiatry, 1948.

Stine, O. C., Chuagui, C., Jimenez, C., et al, Broken Appointments at a Comprehensive Clinic for Children. Medical Care, 1968, 6:322.

Suchman, E. A., Health Attitudes and Behavior. Chicago Archives on Environmental Health, Jan: 1970, 20:195-10.

Tagliacozzo, D. M., Luskin, D. B., Lashof, J. C., et al, Nurse Intervention and Patient Behavior. American Journal of Public Health, 1974, 64:596.

Tagliacozzo, D. M., Ima, K., Knowledge of Illness as a Predictor of Patient Behavior. Journal of Chronic Disease, 1970, 22:765.

Tash, R. H., O'Shea, R. M., Cohen, L. K., Testing a Preventive-Symptomatic Theory of Dental Health Behavior. American Journal of Public Health, 1969, 59:514.

Taylor, D. W., A Test of the Health Belief Model in Hypertension. In: Haynes, R. B., Taylor, W. W., Sackett, S. L., eds. Compliances in Health Care. Baltimore: John Hopkins University Press, 1979, 103.

Tomsovic, M. A Follow-up Study of Discharged Alcoholics. Hospital and Community Psychiatry, 1970, 21, 94-97.

Tryon, Robert C., and Bailey, Daniel, Cluster Analysis. McGraw-Hill, New York, 1970, p. 47.

Tucker, Charles H., The Role of Reading, Speaking Dialect and Associative Bridging in Behavioral Achievement and Attitude Change, Dissertation, Michigan State University, 1974, p. 57.

U. S. Commission on Chronic Illness: Chronic Illness in the United States, Volume I, Prevention of Chronic Illness, Cambridge, Howard University Press, 1957, p. 45.

U. S. Comptroller General, Improvements Needed to Speed Implementation of Medicaid's Early and Periodic Screening, Diagnosis and Treatment Program. Washington, D. C., General Accounting Office, 1975.

U. S. Congress, House Subcommittee on Overweight and Investigations of the Committee on Interstate and Foreign Commerce Report: Department of Health, Education and Welfare's Administration of Health Programs; Shortchanging Children, 94th Congress, 2nd Session, September, 1976, p. iii.

U. S. Department of Health, Education, and Welfare, Data on the Medicaid Program: Eligibility/Services/Expenditures, 1979 Edition (revised), Medicaid/Medicare Management Institute, Health Care Financing Administration, 1979, p. 53.

U. S. Health, Education and Welfare, Vital Statistics Report, Washington, D. C., Table 6, 1967.

Urban Health Study, East Los Angeles Health Systems, Inc., December, 1973.

Walsh, J. J., Bouton, J. L., Arnold, I. G., Why Patients Break Appointments. Hospital Top, 1967, 45(2):67.

Winslow, C., The Evolution and Significance of the Modern Public Health Campaign. Yale University Press, 1923, New Haven.

White, M. K., Alpert, J. J., Kosa, J., Hard-to-Reach Families in a Comprehensive Care Program. JAMA, 1967, 201:123.

Wilmer, H. A., The Relationship of the Physician to the Self-discharge Behavior of Tuberculosis Patients. In: P. J. Sparer (Ed.), Personality, Stress and Tuberculosis. New York, International Universities Press, 1956.

Wolkon, G. H., and Moriwaki, S., Race and Social Class as Factors in the Orientation Toward Psychotherapy. Journal of Counseling Psychology, 1973, 20, 312-316.