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**THE MICHIGAN BREAST AND CERVICAL CANCER CONTROL PROGRAM
RESCREENING ASSESSMENT STUDY**

By

David T. G. Millward

A THESIS

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

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1999

ABSTRACT

THE MICHIGAN BREAST AND CERVICAL CANCER CONTROL PROGRAM RESCREENING ASSESSMENT STUDY

By

David T. G. Millward

Objective: To better understand local BCCCP factors potentially associated with the adherence of clients to annual breast and cervical cancer screening.

Methods: Five local BCCC Programs with higher than state average second year rescreening rates and five with lower than state average rates were selected as study sites. Data about each program's structures and processes were collected using structured telephone interviews with the BCCCP Coordinators at each site. **Results:** Programs with higher rescreening rates had more "planned-for" contacts to remind women to return to the program for rescreening. Staff reminders, the convenience of rescreening and the use of female health care practitioners were not different between programs with high and low rates.

Rescreening rates were not associated with assessment of client needs and subsequent modification of services or with the education component of each program. **Conclusions:** The results of this study indicate that client reminder systems are the most important program factor associated with higher rescreening rates. Nine of ten program sites specified the importance of the personal (telephone) contact as the single most important recommendation for increasing rescreening rates.

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LIST OF ABBREVIATIONS

BCCCP – Breast and Cervical Cancer Control Program

BPE – breast physical examination

CBE – clinical breast exam

CDC – Centers for Disease Control and Prevention

FL – functional limitation

LMAS – Luce, Mackinac, Alger and Schoolcraft BCCCP

NHIS – National Health Interview Survey

NP – nurse practitioner

WHO – World Health Organization

INTRODUCTION

I. Incidence, Mortality and Survival for Breast and Cervical Cancer

Breast cancer is the second leading cause of cancer in women within Michigan. In 1995, 6131 cases of breast cancer were diagnosed. 1538 women died from this disease in 1997.¹ The age-specific incidence rate for breast cancer increases with age, from 30.4 (per 100,000 women age 25-39 years) to 414.5 (per 100,000 women age 65 and over).¹ The mortality rate from this disease also increases with age from 5.4 (per 100,000 women age 25-39 years) to 130.0 (per 100,000 women age 65 and over).¹ Cervical cancer is not as common as breast cancer as there were 423 incident cases in 1995 and 122 deaths due to this disease in 1997 within Michigan.¹ The incidence rate for cervical cancer remains somewhat constant across age groups however the age-specific mortality rate increases from 1.6 (per 100,000 women age 25-39 years) to 6.3 (per 100,000 women age 65 and over).¹

Table 1: Breast and Cervical Cancer and Age-Specific Incidence Rates, *Female* Michigan Residents, 1995¹

Age Group	Total Female Population		
	Cancer Site	Number	Rate
All Ages	Breast	6,131	105.1
	Cervix	423	7.2
25 - 39 Years	Breast	350	30.4
	Cervix	134	11.6
40 - 49 Years	Breast	989	139.6
	Cervix	96	13.8
50 - 64 Years	Breast	1,889	287.6
	Cervix	90	13.7
65 and Over	Breast	2,894	414.5
	Cervix	96	13.7

Age-adjusted (Rates per 100,000 female population).

Table 2: Breast and Cervical Cancer and Age-Specific Mortality Rates, *Female* Michigan Residents, 1997¹

Total Female Population			
Age Group	Cancer Site	Number	Rate
All Ages	Breast	1,538	24.7
	Cervix	122	2.1
25 - 39 Years	Breast	62	5.4
	Cervix	18	1.6
40 - 49 Years	Breast	163	23.0
	Cervix	29	4.1
50 - 64 Years	Breast	405	61.7
	Cervix	31	4.7
65 and Over	Breast	908	130.0
	Cervix	44	6.3

Age-adjusted rate per 100,000 female population

Many of these deaths were unnecessary, as early detection of breast cancer by screening has proven to reduce mortality. Fifteen to 30% of deaths caused by breast cancer in women aged 40 and over could be prevented by effective routine screening.² The 5-year survival rate is 97% when the cancer is diagnosed at a local stage but if diagnoses occur after the cancer has spread, the 5-year survival rate is 21%.²

Table 3: Breast Cancer Five Year Relative Survival Rates by Stage & Race SEER (1986 - 93)¹

	Total (%)	White (%)	Black (%)
All Stages	84.2	85.5	70.0
Localized	96.8	97.4	89.6
Regional	75.9	77.4	61.2
Distant	20.6	21.2	16.8
Unknown	54.9	56.4	47.1

Like breast cancer, screening for cervical cancer reduces both morbidity and mortality from this disease.³ Although not as common, the American Cancer

Society, the National Cancer Institute, the American College of Obstetricians and Gynecologists, the American Academy of Family Physicians and the American Medical Association all recommend annual screening beginning at age 18 or when becoming sexually active.⁴ After three consecutive negative smears, screening may be performed less often if a physician chooses to do so, however, screening every year is appropriate for high-risk women.⁴ The 5-year survival rate for cervical cancer is 91% when the cancer is diagnosed at a local stage but if diagnoses occurs after the cancer has spread, the 5-year survival rate is 9%.¹

Table 4: Cervical Cancer Five Year Relative Survival Rates by Stage & Race SEER (1986 - 93)¹

	Total (%)	White (%)	Black (%)
All Stages	68.9	71.4	57.1
Localized	91.3	91.9	88.2
Regional	49.4	51.1	40.9
Distant	9.1	9.8	7.7
Unknown	63.4	64.4	62.7

II. Benefits and Possible Disadvantages of Screening Programs

Screening programs for cancer provide many benefits. They allow pre-neoplastic states to be detected and treated.⁵⁻⁷ Existing therapies may be more effective in reducing mortality when applied to preclinical disease rather than to the clinically evident.⁸ Early detection provides the opportunity for less radical treatments to cure some cancer patients thus leading to resource savings due to lower treatment costs.⁷ Cancer screening is also beneficial because it provides reassurance to women.⁷

Unfortunately, there are several disadvantages that one must consider before undertaking a screening program: longer periods of morbidity as a result of picking up the disease earlier in those patients whose prognosis would not be any different without screening, over treatment of borderline abnormalities that may not have been recognized were screening not in place, false reassurance for those with a false-negative screening test, unnecessary morbidity for those with a false-positive screening test which might lead to further unnecessary diagnostic tests, a hazardous screening test and the utilization of resources for over treatment of borderline abnormalities and the cost of the screening test itself.⁷

Screening programs for any type of cancer need to meet certain criteria. These include: a test that is both safe and painless, ^{8, 9} inexpensive^{8, 10} and simplistic but still adequately sensitive.¹⁰ In addition, an effective intervention must also be available to treat those who are diagnosed.^{8, 9} An example of screening criteria developed by the World Health Organization (WHO) is presented in Table 5.

