**MANITOBA
BREAST SCREENING
PROGRAM**

*B*IENNIAL
*R*EPORT
2004-2006

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Executive Summary

The goal of the Manitoba Breast Screening Program (MBSP) is to reduce mortality from breast cancer by screening 70% of women 50 to 69 years of age every two years.

This report provides a description of activities and program outcomes from April 2004 to March 2006. Highlights include the following:

- The MBSP provided 65,950 screens to women 50 to 69 years of age (13,840 first screens and 52,110 re-screens).

- As of October 2005, the MBSP no longer offered a clinical breast examination. This has enabled the program to add an additional 5000 appointments throughout the province.

- Program access was improved by making two mobile sites yearly sites, changing the cycle for Eriksdale, and adding a site at the Philippine Canadian Cultural centre. A multi cultural outreach project funded by the Public Health Agency of Canada was started in the Chinese, Filipino, Portuguese, Spanish, and Vietnamese communities.

- The overall program participation for the province was 51%.

- The abnormal call rate was 9.3% for first screens and 4.6% for re-screens.

- The average time from screening to final diagnosis was 5.7 weeks (median time 4 weeks) for women who did not have a tissue biopsy and 10 weeks (median time of 8.4 weeks) for women who did have a tissue biopsy.

- During 2004 and 2005, the MBSP detected 296 cases of invasive breast cancer in women 50 to 69 years of age. The cancer detection rate was 4.6 per 1000 women screened (5.77 for first screens and 4.27 for re-screens).

- The positive predictive value for women who were screened in 2004 and 2005 was 6.2% for first screens and 8.9% for re-screens.

- The benign to malignant open biopsy ratio during this time period was 2.4:1.

- Thirty-three percent of invasive breast cancers were less than or equal to 10 mm in size; 56% were less than or equal to 15 mm in size. Seventy-seven percent of cases were lymph node negative. Sixty-one percent of cases staged were stage I, 34% were stage II, 5% were stage III and 0.4% were stage IV.

- The MBSP meets or exceeds all national screening targets with the exception of participation and the time from screening to final diagnosis. By increasing the number of appointments and implementing a direct referral service, the program is working towards meeting these targets.

Introduction

The Manitoba Breast Screening Program (MBSP) began in 1995. The goal of the program is to reduce the mortality from breast cancer by finding it as early as possible. Screening services are provided at 4 fixed sites; Misericordia Health Centre in Winnipeg, Brandon Regional Health Centre, Thompson General Hospital, and Boundary Trails Health Centre in Morden/Winkler. Two mobile screening vans visit over 87 rural and northern communities year round.

The screening process includes the following steps:

1. Recruitment and recall of the target population
2. Provision of a 2-view mammogram
3. Investigation of abnormal screening results

The MBSP's target population includes all eligible women 50 to 69 years of age. Women are eligible to attend the program if they are asymptomatic, have never been diagnosed with breast cancer, and do not have breast implants. Screening is provided to women outside the target age group at the mobile sites with a doctor's referral. Women receive a personal invitation to screening when they turn 50 years of age. Invitation letters and reminder letters are also sent to non-participants and overdue women who live in rural areas based on the mobile screening vans' schedule. Women who are 50 to 69 years of age and 40 year old women who have been referred by their family physician are automatically recalled by the MBSP either annually or biennially based on the radiologist's recommendations.

The MBSP provides a two-view mammogram. Up to October 2005, the program also offered a clinical breast examination (CBE). The decision to no longer provide a CBE occurred for several reasons. Only 3% of all cancers diagnosed by the program were felt during the breast exam but not seen on the mammogram. Most women who were screened also had a breast exam done by their doctor so we were duplicating a service already available as part of a well-woman check-up. Finally, by not offering breast exams, we are able to offer about 8000 more mammography appointments each year.

Following screening, each woman and her family physician is sent her mammography results. If the results are abnormal and a woman requires further tests, the program will facilitate this process by directly referring women to one of five diagnostic facilities or the Breast Health Centre after receiving permission from her family physician. After scheduling the appointment, the client is telephoned with the appointment date and time. The doctor and the client are sent a letter that states the appointment date and time and the screening films are sent to the diagnostic facility. All diagnostic test information and the final diagnosis is obtained by the program.

This report presents the key activities and program outcomes for women 50 to 69 years of age who were screened from April 1 2004 to March 31, 2006 unless otherwise indicated.

Recruitment and Promotion

The MBSP strives to maximize the numbers of appointments available and provide access for as many Manitoba women as possible. Most women indicate that the letter of invitation is their primary reason for booking an appointment. A physician referral is the next most common reason. When letters are combined with a community information campaign, the response improves further. Information and poster packages are sent to our Regional Health Authority (RHA) partners, doctors, pharmacists, and community groups. We also advertise in local newspapers and arrange radio advertising for stations that reach immigrant and aboriginal audiences. A special effort is made to contact First Nation communities to offer group trips to the closest mobile site if we do not travel to their community.

The increase in appointments associated with stopping the clinical breast examination allowed the program to improve service in all RHAs. This included the following initiatives:

- Appointments were added to most existing mobile sites. RHA staff helped us to fill the additional appointments.

- The communities of Lac Du Bonnet and Gimli were converted to yearly sites improving access for the women in North Eastman and the Interlake RHAs.

- The screening cycle for Eriksdale was altered so that women along highway number 6 would have access to screening every year instead of every second year.

- One hundred appointments per week were added to the Misericordia screening site.

- A mobile screening site was added at the Philippine Canadian Cultural Centre that attracted a large number of immigrant women from many countries. Almost fifty percent of participants were immigrant women.

Project funding from the Public Health Agency of Canada began in April 2005. The goal of the multi-cultural project was to improve breast and cervical cancer screening rates among women from five immigrant communities in Manitoba including the Chinese, Filipino, Spanish, Portuguese and Vietnamese communities. The breast and cervical cancer screening programs worked with the following project partners: Klinic, Mount Carmel Clinic, Sexuality Education Resource Centre, Breast Cancer Centre of Hope, Manitoba Breast Cancer Information and Support Network, and the five cultural community partners.

Five facilitators, one from each cultural community, were hired and received training on community outreach. The facilitators expanded community capacity by recruiting 5 additional support persons from each community. Two training sessions for facilitators and community support persons were offered and included the following:

- an overview of breast and cervical cancer,
- risk factors,
- information on screening and where to go,
- lesson plans and presentation kits that included translated videos and brochures.

All breast and cervical screening program staff (36) as well as staff at Klinic (15) and Mount Carmel clinic (37) had the opportunity to be trained in cultural competency.

The facilitators and community support people arranged presentations in each cultural community. At these presentations, the facilitators determined which women required help to get a mammogram or Pap test and arranged group trips to reach underserved women. The purpose of the group trips was to introduce underserved women to their closest screening site, provide translation support, and remove the transportation barrier to screening.