Table 5: Screening Criteria for Cancer Developed by the WHO¹¹

1.	The condition must have a significant effect on the quality or quantity of life.
2.	Acceptable methods of treatment must be available.
3.	The condition must have an asymptomatic period in which detection and treatment significantly reduces morbidity and/or mortality
4.	Treatment in the asymptomatic period must yield a superior result to that obtained by delaying treatment until symptoms appear.
5.	Tests that are acceptable to patients must be available at reasonable cost to detect the condition in the asymptomatic period.
6.	The incidence of the condition must be sufficient to justify the cost of screening.

III. Results of Breast Cancer Screening Studies

Screening that includes mammography with or without clinical breast examination has been studied to determine its effectiveness at reducing breast cancer mortality. Most studies have shown a positive relationship between screening and a reduction in mortality from breast cancer (17-33% reduction in breast cancer mortality).¹² The exception is the Malmö trial.¹³ The Malmö trial had a smaller study population and 24% of the control group was estimated to have had mammography within this study. Because nearly a quarter of the controls had mammography during the study period, the reduction in mortality rate for the screened relative to the control group was relatively small (4%).¹² A summary of the experimental studies is presented in Table 6.

IV. Results of Cervical Cancer Screening Studies

The mortality rate from cervical cancer in the US has dropped since the initiation of widespread Pap smear screening.¹⁴ Numerous studies have demonstrated a major decline in the incidence of cervical cancer and mortality rates when screening was performed. These studies were conducted over a period of 20 years in eight different countries and produced very strong evidence in favor of cervical cancer screening.¹⁵ They include 5 case control studies, 2 using records from a centrally organized screening program in Aberdeen and Iceland and 3 more in Geneva, Milan and Toronto.¹⁵ Cohort studies have also been completed in British Columbia, Manitoba, Maribo County, Ostfold County and Sweden.¹⁵

Table 6: Summary of experimental studies of the effect of screening on breast cancer mortality¹²

Study	Type of screening and frequency	Age at entry (years)	No. of Subjects		% compliance at first screen	Length of follow-up	% reduction in breast cancer mortality
			Study	Control			
HIP* (Shapiro et al.) ¹⁶	Two-view mammography and breast palpation annually	40-64	30,131	30,565	65	7	33
Swedish two-county (Taber et al.) ^{17, 18}	Single-view mammography**	40-74	77,080	55,985	89	7.9	30
United Kingdom*** (UK Trial Group) ^{19, 20}	Single-view or two-view mammography every 2 years; breast palpation annually	45-64	45,841	127,117	66	6.6	20
Malmö (Andersson et al.) ¹³	Single-view or two-view mammography every 18-24 months	45-69	21,088	21,195	74	8.8	4
Edinburgh (Roberts et al.) ²¹	Single-view or two-view mammography every 2 years; breast palpation every 2 years	45-64	23,226	21,904	61	7	17
Stockholm (Frisell et al.) ²²	Single-view mammography about every 28 months	40-64	40,318	19,943	80	7.4	29

* HIP, Health Insurance Plan of Greater New York.

** The intervals between examinations were about 24 months for women aged 40-49 years and 33 months for women aged 50 years and older.

*** This was an intervention study without random assignment

V. Adherence to Rescreening

Much research has been performed examining factors that are associated with a women ever having a mammogram, however, much less has been studied on factors associated with a woman's adherence to screening guidelines.

Understanding these factors may lead to interventions that increase a woman's compliance to the recommended screening guidelines. Although the vast majority of women have had initial screening, there is a large drop in the percentage of women who return for rescreening.²³⁻²⁸ In order for cancer screening to be effective, women must return for regular screening. Therefore, rescreening adherence needs to become a focus of clinical, programmatic and policy efforts.²⁶ Service providers often are not able to change the individual characteristics that influence a client's decision to return for services. However, providers can often influence how their service delivery systems are put together.

VI. Objectives of this Study

The objective of this study is to learn what components of Michigan's Breast and Cervical Cancer Control Program (BCCCP) local systems may work as enhancers or barriers to women returning for screening in year two and beyond. This is being done through review of local program rescreening rates and gathering data on how selected local systems are organized.

For this study we hypothesized that the following differences between the high and low rescreening programs will be observed:

1. BCCCPs with higher rescreening rates will have more standard operating procedures.
2. BCCCPs with higher rescreening rates will have more client-convenient screening arrangements.
3. BCCCPs with higher rescreening rates will have more matching of the service provision process to client needs.
4. BCCCPs with higher rescreening rates will have more planned for client input/feedback.
5. BCCCPs with higher rescreening rates will have more planned educational interventions for new and returning program participants

CHAPTER 1

I. Brief History of the BCCCP

The Breast and Cervical Cancer Mortality Prevention Act of 1990 was passed by Congress. It authorized the Centers for Disease Control and Prevention (CDC) to provide grant money to states, tribes and territories so that they could provide breast and cervical cancer screening to underserved women. Funds were awarded to states on a competitive basis. The Michigan program was one of the first eight that received funding in the fiscal year 1991. Funding by the CDC continued to expand during the following years so that by 1997, fifty states, five territories, the District of Columbia and 13 American Indian/Alaskan Native organizations were participating.

The American Cancer Society recommends annual screening for women for breast cancer after the age of 40.²⁹ The Michigan BCCCP follows this recommendation by serving women 40 years and older with incomes up to 250% of poverty. Women enrolled in the program are provided with breast and cervical cancer screening and follow-up care when needed. They are enrolled regardless of age even though CDC's administrative guidance requires that priority be given to women 50 years and older. During the 1993 fiscal year, the CDC required 75% of the women who enroll for their first screening be at least 50 years old. By the 1998 fiscal year, this proportion had been increased to 90%. State funds are used to cover the costs of screening more women less than fifty years old than the CDC will fund.

Upon receiving the CDC's funds, Michigan established the BCCCP. The BCCCP's task was to set up a comprehensive screening program for breast and cervical cancer. A decision was made to use the local health departments for the service delivery portion of the program. There were three main reasons why local health departments would be used:

1. It was the quickest possible route to making screening services available to target populations.
2. The public health agencies had much experience serving indigent, high-risk population groups.
3. The Michigan Department of Community Health (MDCH) wished to develop an infrastructure related to chronic disease prevention and control within the public health system.

Michigan is divided into 83 counties. Not every county has its own local health department. There are 32 counties with their own health department. There are 16 health departments serving 2-6 counties and the Detroit City Health Department serves residents of this city. Not every local health department participates in the Michigan BCCCP as initially there were only 27 participating program sites.

II. Barriers to Screening

The Breast and Cervical Cancer Mortality Prevention Act of 1990 was created to overcome many of the barriers that prevent women from accessing these life-saving procedures. Barriers include: 1. concern not only about the cost of

mammography but also the high cost for diagnostic procedures and treatment for breast cancer if needed;³⁰ 2. some women lack a routine source of care and the time to receive such care;³⁰ 3. many women can not afford to take the time off of work for breast screening due to lost wages or job insecurity;³⁰ 4. a woman's proximity to the screening site can also influence the likelihood of mammography as many do not have access to private transportation or the time to travel large distances.³⁰ The Act passed in 1990 by Congress provided the resources to help older women, those with low incomes and women of racial and ethnic minority groups overcome these barriers.

III. Review of the Literature Relevant to Specific Study Hypotheses

A. Convenience Factors

Access barriers such as inconvenience and distance from facilities effect a woman's compliance to regular screening.²⁷ Many women report that they are too busy to receive screening and that if mammography were more convenient and free, they would be more likely to attend.²⁷ Campbell reports a similar finding for cervical cancer screening as many women are not screened because of inconvenient hours.³¹ Women living in areas with more mammography facilities were more likely to adhere to recommendation intervals.²⁶ In addition to this finding, women living in areas without a shortage of primary care providers were more likely to comply.²⁶ For some women, a lack of transportation and local availability of facilities, are barriers to screening.³² BCCC programs with

more convenient screening arrangements such as appointment availability and arranging transportation might have higher rescreening rates.

B. Matching of the Service Provision Process to Client Needs

Programs within the BCCCP with higher rescreening rates may have more matching of the service provision process to client needs like the desire for a female service provider, language translation or extra assistance because of a disability. Studies have shown that women are more likely to undergo cancer screening such as Pap smears and mammograms if they see a female rather than a male physician.³³⁻³⁵ Language has also been shown to be a barrier to women using preventive services.^{36, 37} Programs that provide assistance to women who do not understand English as a first language may have better compliance from these clients than those programs that do not accommodate this need. Disabilities among Medicare patients have been shown to be risk factors for not receiving mammograms and Pap smears.³⁸ In 1994-1995, a disability survey was included as a supplement to the National Health Interview Survey (NHIS). The NHIS Health Promotion/Disease Prevention Year 2000 Objective Supplement provided data that indicated women with functional limitations (FLs) were less likely than women without FLs to have had a Pap test within the previous 3 years.³⁹ Programs which identify their clients' needs and match service provision to them, may have higher rescreening rates.

C. Client Input/Feedback

Whether or not a woman returns for rescreening has been associated with past screening experiences. If a woman has had a bad experience in the past (embarrassing or distressing examinations,⁴⁰ painful examinations,⁴¹ unhelpful clinic staff⁴⁰) they may be less likely to return for a future appointment.²⁵ In a study involving rescreening at a mobile mammography facility, women who expressed more dissatisfaction with a number of aspects of their visit, were less likely to return.⁴⁰ Women who have experienced prior breast pain may experience more discomfort with mammography, an important reason for non-compliance.^{25, 41} Women who had a mammography screening and an abnormal result were found to have lower compliance with repeat screenings. The anxiety, discomfort and inconvenience resulting from the abnormal finding might have outweighed the perceived benefit of future screenings.^{25, 40}

Since many women make their decision to not return for rescreening immediately after their initial examination,⁴¹ it is important that the client is satisfied with her screening appointment. In the event that a client were not satisfied with her appointment, client feedback should be gathered to improve service provision for the future. Increasing rescreening rates may be possible by making improvements to the way service provision is provided.⁴⁰

Participation by women in the decision to be rescreened was associated with adherence suggesting that the interaction between a woman and her provider plays a key role in adherence.²⁶ Health care workers may be able to easily influence several factors associated with non-compliance including fear of

the test, concerns about radiation and difficulty scheduling the test.⁴² BCCC programs that have more planned for client input/feedback may be able to resolve such issues and better convince women to come back for future screenings.

D. Education

The education component of a BCCC program can have an effect on its rescreening rate.

a) Education of Women

By educating women about the risk factors for breast cancer, they may become more motivated to comply with regular screening.^{27, 43-45} Before a woman can be expected to return for a rescreening appointment, she must first be aware of the current recommendations. Many women simply do not understand how prevalent breast cancer is and therefore, they are less likely to receive mammography.^{44, 45} In a study of those who return for breast cancer screening, those who come back are more likely to believe in the effectiveness of determining breast problems at an early and curable stage.⁴⁰ Acceptance of breast cancer screening has been shown to be associated with knowledge about the disease, a belief in the efficacy of mammography and believing in the possibility of a cure.²⁷

b) Education of Physicians/ Other Clinical Staff

In many studies reviewed, the most important factor associated with repeat mammography was a physician recommendation.^{27, 32, 44, 45} Evidence has been reported to suggest that the more frequently a physician recommends mammography, the more often a patient obtains a mammogram.⁴⁶ Unfortunately, as cited by Rimer, physicians are reluctant to refer asymptomatic women for mammography based on several concerns: the perceived low yield from the examination, cost, patient inconvenience, radiation exposure and the belief that mammography is unnecessary in the absence of symptoms.⁴⁷ Physician participation may be different between program sites with high and low rescreening rates.

While the relationship between physician recommendation and mammography use has been well established, a nurse's role or other staff is not clearly understood.⁷ In a study by Tessaro, it was determined that nurse practitioners (NPs) in public health need further education and skills training related to cancer control.⁴⁸ Other studies have reported NPs possess the knowledge and the skills to educate women about cancer risk factors.^{49, 50} Therefore, they play important role in providing breast cancer screening information to women.^{49, 51} It is also important that nurses be able to recognize women's concerns about radiation and pain with procedures so they can provide information and support to these women.⁵¹ As with physician participation, nurses and other clinical staff may contribute differently between program sites with high and low rescreening rates.

c) Overcoming Barriers to Rescreening through Education

To increase rescreening rates, physicians and other health care providers need to take an active role. Physicians often believe that they are offering preventive services more often than their actual practice.⁴³ Patient education together with provider education increased the rate of screening in those women who were not screened in the past.⁴³ Patient education alone may not be the significant factor but instead it may be due to the one-to-one interaction with the nurse or physician who recommended screening.⁴³ Provider education alone was less effective in changing physician behavior for either clinical breast exam (CBE) or mammography.⁴³

Without a physician recommendation, it is not surprising that many women are not aware of the need for mammography. Lack of awareness of the importance of breast cancer screening is an important predictor of non-compliance for rescreening.^{45 42, 52} Many women have not thought about mammography and in the absence of symptoms, feel that it is unnecessary.^{27, 52} As with breast cancer screening, many women are not aware of the need for cervical cancer screening.⁵³⁻⁵⁵ Some women feel the test is unnecessary or of no benefit.⁵⁶ Other women who are not likely to be screened for cervical cancer consider themselves not to be at risk for the disease.^{31, 54, 55, 57-63.}

Women are also less likely to be screened for cervical cancer because of the anxiety caused by receiving an abnormal cervical smear result.⁶⁴⁻⁷¹ Many

women are afraid to be tested for cervical cancer or they are embarrassed to undergo the procedure.^{31, 54, 55, 58-60, 72} Programs with more extensive educational components may be able to overcome these barriers and therefore will have higher rescreening rates. Providing more information about rescreening has been associated with increased confidence in the service provision⁷³ and reduced anxiety^{71, 74}

d) Characteristics that Distinguish Compliers from Non-compliers

Several characteristics distinguish women who are more likely to comply with rescreening guidelines from those that are less likely to be rescreened. Knowledge that risk increases after the age of fifty, perceived vulnerability to breast cancer⁴⁴ and family history of the disease were all associated with adherence to mammography and BPE.^{40, 44} Women that thought they were more vulnerable to the disease were more likely to receive a mammogram.⁴⁴ Education, smoking status and knowledge that women older than 50 are at risk for breast cancer differentiated those women who had a repeat mammogram from those that had one in the past year.²⁷