"It is important that women from our community are aware of cancer screening information", said Fatima Josue, one of the facilitators who gave presentations in the Filipino community in Tagalog. "Women need the information to make good decisions about their health. Then they need to take action and make the needed appointments."

The project was completed in March 2007 and almost 700 immigrant women attended presentations. About 60 women participated in group trips to breast screening and over 100 women went for Pap tests. Results show that immigrant women appreciate receiving information in their own language and that many were not aware of the information or services available.

Quality Assurance

Quality standards at the MBSP are based on guidelines and recommendations provided by the Canadian Association of Radiologists (CAR), the Canadian Association of Medical Radiation Technologists (CAMRT), the Department of Medical Physics at CancerCare Manitoba, and the Public Health Agency of Canada. All MBSP mammography machines are accredited by the CAR and receive preventative maintenance every six months as well as an annual assessment by CCMB physicists.

The Manitoba Breast Screening Program continuously monitors data quality. Process improvements that have been implemented during the previous two years to improve the quality of data include scanning all questionnaires and mammography result reports eliminating the need for data entry, automated telephone calls that remind women they have an upcoming appointment, and a monthly client satisfaction survey. The MBSP database regularly links with the Manitoba Cancer Registry to monitor follow-up data for women with abnormal results. Finally, MBSP data is submitted biennially to the National Breast Cancer Screening Database.

Program Results

Participation

From April 1, 2004 to March 31, 2006, the MBSP provided 65,950 screens to women 50 to 69 years of age (13,840 first screens and 52,110 re-screens). The overall program participation for the province was 51%. A small percentage of the population had a bilateral mammogram outside of the program (11.5%) and 37% of women had no bilateral or screening mammogram during this time period (Figure 1).

Participation rate
Target: ≥ 70%
of the eligible
population

Figure 1.
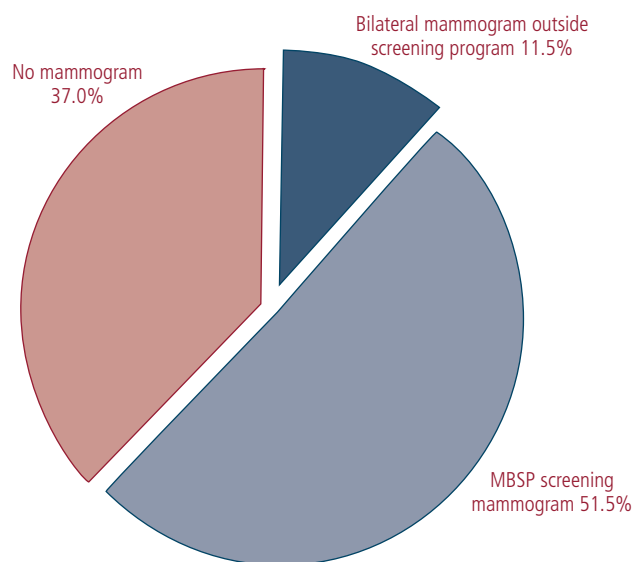*Percentage of women by location who had a bilateral mammogram[1]*

Table 1 shows participation by screening site. Most women were screened in Winnipeg followed by the Mobile screening vans.

**Table 1.** *Number of screens by age group and screening site from April 2004 to March 2006*

	Brandon	Winnipeg	Thompson	Mobile	Boundary Trails	Total
<50	8	39*	16	413	8	484
50-59	3357	24,267	558	10,792	1026	40,000
60-69	2708	14,846	226	7457	713	25,950
70+	7	57	0	777	4	845
All ages	6080	39,209	800	19,439	1751	67,279

** Most of these women were 49 years of age at the time of screening.*

Figure 2 shows participation by Regional Health Authority (RHA). Participation ranged from 57% in the RHA of Brandon to 44% in the RHA of Burntwood.   Winnipeg RHA has one of the lowest screening rates in the province due to low capacity at the Winnipeg screening site. In October 2005, additional appointments were added in all the regions which should increase screening rates over the next two years. Capacity exists in the Burntwood region to see a larger number of women. However, barriers to screening, such as the distance women must travel, still remain.

Figure 2. *Participation rate by Regional Health Authority from April 2004 to March 2006*
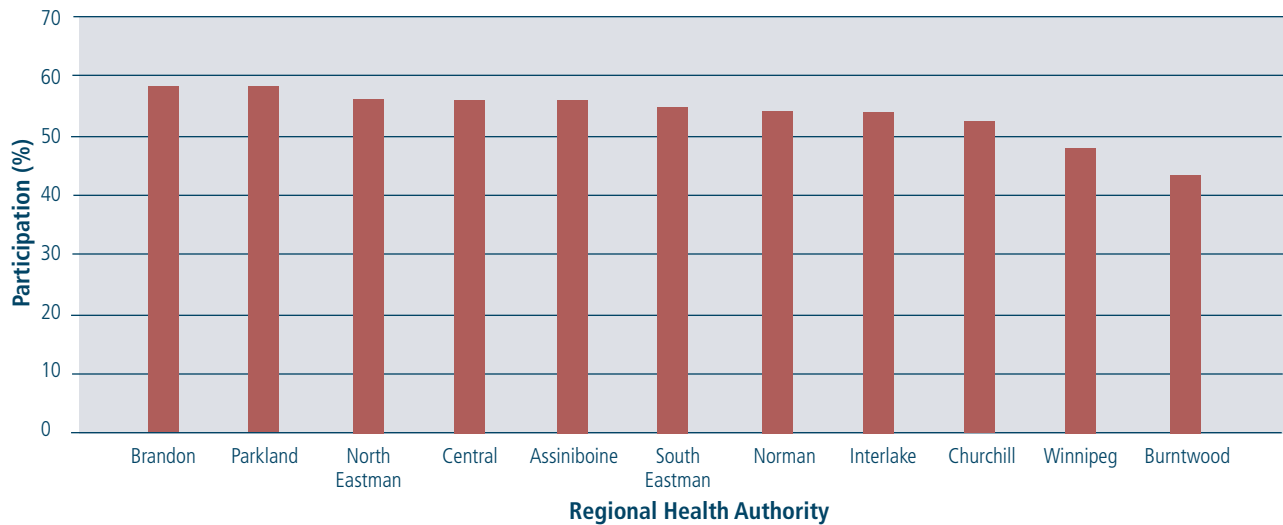
No provincial program currently screens 70% of their target population and additional capacity will be required in the future for the MBSP to meet this goal primarily due to the increasing population of women 50 to 69 years of age (Figure 3).

Figure 3. *Program capacity from April 2004 to March 2012 by fiscal year*
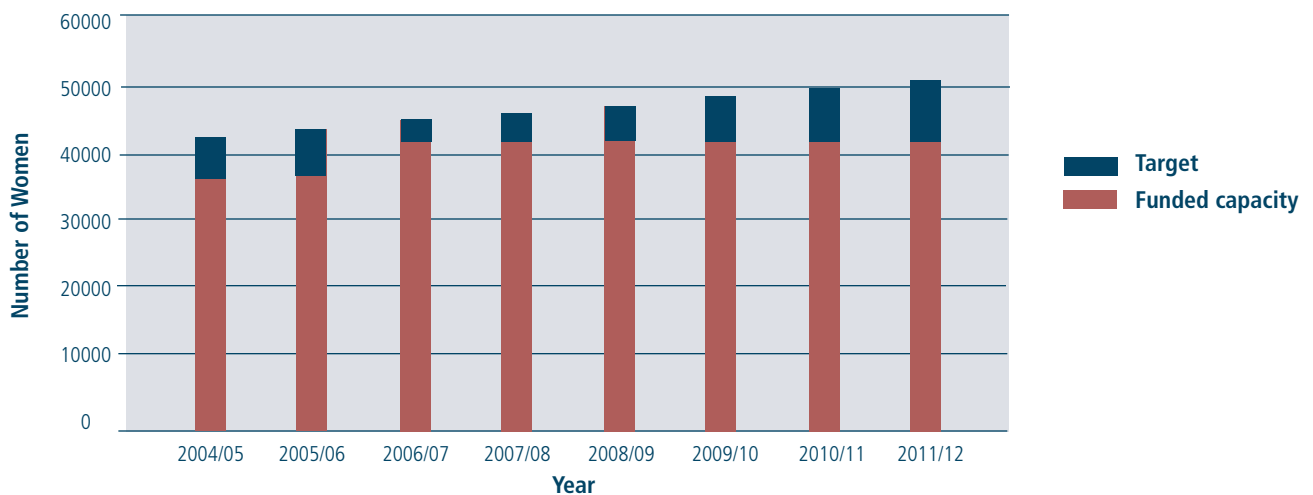
Retention

Retention, or the percentage of women who were re-screened within 30 months of their previous visit, was 81% for women screened between April 1, 2003 and March 31, 2004. The retention rate was 70% for first screens and 85% for re-screens. Figure 4 shows the proportion of women screened in 2003/04 who returned to screening within 30 months. Retention is also influenced by capacity; by adding additional appointments we are able to accommodate more women who are returning to screening. Participation rates have improved and we expect retention will likely follow.

Figure 4. *Retention rate for women screened from April 2003 to March 2004 by screen type*
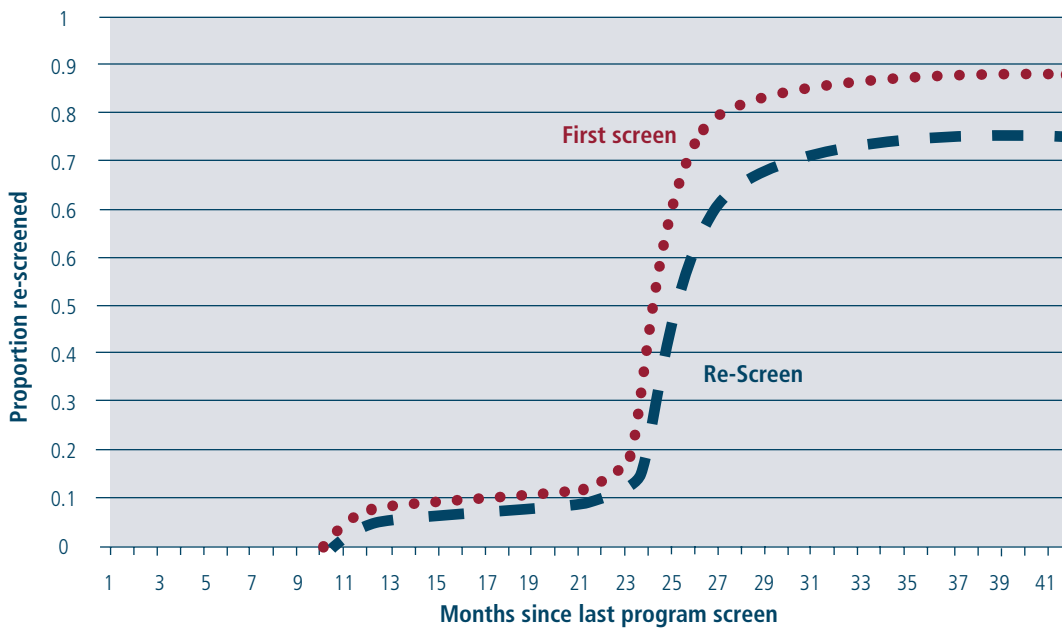
Retention rate Target: ≥ 75% re-screened within 30 months

Characteristics of Participants

Birth Place

Information on birth place is used to assess whether we are reaching immigrant women. From April 2004 to March 2006, most of the women screened listed Canada as their birth place (86.9%) while 13.1% were born elsewhere. Almost 4% of women were born in Western Europe, 2.4% in the United Kingdom, and 2.3% of women were born in the Philippines. A small percentage of women were born in Eastern Europe (1.6%), Asia (1.1%) or Central/Latin/South America (1.0%).

Education

Thirty percent of women who were screened between April 2004 and March 2006 had not completed high school, 28% had a high school diploma, and 43% some college or university education (Figure 5).   Mobile sites in inner city Winnipeg draw a larger percentage of women with less education; 7% of women who attended the Elmwood mobile site had a university degree compared to 17 % of women who attended the Winnipeg fixed site.

Figure 5. *Education of women screened from April 2004 to March 2006*

No high school 11.5%

University degree 16.9%

Some high school 18.8%

College diploma 12.9%

Some college or university 13.3%

High school diploma 27.9%
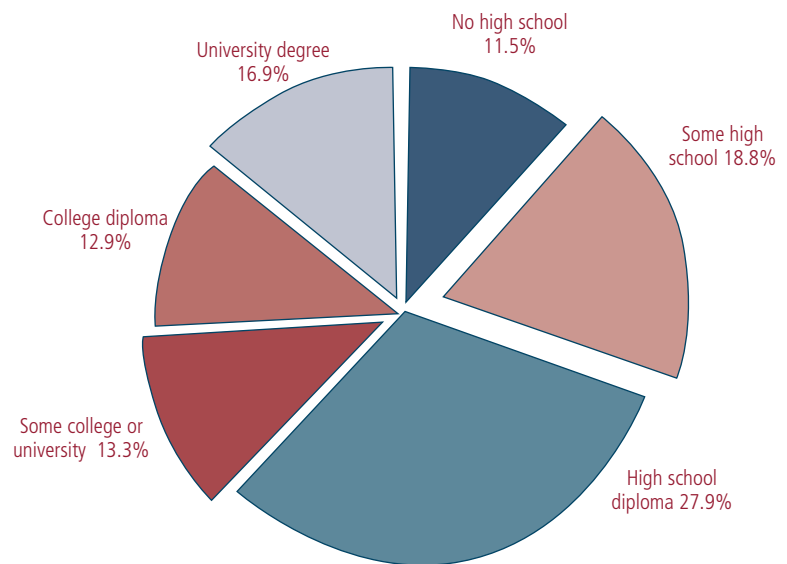
Risk Factor Information

Family History of Breast Cancer

Family history of breast cancer and subsequent risk is based on the model developed by Claus et al.[2] and is determined using the number of first and second-degree blood relatives diagnosed with breast cancer and ovarian cancer and the age at which they were diagnosed.