Weinberg cites it might be helpful to inform women of their personal risk as women that belong to a high-risk category were more likely to participate when invited for cancer screening.⁴⁵ Weinberg also cites that caution must be used so as not to create excess worry that might interfere with mammography usage.⁴⁵

d) Summary

Women may overlook screening for a variety of reasons: competing medical demands, physicians not viewing these patients at risk or a lack of patients awareness of breast cancer screening recommendation and benefits.⁴³

Through education, women can be made to be less skeptic. Knowledge and beliefs are significantly associated with ever having a mammogram stressing the importance of education, guidelines for screening and the efficacy of mammography.⁷⁵ Most of the issues discussed could be addressed through patient education by physicians and/or their office staff and through community education programs. Health professionals can address fears and misconceptions either in person or on the phone as both have been shown to increase attendance.^{31, 68}

CHAPTER 2

Methods

I. Selection of The Study Sites

The current study sites were selected based upon an analysis of rescreening rates available from the local programs April 1998. Ten study sites were chosen to compare and contrast to determine if there were systematic differences among BCCC programs that might explain differences in rescreening rates. Rescreening rates are calculated based upon whether or not a woman returned for a second screening. To be eligible for a second screening, ten months must have elapsed since the first screening. Five program sites were chosen that had a lower rescreening rate than the Michigan state average and five sites were selected with a higher rate than the state average.

From Table 7, one can see that the five lowest and five highest sites were not chosen. Delta – Menominee was not included because the study coordinators thought this site would be similar to Dickinson-Iron and Marquette, the other two sites from the Upper Peninsula. Wayne and Detroit were not included within the low rescreening group because these two sites were undergoing a merger. The program coordinator for the newly created site would not have the knowledge to answer questions regarding the past of both the Wayne and Detroit programs. Program management at MDCH advised against including Oakland within the study because this site was undergoing major changes at the time. District #4, Northwest, Muskegon, Central Michigan and

Barry-Eaton also met the study selection criteria, however, MDCH program management advised against their inclusion. Management suggested that Kent, Calhoun, and Washtenaw would be more suitable based on their knowledge of these programs.

Table 7: BCCCP Rescreening Rates, April 1998

BCCCP Site	1 st Screening	# Eligible for 2 nd Screening	2 nd Screening	% Rescreened
1. Wayne	886	886	244	27.5
2. Central Michigan	236	215	68	31.6
3. Detroit	4835	4626	1838	39.7
4. Oakland	2925	2857	1170	41.0
5. Kalamazoo	1841	1659	700	42.2
6. LMAS	1584	1544	659	42.7
7. Northwest	2233	2181	933	42.8
8. Chippewa	714	709	321	45.3
9. District # 4	1559	1501	721	48.0
10. Kent	3788	3629	1744	48.1
11. Calhoun	1085	1037	501	48.3
12. Western UP	821	780	385	49.4
13. Shiawassee	514	492	246	50.0
14. Michigan State Rate	45732	43861	22431	51.1
15. Genessee	1782	1707	928	54.4
16. District 2	1650	1579	861	54.5
17. Ingham	3913	3703	2061	55.7
18. Huron	2537	2387	1362	57.1
19. Lenawee	962	906	524	57.8
20. Washtenaw	1307	1264	732	57.9
21. Muskegon	1943	1891	1109	58.6
22. Barry – Eaton	1025	990	595	60.1
23. District 10	3372	3243	2024	62.4
24. Marquette	1053	1025	662	64.6
25. St. Clair	1530	1462	960	65.7
26. Delta - Menominee	695	660	434	65.8
27. Dickinson - Iron	942	928	649	69.9

Table 8: Study Sites Selected and Rescreening Rate, April 1998*

Department	Rescreening Rate, April 1998	
Kalamazoo	42.2	
LMAS	42.7 ¹	44.2 ²
Chippewa	45.3	
Kent	48.1	
Calhoun	48.3	
Michigan State Rate	51.1	
Washtenaw	57.9	
District 10	62.4	
Marquette	64.6	
St. Clair	65.7	
Dickinson-Iron	69.9	

* Programs that are included within the high rescreening rate group are shaded.

¹This rescreening rate reported for LMAS was calculated for all clients enrolled in the program. This rate reflects both the tribal and non-tribal components of the program.

²This rescreening rate reported for LMAS does not include any tribal clients. The tribal component of this program was not considered when responses were given during the interview as this information was not available therefore, this is the rate used for the LMAS program in these analyses. The program coordinator was able to give responses only for the non-tribal component.

The rescreening rates of the sites included within the study were tested to see if they were significantly different than the overall Michigan state rate. The test was done using a one-sample test for a binomial proportion. All rescreening rates tested were either significantly higher or lower than the Michigan state rate ($p < .001$).

II. Development of the Survey Instrument

A survey was designed by the study coordinators to collect data to test the study hypotheses. The questions covered in the interviews with local program coordinators were developed based on findings from previous client use of service studies. A BCCCP coordinator from Ingham County Health Department reviewed an early draft of the survey. Revisions were made based on the

coordinator's input. Ingham County was chosen because it had a rescreening rate similar to the Michigan State overall rate and therefore it would not be included as a study site. This coordinator was chosen as a consultant because she was very knowledgeable, her BCCCP is a large program, has been in existence a long period of time (since 1992) and was easily accessible. In addition, input from all BCCCP Team members from MDCH was gathered and considered during the development of the survey.

III. Pilot Study

A pilot study was conducted in July and August 1998 using two program sites. During the pilot study, the instrument was evaluated to make sure that questions were easy to understand and answer. The length of the interview was monitored and a goal of an upper time limit of two hours was established. This was done so that the length of the interview was tolerable and because program coordinators' time is at a premium. Each interview within the pilot study lasted approximately 2.5 hours. In order to decrease the interview time to less than two hours, several questions that would not provide information that could be used to test the study hypotheses were removed. Two interviews were conducted, one at the Barry-Eaton County Health Department in Charlotte, Michigan and the other at Genessee County Health Department in Flint, Michigan. The author, using the survey, completed the interviews. These two sites were selected for several reasons. They were easily accessible, as the driving time to each location was less than one hour. These sites would also not be included within the study

sample because they had rescreening rates similar to the state average. Based on the information gathered, revisions were made to the survey so that the data collected could be easily entered into a SPSS database. Questions were phrased so that they would be close-ended and coded for easy data entry.

IV. Data Collection

Data for the complete study were collected using the revised survey. The survey was administered in interviews conducted on the telephone. Initially, interviews were to be conducted at each program's site, however, based on cost, time and winter weather conditions, telephone interviews were performed. Two research assistants who were trained to the survey instrument by the study's coordinators administered the interviews. The program coordinators at each BCCCP site provided almost all information with some additional input from other staff members at several of the sites. Program coordinators were chosen to complete the interviews because they oversee the operation of each BCCCP and are very knowledgeable about all aspects of the local program.