Sixty-nine percent of women participating in the program were classified as no risk, 26% as low risk, and 4.5% as high risk according to the definitions provided in Appendix 3. High risk women are invited to be screened yearly.

Hormone Replacement Therapy

Fifty-eight percent of women report never having taken any form of hormone replacement therapy (HRT) while 41.9% stated that they had ever taken HRT.

Body Mass Index

Table 2 illustrates the body mass index for women screened 50 to 69 years of age who were screened between April 1 2004 and March 31 2006 (information was missing for 2747 women). Thirty-one percent of women were a normal weight, 35% over-weight, and 32% obese.

Table 2. *Body Mass Index for women screened from April 2004 to March 2006*

Classification	BMI Category (kg/m^2)	Percent
Underweight	< 18.5	1.7
Normal weight	18.5 – 24.9	31.5
Over weight	25.0 – 29.9	35.2
Obese class I	30.0 – 34.9	19.8
Obese class II	35.0 – 39.9	7.6
Obese class III	≥ 40.0	4.3

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[2]   *Claus EB, Risch N, Thompson WD. Autosomal dominant inheritance of early-onset breast cancer. Cancer 1994; 73:643-51.*

Abnormal Call Rate and Diagnostic Investigations

From April 2004 to March 2006, 9.3% of women who had a first screen (n=1281) and 4.6% of women who had a re-screen (n=2399) were referred for further diagnostic tests. The abnormal call rate from April 2004 to September 2005 when the CBE was eliminated was 1% for an abnormal CBE compared to 5.6% for an abnormal mammogram.

The abnormal call rate ranged from 7.5% in Brandon to 13.0% in Boundary Trails. The higher abnormal call rate in Boundary Trails, the newest MBSP site, may be due to small numbers (46 abnormal results out of 354 screens) and a higher proportion of women with no previous mammogram and therefore no previous films available for comparison (Figure 6).

Abnormal call rate
Target: <10% for first
screens, <5%
for re-screens

Figure 6. *Abnormal call rate for mammography by screen site and screen type for women screened from April 2004 to March 2006 (n=3680)*
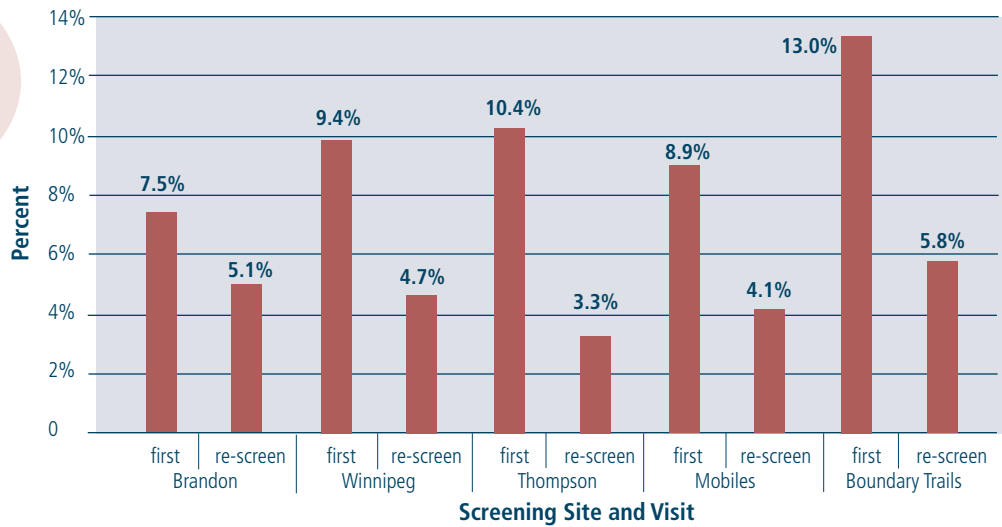
Most of the tests performed as part of further diagnostic investigations were diagnostic mammograms (51%) followed by ultrasound (22%), core biopsy (14%), surgical consultation (5%), open biopsy (4%), and fine needle aspiration (3%) (Figure 7). Figure 11 illustrates the actual number of each test.

Figure 7. *Proportion of diagnostic tests following an abnormal screening result for women screened from January 2004 to December 2005*
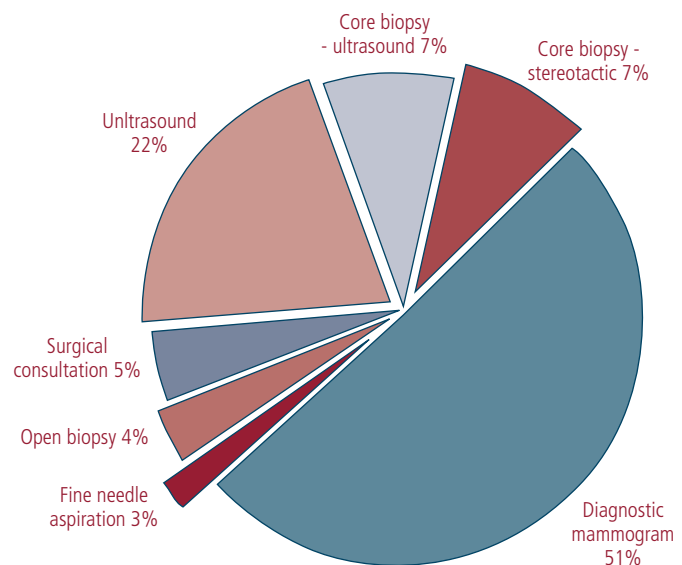
Time to Diagnosis

An abnormal screening result can cause anxiety and morbidity even if the final outcome is negative. Therefore, it is essential to minimize the amount of time from screening to the first diagnostic procedure and from screening to final diagnosis.

Diagnostic Interval Target:

≥ 90% should have a final diagnosis within 5 weeks if they did not have a tissue biopsy;

≥ 90% should have a first test within 3 weeks of screening;

≥ 90% should have a final diagnosis within 7 weeks if they had a tissue biopsy.

From April 2004 to March 2006:

- 45% of all women screened who required further tests had their first test within 3 weeks of their screening date (Figure 8).
- 64% percent of women who did not have a tissue biopsy (open or core biopsy) had a final diagnosis within 5 weeks of their screening date (Figure 9),
- 42% of women who did have a tissue biopsy had a final diagnosis within 7 weeks of their screening date (Figure 10).

The average time from screening to final diagnosis was 40 days or 5.7 weeks (median time of 28 days or 4 weeks) for women who did not have a tissue biopsy and 71 days or 10 weeks (median time of 59 days or 8.4 weeks) for women who did have a tissue biopsy.

Figure 8. *Time from abnormal screen date to first procedure from April 2004 to March 2006*
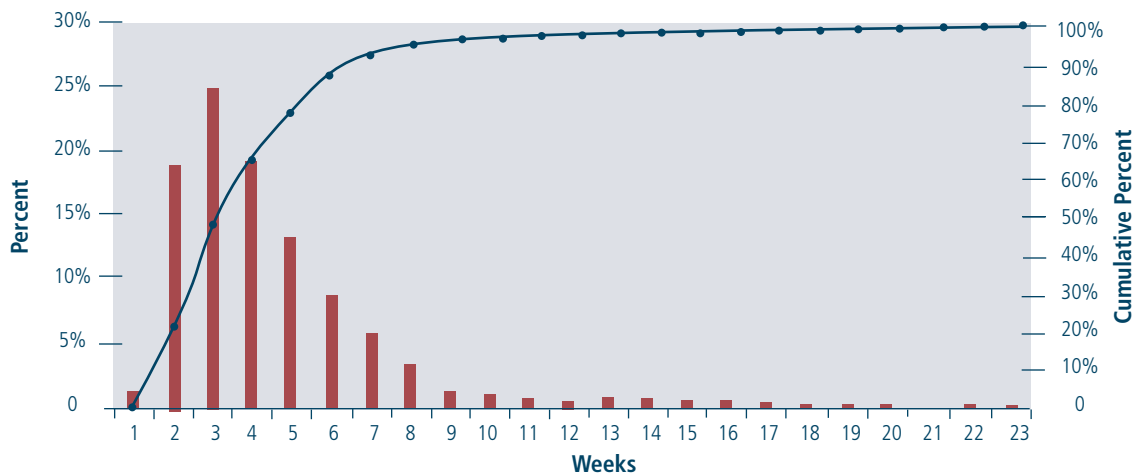
Figure 9. *Time from abnormal screen date to final diagnosis, no tissue biopsy from April 2004 to March 2006*
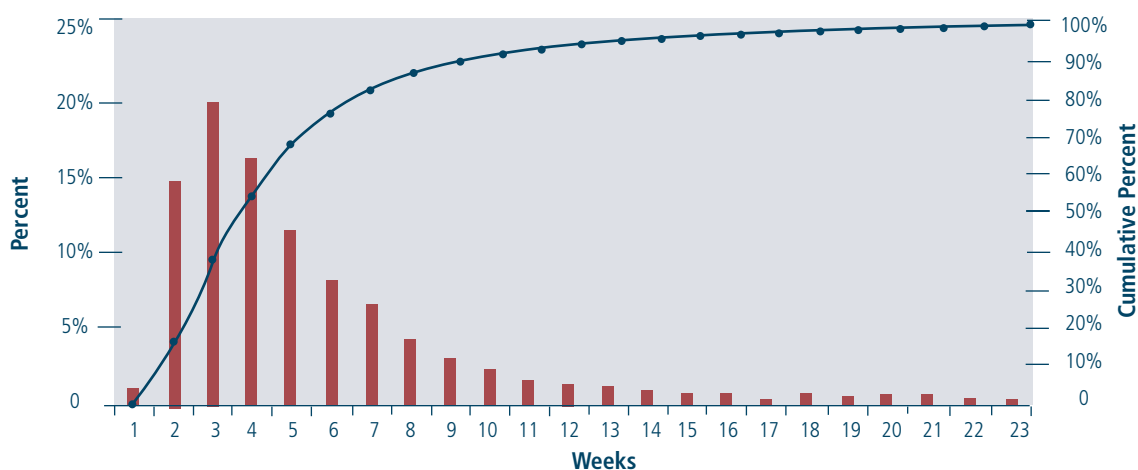

Figure 10. *Time from abnormal screen date to final diagnosis, tissue biopsy from April 2004 to March 2006*
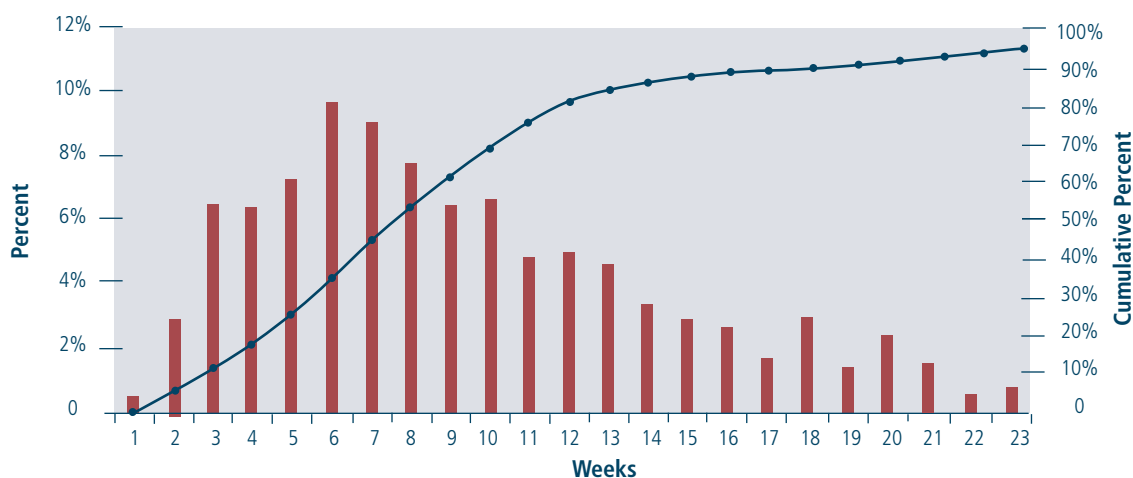
In order to decrease the time from screening to diagnosis, the MBSP directly refers women for diagnostic tests with their family physician's permission.

From April 2004 to March 2006, the MBSP directly referred 69% of all women who required further tests and did not have a tissue biopsy and 72% of all women who required further tests and did have a tissue biopsy.