During the last week of December 1998 and the first week of January 1999, one of the study coordinators carried out the first contact to the local BCCCP coordinators. This contact was made by phone to describe the survey and interview process and to invite the program to participate. A follow-up letter was also sent. If the coordinator could not be contacted by phone, a letter was sent describing the study and then a follow-up call was made. Copies of the survey were sent to all sites prior to the interviews. Some sites requested a copy

of the interview to review prior to making the decision to participate and others did not. The program coordinators of the ten participating sites were then contacted by telephone beginning January 20 to schedule appointments to complete surveys during the next four weeks. Each interview required between 90-120 minutes to complete depending on the individual responses given.

After the last interview was completed, the data collected were entered into an SPSS database. To double check for entry accuracy, 10% of each BCCC program site's data were selected randomly and re-entered. All of the data were recorded accurately.

V. Statistical Methods

The Likert scale options (to no extent, little extent, some extent, great extent or very great extent) for answers to each question on the survey, were collapsed into two categories: little or some extent and great or very great extent. For the question if number of planned for client contacts differed between the two rescreening rate groups, the number of allowed for contacts was categorized as 4 or less and 5 or more. Fisher's exact test for 2x2 tables was used to test for differences between low and high rescreening rate programs to answer various questions of interest. A one-tailed test was used given that the study hypotheses always hypothesized that:

Programs with higher rescreening rates would have:

- more standardized (clearer) procedures
- more matching of the service provision process to client needs

- more client-convenient screening arrangements
- more planned for client input / feedback
- planned educational interventions for new and returning program participants

Given the small sample size, this study lacked the power to detect many differences at an alpha of .05. All observed differences at $p < .10$ level are reported in the results section.

VI. Study Hypotheses and Questions Related to Each

Each hypothesis and the corresponding questions asked during the study interviews are listed below.

1. BCCC Programs with higher rescreening rates will have more standardized (clearer) procedures - Question 8, 10 11, 12.

Question 8. To what extent does your program have in place standard operating procedures or practices (SOP) for the following client-related interactions:

- A. Enrollment
- B. Assisting with completion of enrollment
- C. Assisting with translation when needed
- D. Follow-up of missed clinic appointments
- E. Follow-up of missed mammography appointments
- F. Reporting screening results and recommendations to the client
- G. Tracking clients with abnormal screening results
- H. Tracking treatment initiation for clients with diagnosis of cancer

- I. Patient education
- J. Keeping clients out of the bill collection process
- K. Reminding women about rescreening appointments
- L. Changing client contact information, e.g., phone, address
- M. Arranging transportation to appointments
- N. Scheduling rescreening appointments

Interviewees were given five categories from which to choose from: to no extent, little extent, some extent, great extent or very great extent. Program coordinators were also asked whether or not the SOPs were written down and the percentage that each were estimated to be followed.

8b. SOP is written down?

8c. % of time SOP is followed (estimate).

8d. Are the above the same for all screening sites? (This question was asked if the program was an indirect/subcontracted or a combination service delivery model).

8e. If no, please briefly describe what you know about the above procedures across the various service delivery sites in your BCCCP using the above matrix.

Question 10. We are interested in learning about the various systems that may be in place for reminding clients that they are due to be rescreened. Please describe in detail how this process works in your BCCCP. Walk through the process for a hypothetical client from start to finish. For example, include the type of contact(s) made to the client, who makes the contact(s), when the contacts occur in relation to the anniversary date, the number of contacts

attempted (by phone, by mail, in person), and whether the number of contacts made is standardized (a specific procedure exists).

Question 10f. Are the above the same for all screening sites? (This question was asked if the program was an indirect/subcontracted or a combination service delivery model).

Question 10g. If no, please briefly describe what you know about client reminder systems across the various service delivery sites in your BCCCP.

Question 11. Does your BCCC Program use any of the following systems to remind local coordinating agency staff when clients are due to be screened?

- A. Flow charts or "tickler files" to let local coordinating agency staff know whether clients are due for rescreening
- B. Computerized reports of clients' due dates to remind local coordinating agency staff when clients are due for rescreening
- C. Other (*Please specify*)

11d. Are the above the same for all screening sites? (This question was asked if the program was an indirect/subcontracted or a combination service delivery model).

11e. If no, please briefly describe what you know about staff reminder systems across the various service delivery sites in your BCCCP. Include such things as reminders from mammography sites regarding rescreening mammograms.

Question 12a. Has your local coordinating agency always used the same type of rescreening reminder systems? If no, which of the following did you use previously? Check if used previously but not now:

Question 12b. Client Reminder Systems:

- A. Letter
- B. Postcard
- C. Phone
- D. Other personal (not phone)
- E. Reminder wallet cards
- F. Other (please specify

Question 12c. Staff Reminder

- A. Flow charts or “tickler files”
- B. Computerized reports of clients’ due dates
- C. Other (please specify)

Question 12d. Do you know of past differences in reminder systems across the various screening sites (differences not addressed above)? (This question was asked if the program was an indirect/subcontracted or a combination service delivery model).

Question 12e. If yes, please describe what used to be used for either client reminding or staff reminding but is NOT now and which part of your screening delivery system used it.

2. BCCC Programs with higher rescreening rates will have more client-convenient screening arrangements - Question 16, 17.

Question 16. In your opinion, to what extent are screening arrangements convenient for your clients in relation to the following factors?

- A. Location of clinical screening
- B. Location of mammography screening
- C. Transportation
- D. Time (amount required to complete services)
- E. Appointment availability (time of day; day of week)
- F. Enrollment process (ease of completing)
- G. Other (Please Specify)

Question 17a. Have any of the convenience factors changed over time for your clients?

If yes,

Question 17b. What has changed?

Question 17c. When did it change?

3. BCCC Programs with higher rescreening rates will have more matching of the service provision process to client needs - Question 18, 19.

Question 18. To what extent has your program *assessed* special client needs related to the following considerations *and modified* the process of service provision to meet any special needs identified?

- A. Older Age
- B. Language
- C. Educational level
- D. Cultural background
- E. Physical disability

F. Mental disability

G. Sexual orientation

H. Desire for a female clinical service provider

I. Other (Please Specify)

Interviewees were given five categories from which to choose from: to no extent, little extent, some extent, great extent or very great extent.

Question 19a. Does your BCCC Program use *female* physicians, nurses and/or physician assistants to provide the clinical examination?

Interviewees were given five categories from which to choose from: never, rarely, sometimes, frequently and always.

Question 19b. Do your Program's other screening sites use female practitioners to provide the clinical examination? (This question was asked if the program was an indirect/subcontracted or a combination service delivery model).

Interviewees were given five categories from which to choose from: never, rarely, sometimes, frequently and always.

Question 19c. Is the situation *now*, different than in the past?

If yes,

Question 19d. What has changed? How did it change?