- 33% of women who were not directly referred had a first procedure within 3 weeks of their screening date compared to 50% of women who were directly referred.
- 55% of women who did not have a tissue biopsy and were not directly referred by the program had a final diagnosis within 5 weeks compared to 67% of women who were directly referred.
- 32% of women who did have a tissue biopsy and were not directly referred by the program had a final diagnosis within 7 weeks compared to 46% of women who were directly referred.

Cancer Detection

From 1995 to December 31, 2005, a total of 1254 women 50 to 69 years of age were diagnosed with invasive breast cancer. Figure 11 illustrates the screening process that occurred for women 50 to 69 years of age who were screened in 2004 and 2005 resulting in the diagnosis of 296 cases of invasive breast cancer. Most of these women (291 or 98.3%) were diagnosed by mammography; 5 women (1.7%) were diagnosed by CBE alone. Four cases of invasive breast cancer were diagnosed in women less than 50 years of age or greater than 69 years of age.

Figure 11. *Screening outcomes summary for women screened from January 2004 to December 2005*

64,641 Screens

- 13,345 first screens
- 51,296 re-screens

Abnormal
3709
5.74% of total
- 1245 first screens
- 2464 re-screens

Normal
60,932
94.4% of total

Non-invasive procedures
- 2180 diagnostic mammograms
- 932 ultrasounds
- 226 surgical consultations

Invasive procedures
- 317 ultrasound guided core biopsies
- 304 stereotactic core biopsies
- 179 open biopsies
- 119 fine needle aspirations

Lost to follow-up
21
0.03% of total

Cancer Detection Rate Target: >5 per 1000 for first screens; >3 per 1000 for re-screens

Benign
3328
5.1% of total
89.7% of abnormals

Invasive breast cancer
296
0.46% of total
8.0% of abnormals
- 77 first screens
- 219 re-screens

In situ breast cancer
64
0.09% of total
1.7% of abnormals
- 14 first screens
- 50 re-screens

The cancer detection rate was 4.6 per 1000 women screened (5.77 for first screens and 4.27 for re-screens (50-69 years of age). The cancer detection rate was highest for first screens and increased with age (Figure 12).
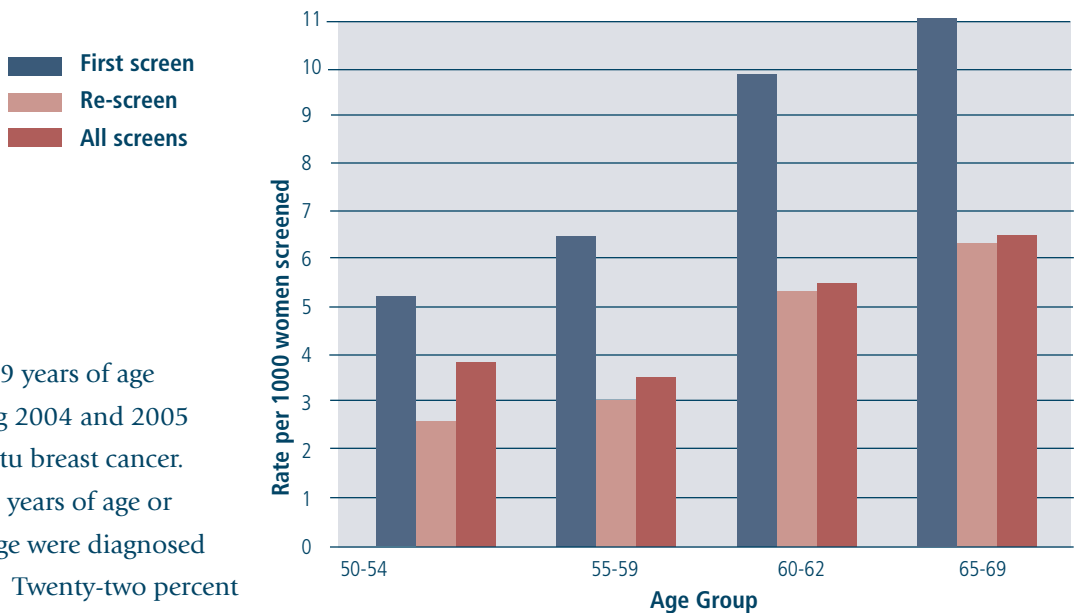
Sixty-four women 50 to 69 years of age who were screened during 2004 and 2005 were diagnosed with in situ breast cancer. Nine women less than 50 years of age or greater than 69 years of age were diagnosed with in situ breast cancer. Twenty-two percent of all cases of breast cancer in women 50 to 69 years of age diagnosed during this time period were ductal carcinoma in situ.

The positive predictive value for women 50 to 69 years of age who were screened in 2004 and 2005 was 6.2% for first screens and 8.9% for re-screens.

Positive Predictive Value Target: ≥ 5% first screens; ≥ 6% re-screens

The benign to malignant open biopsy ratio during this time period was 2.4:1. The benign open surgical biopsy rate was 2.7 per 1000 women screened. The benign to malignant core biopsy ratio was 1.0:1 (50 to 69 years of age). The benign core biopsy rate was 9.5 per 1000 women screened. The proportion of core biopsies has increased significantly over time (Figure 13).

Figure 13. *Proportion of open and core biopsies from 1995 to 2005 by calendar year*
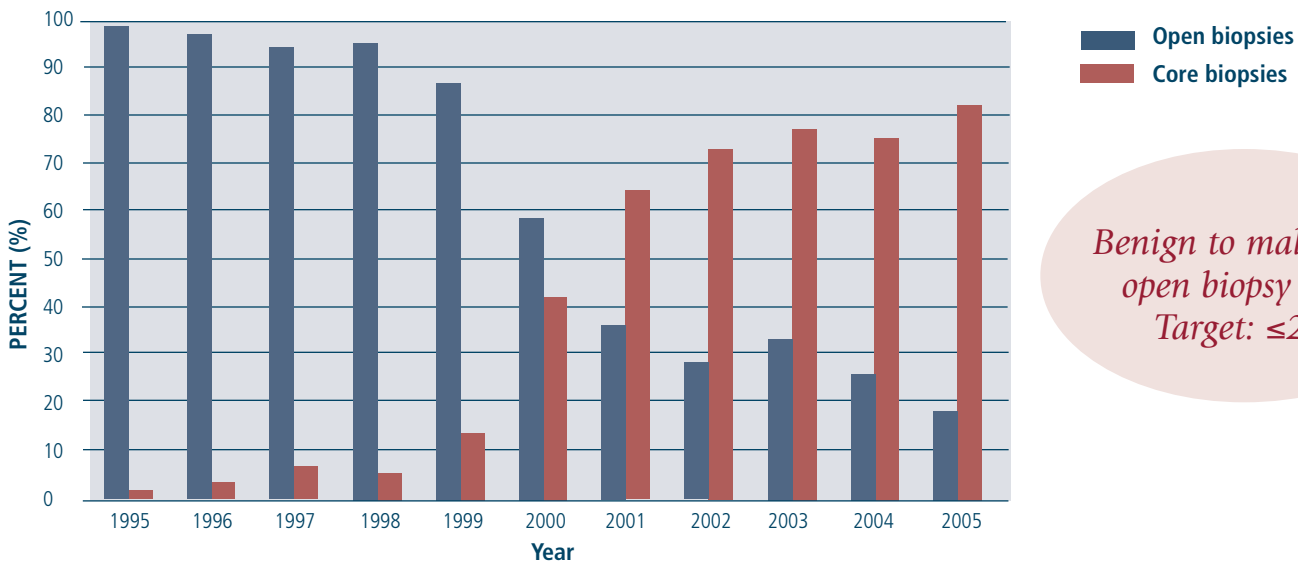

Benign to malignant open biopsy ratio Target: ≤2:1

Since the purpose of screening is to detect cancers before symptoms are present when the cancers are small and localized, tumour size, lymph node involvement, and stage are used as interim measures of screening effectiveness. Tumour size was available for 276 out of 296 cases (93%) of invasive breast cancer screened during 2004 and 2005 (50 to 69 years of age). Thirty-three percent of invasive breast cancers were less than or equal to 10 mm in size; 56% were less than or equal to 15 mm in size (Figure 14).

Stage was available for 259 cases of invasive breast cancer detected during 2004 and 2005 (50 to 69 years of age). Sixty-one percent of cases staged were stage I, 34% were stage II, 5% were stage III or IV. A higher proportion of re-screens were diagnosed at stage I compared to initial screens (Figure 15).

Invasive tumour size
Target:
>25% ≤ 10mm;
>50% ≤ 15mm

Figure 15. *Stage of Invasive Breast Cancers from January 2004 to December 2005 (n=259)*

Figure 14. *Invasive Tumour Size from January 2004 to December 2005 (n=276)*
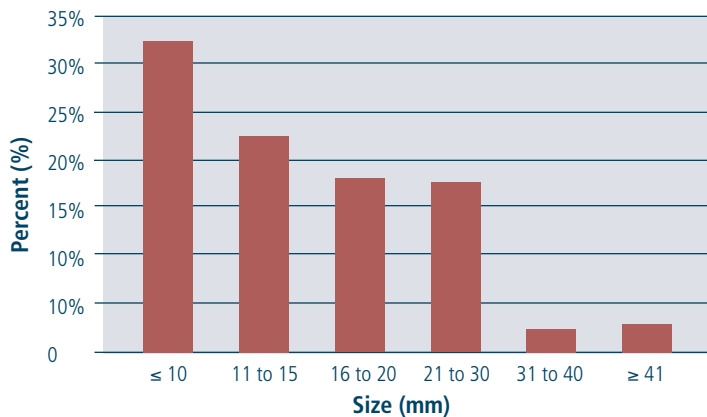
Lymph node information was available for 262 out of 296 cases (88%) of invasive breast cancer detected during 2004 and 2005 (50 to 69 years of age). Seventy-seven percent of cases were lymph node negative. The percentage of cases that were negative was lowest for the 60-64 age group (71%) and highest for the 65 to 69 age group (82%).
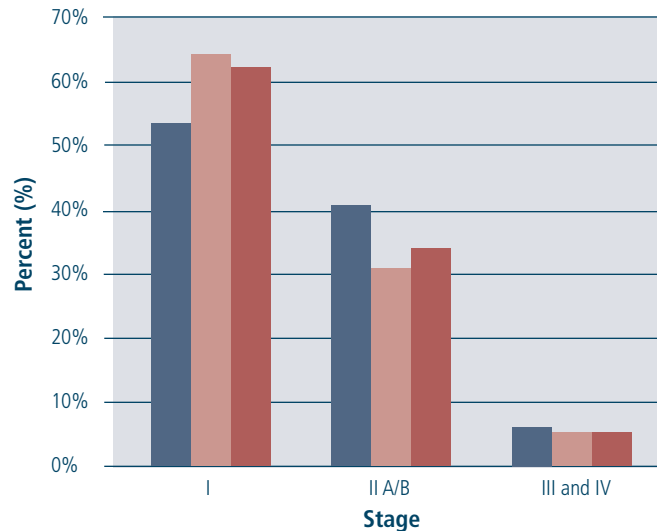
Post-screen detected
invasive cancer rate
Target: < 6 per 10,000
person-years (0-12 months)
< 12 per 10,000 person-years
(0-24 months)

The post-screen detected invasive cancer rate for women 50 to 69 years of age screened in 2002 and 2003 was 4.9 per 10,000 person-years (0-12 months) and 6.6 per 10,000 person-years (0-24 months).

Negative lymph nodes
Target: >70%
node negative

Comparison to Canadian Targets

As part of the on-going evaluation of the MBSP, several interim measures of program effectiveness are regularly compared to national targets[3]. Table 3 shows the performance measure, target, and MBSP outcome for women 50 to 69 years of age who were screened from April 2004 to March 2006. The MBSP meets the targets set for retention rate, abnormal call rate, invasive cancer detection rate, positive predictive value, invasive tumour size, and negative lymph nodes.

Table 3. *Comparison of MBSP outcomes from April 2004 to March 2006 with Canadian Targets*

Performance Measure	Target	MBSP[4]
Participation rate	≥ 70% of the eligible population	51%
Retention rate	≥ 75% re-screened within 30 months	81% (2003/04)
Abnormal call rate	< 10% first screen; < 5% re-screen	9.3% 4.6%
Invasive cancer detection rate	> 5 per 1000 first screen; > 3 per 1000 re-screen	5.5 4.3
In situ cancer detection rate	Monitoring purposes only	1.1
Diagnostic interval	≥ 90% within 5 weeks – no tissue biopsy; ≥ 90% within 7 weeks – tissue biopsy	64% 42%
Positive predictive value[5]	≥ 5% first screen; ≥ 6% re-screen	6.2% 8.9%
Benign to malignant open biopsy ratio[3]	≤ 2:1 first and re-screens	2.4:1
Invasive tumour size[3]	> 25% ≤ 10mm; > 50% ≤ 15mm	36% 56%
Negative lymph nodes in cases of invasive cancer[3]	> 70% node negative	77%
Post-screen detected invasive cancer rate[6]	< 6 per 10,000 person years (0-12 months); < 12 per 10,000 person years (0-24 months)	4.9 6.6

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[3] *Evaluation Indicators Working Group.Guidelines for Monitoring Breast Screening Program Performance. Ottawa, ON: Public Works and Government Services, 2002.*

[4] *For women 50-69 years of age.*

[5] *From January 2004 to December 2005.*

[6] *For 2002/03*

Acknowledgements

Appendix 1. Supplementary Tables

Table 4. *Number of women screened by age group and Regional Health Authority (April 2004 to March 2006)*

	Winnipeg	Brandon	North Eastman	South Eastman	Interlake	Central	Assiniboine	Parkland	Norman	Burntwood	Churchill	Total
<50	32	1	46	35	69	7553	72	40	37	3	463	
50-59	21755	1721	1525	1772	2910	3074	2421	1519	746	816	30	38,289
60-69	13153	1152	1080	1211	2034	2123	1976	1178	423	332	11	24,682*
70+	59	5	89	60	156	13287	195	27	10	2	822	
All ages	34999	2879	2740	3078	5169	5404	4537	2964	1236	1195	46	64,256
50-69	34908	2873	2605	2983	4944	5197	4397	2697	1169	1148	41	62,971

* Includes 9 women 60 to 69 years of age who did not have a postal code that could be assigned a RHA.