Question 19e. When did it change?

4. BCCC Programs with higher rescreening rates will have more planned for client input / feedback - Question 20, 21, 22.

Question 20a. Has your local BCCCP gathered client input or feedback on service provision?

Question 20b. If yes:

Methods of soliciting client input & feedback on local BCCCP:

- A. *Ongoing* gathering of client satisfaction information in a systematic way (e.g., through surveys, interviews, focus groups)
- B. *Periodic* gathering of client satisfaction information in a systematic way (e.g., through surveys, interviews, focus groups)
- C. Client satisfaction information has been *gathered in the past* but *currently there is no standing plan* for when this occurs
- D. Involvement of clients &/or representatives from client communities targeted for outreach in the planning & implementation of recruitment and promotion efforts
- E. Client participation on local BCCCP steering committees
- F. Client special needs assessments
- G. Other (*Please specify*)

Question 20c. When in effect?

Question 21. If your program currently gathers client input or feedback, please briefly describe how this is carried out.

Question 22. If client input / feedback has been gathered by survey, interview, focus group or other systematic way, how was this information used? (For example, was service delivery modified?)

5. BCCC Programs will have more planned educational interventions for new and returning program participants - Question 14, 15.

Question 14. Please discuss objectives of the education component, methods and materials used, usual amount of time allocated, and professional backgrounds of staff (paid and volunteer) that plan and / or carry out the education. If you have a written plan that addresses these aspects, you may attach it as your response.

Question 15a. Has any aspect of your educational component changed over time?

Question 15b. If yes to 15a:

A. What used to be done, that isn't done now?

B. What is done now, that was not done earlier?

Question 15c. Do you know of differences in education across the various screening sites (differences not addressed above)? (This question was asked if the program was an indirect/subcontracted or a combination service delivery model).

Question 15d. If yes, please describe what is carried out at the other screening sites.

The following question was included that could be related to any of the study hypotheses:

Question 34. What is your *single* most important recommendation for increasing rescreening rates? (For example, what has been the most successful strategy for your Program to date in increasing rescreening rates?)

In addition to questions addressing the study hypotheses, several questions were included to gather demographic information about each program – Question 4, 5, 6 and 7.

Question 4a. The information provided in the Profiles database indicates that your BCCC Program uses the following service delivery model for the clinical office visit. Is this information correct? There are three service delivery models, Direct/In-house, Indirect/subcontracted and Combination.

Definitions of Service delivery models:

Direct / In-house: all clinical screening services (clinical breast examination, pap test and pelvic examination) are provided at the local health department.

Indirect / Subcontracted: no clinical screening services are provided at the local health department.

Combination: some women receive the clinical screening services from the local health department and some receive the clinical screening services from subcontractors.

Question 4b. If no, check the model your program uses.

Question 4c. Briefly describe your clinical screening service delivery model, not using the above terms. Include any other terms that you use to describe your program's model for service delivery.

Question 4d. If you use a combination model:

(1) What percent of your caseload receives the clinical screening services in-house?

(2) What percent of your caseload receives the clinical screening services from subcontracted providers?

Question 5a. Has the service delivery model that your local program uses ever changed (e.g., from in-house to subcontracted?)

Question 5b. If yes, what other models have been used?

Question 5c. Dates in Effect (General estimate is OK)

Question 6b. If the area is best described as combination:

(1) Approximately what percent of your caseload is urban?

(2) Approximately what percent of your caseload is rural?

Question 7. Since your local BCCC Program began, to what extent has staff turnover within the following areas been a problem?

- A. Program Coordinator**
- B. Nurse Practitioner**
- C. Other clinical staff**
- D. Subcontracted clinical screening providers**
- E. Staff responsible for scheduling / enrolling**
- F. Staff responsible for tracking**

- G. Staff responsible for billing**
- H. Staff responsible for data entry**
- I. Staff responsible for case management**

CHAPTER 3

Results

I. Standardized (clearer) Procedures

A. Standard Operating Procedures - SOPs: Programs with a high rescreeing rate were more likely to have in place a SOP for follow-up of missed mammography appointments ($p=.083$) and enrollment ($p=.083$). The categories to no extent, little extent, some extent, great extent and very great extent were collapsed into two categories, to little or some extent and to a great or very great extent to measure this difference. Because no one reported to no extent, a third category was not necessary.

Table 9: Enrollment*

Department	To little or some extent	To a great or very great extent
Kalamazoo	✓	
LMAS		✓
Chippewa	✓	
Kent		✓
Calhoun	✓	
Washtenaw		✓
District 10		✓
Marquette		✓
St. Clair		✓
Dickinson-Iron		✓

* Programs that are included within the high rescreeing rate group are shaded.

Table 10: Follow-up Missed Mammography*

Department	To little or some extent	To a great or very great extent
Kalamazoo	✓	
LMAS	✓	
Chippewa	✓	
Kent		✓
Calhoun		✓
Washtenaw		✓
District 10		✓
Marquette		✓
St. Clair		✓
Dickinson-Iron		✓

* Programs that are included within the high rescreening rate group are shaded.

For the remaining SOPs tested:

- Assisting with completion of enrollment
- Assisting with translation when needed
- Follow-up of missed clinic appointments
- Reporting screening results and recommendations to the client
- Tracking clients with abnormal screening results
- Tracking treatment initiation for clients with diagnosis of cancer
- Patient education
- Keeping clients out of the bill collection process
- Reminding women about rescreening appointments
- Changing client contact information, e.g., phone, address
- Arranging transportation to appointments
- Scheduling rescreening appointments

programs with the highest rescreening rates do not look different from those with the low rescreening rates. Whether the SOP was written down or not, was not

different between rescreening groups. The percentage of time each SOP was followed was also not different between the high and low groups.

B. Client Reminder Systems that include more planned-for contacts (letter, postcard, reminder wallet card, anniversary calendar, phone call and confirmation of appointment by letter) from the program to women eligible for rescreening were associated with higher rescreening rates ($p=.024$). To test this difference statistically, the number of planned-for contacts (includes the total number of contacts allowed for in each program's client reminder system) were collapsed into two categories, 4 or less and five or more. This was also done for personal and non-personal client reminders but a significant difference between rescreening groups was not found.

Table 11: Summary of Client Reminder System¹

Department	Number of Client Contacts Allowed For	Number of Personal Contacts Allowed For	Number of Non-Personal Contacts Allowed For
Kalamazoo	4	1	3
LMAS	3 ²	1	2
Chippewa	2	1	1
Kent	4	2	2
Calhoun	4	1	3
Washtenaw	5	2	3
District 10	4 ³	1	3
Marquette	5	2	3
St. Clair	9	4	5
Dickinson-Iron	Until Reached ⁴	Until Reached	1

¹ Programs that are included within the high rescreening rate group are shaded.

² This figure includes an anniversary calendar used during the past two years, but they have stopped using these calendars this year.

³ District 10 sends out a confirmation of appointment letter that was reported in the Fall, 1998 survey.

⁴ Contacted until a response is obtained.

Table 12: Number of Client Reminders*

Department	Four or less	Five or More
Kalamazoo	✓	
LMAS	✓	
Chippewa	✓	
Kent	✓	
Calhoun	✓	
Washtenaw		✓
District 10	✓	
Marquette		✓
St. Clair		✓
Dickinson-Iron		✓

* Programs that are included within the high rescreening rate group are shaded.

C. Staff Reminders includes three different systems used by BCCC Programs to let local coordinating agency staff know whether clients are due for rescreening: flow charts or "tickler files", computerized reports of clients' due dates and flag color code by month and rescreening anniversary. Staff

Reminder Systems were not statistically different for programs with low or high rescreening rates.

Table 13: Staff Reminder Systems¹

Department	Flow charts or "tickler files" to let local coordinating agency staff know whether clients are due for rescreening	Computerized reports of clients' due dates to remind local coordinating agency staff when clients are due for rescreening	Flag Color Code by Month and Rescreening Anniversary
Kalamazoo ²		✓	
LMAS		✓	
Chippewa	✓	✓	
Kent ²		✓	
Calhoun		✓	
Washtenaw ²		✓	
District 10	✓	✓	
Marquette ²	✓		
St. Clair	✓	✓	✓
Dickinson-Iron		✓	

¹ Programs that are included within the high rescreening rate group are shaded.

² This reminder system is the same for all screening sites within this program.

II. Matching of the Service Provision Process to Client Needs

A. Programs with high and low rescreening rates did not differ on how they assessed special client needs related to the following considerations and modified the process of service provision to meet any special needs identified:

- Older age
- Language
- Education level
- Cultural background

- Physical disability
- Mental disability
- Sexual orientation
- Desire for a female clinical service provider

B. Use of Female Health Care Practitioners: There were no statistical differences between programs with high and low rescreening rates.

III. Convenience of Screening Arrangements

Program sites with lower rescreening rates appeared more likely to report a change over time in convenience factors than those with higher rates ($p=.083$).

With the exception of one site, the changes that occurred resulted in more convenient screening arrangements. This site reported an increased wait for mammograms but did report more time allocated for clinics this past year. The other programs with lower rates reported an increase in at least one of the following: the number of mammography and screening sites, more time available at the site, and mammograms scheduled on the same day as a women's visit to the BCCCP. Other than this finding, there were no statistical differences with regard to any of the following rescreening arrangements between the low and high groups:

- Location of clinical screening
- Location of mammography screening
- Transportation
- Time (amount required to complete services)

- Appointment availability (time of day; day of week)
- Enrollment process (ease of completing).

Table 14: Convenience Factors – Have They Changed Over Time or Not*

Department	No	Yes	If Yes, Please Explain
Kalamazoo		✓	This program was a Direct Service Delivery model for 1.5 years when it first began. Since switching to subcontracted, the program has become more convenient for women. It has also allowed more screening to be performed with less staff.
LMAS		✓	Mammography became closer late 1998. Last year, this program began setting up appointments more consistently so that the women's mammography would occur on the same day as the rescreening appointment at the department. The mammography facilities are working more closely with the program to accomplish this.
Chippewa		✓	Mammography became slower this year (four weeks to make an appointment) but more time for clinics has been made available this year.
Kent		✓	A gradual increase in the number of clinic sites : from 5 in 1992 to 11 in 1996 to 14 in 1999.
Calhoun		✓	This program has added two mammography sites and clinical screening at a local senior center in 1996-97.
Washtenaw		✓	In 1997-98, more sites were added to this program, increasing the choices for outlying areas (ex. Livingston area).
District 10		✓	In the summer months, there are now two clinics open and one remains during the winter. This varies by county. Three new sites were added in addition to more counties. These changes occurred in 1996.
Marquette	✓		
St. Clair	✓		
Dickinson-Iron	✓		

* Programs that are included within the high rescreening rate group are shaded.

IV. Client Needs and Feedback

Client Needs and Feedback includes collection of client input or feedback on service provision and matching of services provided to client need. There are no apparent differences between programs with higher or lower rescreening rates related to systematic collection of client feedback, informal feedback, involvement of clients in recruitment or on steering committees, or with special needs assessments.

V. Patient Education

Includes a description of content covered, general objectives of the education component, methods, materials, time allotted and staffing. There were no differences between the programs surveyed on the educational elements covered.

The responses to the question asking for the single most important recommendation for increasing rescreening rates were the same for nine of 10 program sites. The nine program sites emphasized the importance of the personal (phone) contact as the single most important recommendation for increasing rescreening rates.

VI. Program Demographics

There was no difference between high and low rescreening groups with respect to service delivery models. The populations of the areas from which the

cases were drawn were also not different between the two rescreening groups.

Staff turnover in the following areas did not differ between rescreening groups:

- A. Program Coordinator**
- B. Nurse Practitioner**
- C. Other clinical staff**
- D. Subcontracted clinical screening providers**
- E. Staff responsible for scheduling / enrolling**
- F. Staff responsible for tracking**
- G. Staff responsible for billing**
- H. Staff responsible for data entry**
- I. Staff responsible for case management**

Programs that were indirect/subcontracted or combination service delivery models were asked an additional question (Are the above the same for all screening sites?) in several areas of the survey. For all of these questions, there were no differences reported for any of the study sites.

Table 15: Service Delivery Models¹

Department	Direct / In-house	Indirect / Subcontracted	Combination
Kalamazoo		✓	
LMAS	✓		
Chippewa	✓		
Kent		✓(80%) ²	
Calhoun	✓		
Washtenaw		✓	
District 10	✓		
Marquette			✓(84%) ³
St. Clair	✓		
Dickinson-Iron	✓		

¹ Programs that are included within the high rescreening rate group are shaded.

² Kent was a combination model prior to 1998. This percentage represents women that are seen in-house, the remaining % receive clinical screening services from subcontracted providers.

³ % of women that are seen in-house, the remaining % receive clinical screening services from subcontracted providers.

Table 16: Previous Models Used

<i>Earlier Models</i>	Direct / In-house	Indirect / Subcontracted	Combination
Model when program opened	Ka(1993-94), M(1992-94)		Ke(1992-98)
Model 2			
Model 3			

(Ka - Kalamazoo, M - Marquette, Ke - Kent)

Table 17: Description of the Area that Caseload is Drawn From¹

Department	Primarily Urban	Primarily Rural	Combination
Kalamazoo			✓(60%) ²
LMAS		✓	
Chippewa	✓		
Kent			✓(60%) ²
Calhoun			✓(40%) ²
Washtenaw	✓		
District 10		✓	
Marquette		✓	
St. Clair			✓(60%) ²
Dickinson-Iron		✓	

¹Programs that are included within the high rescreening rate group are shaded.

² % of caseload that is urban. The remaining % is rural caseload.

Table 18: BCCCPs Most Important Recommendation for Increasing Rescreening Rates*

Department	Recommendation
Kalamazoo	Reminder postcards - would like to see the providers do this too. Bronson may do this in the near future as they are considering it.
LMAS	Personal contact with each client. (Phone call works best.) Cancer survivors performing the outreach to demonstrate the importance of rescreening.
Chippewa	Personal Communication - more staffing to do this, reminders
Kent	The personalized contact of the phone call, it's timely and costly but it works!
Calhoun	Use of staff time to call clients. Phone calls really capture clients making them want to come for rescreening.
Washtenaw	Volunteers that can consistently make phone calls to clients. Change in HMO and Medicare requirements - decrease in coverage.
District 10	High Contact rate, evening calls from the BCCCP - send out card first.
Marquette	Provide services these women need but need to make them want to come back. The personal touch/phone call.
St. Clair	N/A It's the follow-up that helps them to have a 90% rate - mail and phone at regular intervals until they receive a response. Send a closing letter.
Dickinson-Iron	Consistency - good quality care makes rescreening rates easy to do. Consistency in making calls/advertising. Satisfaction of client - word of mouth is really important in rural communities.

*% of caseload that is urban. The remaining % is rural caseload.

CHAPTER 4

Discussion

It was hypothesized that programs with more clear standardized operating procedures would have higher rescreening rates. Fourteen SOPs were tested to see whether each was associated differently with either the low or high rescreening groups. Only two of the SOPs tested approached statistical significance: follow-up of missed mammography appointments and enrollment, as they were more likely to be in place in programs with high rescreening rates ($p=.083$).

Programs with high rescreening rates had significantly more planned-for client contacts (such as phone call and letter reminders) than programs with low rescreening rates ($p=.024$). Personal contacts, as a sub-category, did not differ significantly between the two rescreening groups. However, the importance of personal contacts was emphasized by the nearly all sites as the most important recommendation for increasing rescreening rates. Nine out of the ten study sites cited personal (phone) contacts as the most effective means of increasing rescreening rates. In addition, the two programs with the highest rescreening specifically mentioned the importance of quality care and a positive experience when identifying the most important recommendations for increasing rescreening rates.

Compliance with routine screening has been associated with convenience factors like distance from facilities²⁷ and inconvenient hours.³¹ Most of the

convenience factors examined within this study did not differ between low and high rescreening groups. Program sites with lower rescreening rates were, however, more likely to report a change in the convenience of screening arrangements. For the most part, these changes were positive and occurred within the past two years. Enough time since the changes may not have past for an effect to be measureable.

More matching of the service provision process was not found in programs with higher rescreening rates. Several studies have shown women are more likely to be screened by a female provider.³³⁻³⁵ Within this study, all of the program sites reported using female health care practitioners almost exclusively. Consequently, a difference between low and high rescreening rates was not there to be measured relating to a program site's use of a female health practitioner.

Previous mammography experiences, whether they be positive or negative, have been associated with rescreening behavior.^{25, 40, 41} Programs with high rescreening rates were hypothesized to have more planned for client input/feedback as they might be better able to address negative experiences. A difference between rescreening groups was not found related to client input/feedback.

Many women are not screened for breast or cervical cancer because they do not feel that they are at risk.^{31, 42, 45, 52, 54, 55, 57-63} Researchers have reported that by educating women about the risk factors for breast cancer, they may become more motivated to comply with regular screening.^{27, 43-45} For

these reasons, it was hypothesized that programs with higher rescreening rates would have more planned educational interventions for new and returning program participants than programs with lower rates. The education components of the BCCCPs within the study did not differ across rescreening groups.

Limitations of the Study

This study was controlled by conditions of the BCCCP. There were only so many sites that could be included within the study and from these, a sample size of nearly 50 percent was chosen. Within the results section, differences were reported if p-values were $<.10$. Despite the small sample size, some significant differences between the low and high rescreening groups were found. It is not clear whether other differences exist but were not detectable given the small sample size of this study.

When calculating the rescreening rate, the number of women who have not returned for a second screening includes some of those who are inactive to the BCCCP (those who have moved, died or become ineligible). All inactive clients should be removed to calculate this rate, however, the study coordinators believe that not all inactive clients are indicated in the BCCCP database. Consequently, the estimated rescreening rates that have been reported within this thesis may have slightly underestimated the true program rescreening rates.

Information regarding the education component of three program sites was not provided during the study interviews. These three sites, Kent, Kalamazoo and Washtenaw have subcontracted/indirect service delivery models.

Consequently, the program coordinators were uncertain what type of educational component each of the program's subcontracted providers had in place. Given an even smaller number of sites to analyze, it is not surprising that differences were not found between low and high rescreening sites. Given more time or possibly in a follow-up study, subcontracted providers could be contacted to determine the education component in place at each site.

The BCCCP at LMAS has two components, a non-tribal and a tribal. The program coordinator at LMAS was only able to provide information about the non-tribal component of this BCCCP. The tribal component of this program was not considered when responses were given during the interview as this information was not available.

If this study could be expanded to include all of the sites within the BCCCP, more statistical power would be available to see what is different about sites with low and high rates. Adequate power might also be available to test for trends. Future studies should include sub-contracted service providers to fully understand what is happening in the sites who use them. It would also be beneficial to include more questions for program coordinators on what they thought made a difference in rescreening. In addition to the question asking for their most important recommendation for increasing rescreening rates, the basis for their response or the characteristics they chose as being most important might be useful to ascertain.

In addition to the program factors that this study addresses, personal characteristics that motivated women to obtain rescreening are currently being

studied within Michigan's BCCCP in a separate study. The preliminary results from this study indicate that women with the following characteristics were significantly more likely to return to the program for their second screening:

- Age 50-64 years
- Higher than high school education
- Had at least one mammogram before enrollment in the BCCCP
- Had at least one Pap smear test before enrollment in the BCCCP
- Heard about the BCCCP from media sources (e.g. Radio, TV)
- Heard about the BCCCP from written materials (e.g. brochures)
- Heard about the BCCCP from a personal contact (e.g. friend, co-worker)
- Has a regular health care provider
- White race group
- Former or never-smoker

This study was restricted to the variables that were available within the BCCCP database. It would be useful to collect more information from the BCCCP clients regarding the specific factors that motivated them to return for rescreening (e.g. was it the client reminder system, the education they received or the convenience of the program).

Conclusion

Within this study, a null result was found for many of the hypotheses tested. Programs with higher rescreening rates, for the most part, did not appear to have more standardized (clearer) procedures or matching of the service provision process to client needs. Programs with high rates did not have more planned for client input/feedback nor did education components appear to be different.

The main finding of this study indicates that client reminder systems are the most important program factor associated with higher rescreening rates. Nine of 10 program sites emphasized the importance of the personal (phone) contact as the single most important recommendation for increasing rescreening rates. The data indicate something slightly different as programs that are more persistent and have implemented more planned-for contacts are better able to bring women back for rescreening. However, the two of the five programs with higher rescreening rates not only have more planned-for client contacts, but they also mentioned the importance of quality care. Perhaps the important factor at work here is the expression of concern for the participant's well being with each attempted contact. With adequate resources, all BCCCP local sites can take this approach which can be expected to yield significant improvement in rescreening rates across the program.

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