Table 5. *Participation in the last 24 months by Regional Health Authority, 50 to 69 years of age (April 2004 to March 2006)*

	Brandon	Parkland	North Eastman	Central	Assiniboine	South Eastman	Norman	Interlake	Churchill	Winnipeg	Burntwood	Total
screened	2873	2697	2605	5197	4397	2983	1169	4944	41	34,917	1148	62,971
Pop*	4993	4716	4692	9369	7957	5395	2133	9025	77	72,394	2591	123,342
%	57.5	57.2	55.5	55.5	55.3	55.3	54.8	54.8	53.2	48.2	44.3	51.0

*Population is from MB health 50-69 years Apr 2002 to Mar 2004

Table 6. *Number of program detected cases of invasive breast cancer by Regional Health Authority, 50 to 69 years of age (2004 and 2005)*

	Winnipeg	Brandon	North Eastman	South Eastman	Interlake	Central	Assiniboine	Parkland	Norman	Burntwood and Churchill	Total
50-69	185	9	14	7	17	16	20	13	8	7	296

Table 7. *Number of program detected cases and cancer detection rate of invasive breast cancer by age group and screen type (2004 and 2005)**

	Women screened			Invasive breast cancer			Cancer detection rate per 1000 women screened		
	First	Re-screen	Total	First	Re-screen	Total	First	Re-screen	Total
50-59	11999	27050	39049	63	82	145	5.25	3.03	3.71
60-69	1346	24246	25592	14	137	151	10.40	5.65	5.90
50-69	13345	51296	64641	77	219	296	5.77	4.27	4.58

* Four women outside the target age group were diagnosed with invasive breast cancer.

Table 8. *Number of women diagnosed with in situ breast cancer by age group and screen type (2004 and 2005)**

	First screen	Re-screen	Total
50-59	12	36	48
60-69	2	14	16
50-69	14	50	64

* Nine women outside the target age group were diagnosed with invasive breast cancer.

Table 9. *Number of open and core biopsies over time (50 to 69 years of age)*

	1999	2000	2001	2002	2003	2004	2005
Open*	414	233	137	117	93	107	71
Benign	228	150	84	81	62	80	46
Malignant	157	81	52	35	31	27	25
Benign to malignant ratio	1.5	1.9	1.6	2.3	2.0	3.0	1.8
Core*	59	165	234	305	318	309	305
Benign	37	102	116	139	169	171	143
Malignant	17	79	91	134	115	138	162
Benign to malignant ratio	2.2	1.3	1.3	1.0	1.5	1.2	0.9
Total	473	398	371	422	411	416	376

* Includes tests with equivocal results

Table 10. *Stage for Invasive Breast Cancer, 50 to 69 years of age by screen type (2004 and 2005)*

Stage	First screen	Re-screen	Total	First screen	Re-screen	All screens
I	36	122	158	53%	64%	61%
IIA/B	28	59	87	41%	31%	34%
III and IV	4	10	14	6%	5%	5%
Total	68	191	259			

Appendix 2. Education Resources

Resource List

Available to view and order on line at
http://www.cancercare.mb.ca/MBSP/mbsp_health.shtml

Posters:

Community Education Poster/handout series of 3:
- Early detection is your best protection with mammogram facts
- Breast screening facts and mobile location map
- Breast Health – There is so much you can do.

What You Should Know About Breast Cancer Screening

Fact Sheets and resources for health workers:

- A Trip for Health
- Breast Health Services
- Key facts about breast cancer screening
- Should women age 40 to 49 be screened?

RX pad for breast screening

Planning for a community mobile

Wallet sized appointment card

Plastic Bags with Screening Logo

Pamphlets:

Finding Breast Cancer Early Could Save Your Life

   English, French, Arabic, Chinese, Farsi/Persian, Filipino, French, German, Hindi, Italian, Korean, Panjabi,
   Portuguese, Polish, Russian, Spanish, Tigrynia, Urdu, and Vietnamese

After Your Visit (*same languages as above*)

A Free Breast Health Program for Women 50 - 69 years of age

Breast Screening Mammograms for women over 69

Shower card

Your Breasts: Questions & Answers

Teaching breast models/lump display – for loan only

Videos:

Video – A visual tour: What happens at the screening program? Available in English, Chinese, Cree, Oji Cree, Portuguese, Spanish, Tagalog Vietnamese, Hindi and Punjabi.

Appendix 3. Glossary and Definitions

Participation rate: The percentage of women who have a screening mammogram (calculated biennially) as a proportion of the eligible population.

Retention rate: The estimated percentage of women who are re-screened within 30 months of their previous visit.

Family history of breast cancer: A high risk of breast cancer is defined as a 25% or greater lifetime risk (for example, one first or second degree relative diagnosed with both breast and ovarian cancer at any age).

Low risk is defined as a lifetime risk of between 12% and 25% (at least one first or second degree relative on either side of the family with a history of breast or ovarian cancer that does not fall into any of the high risk categories).

No risk is defined as an 11% risk or the risk of the general population (no first or second degree relative on either side of the family with a history of breast or ovarian cancer).

Abnormal call rate: The percentage of women screened who are referred for further testing because of abnormalities found by mammography.

Invasive cancer detection rate: The number of women detected with invasive cancer during a screening episode per 1000 women screened.

In situ cancer detection rate: Number of ductal carcinoma in situ cancers (rather than invasive cancer) during a screening episode per 1,000 women screened.

Diagnostic interval: The total duration from abnormal screen to resolution of abnormal screen.

Positive predictive value: The proportion of abnormal cases with completed follow-up found to have breast cancer (invasive or in situ) after diagnostic work-up.

Benign to malignant open biopsy ratio: Among open biopsies, the ratio of the number of benign cases to the number of malignant cancer cases.

Invasive tumour size: The percentage of invasive cancers with tumour size of £ 10 mm in greatest diameter as determined by the best available evidence: 1) pathological, 2) radiological, 3) clinical.

Negative lymph nodes in cases of invasive cancer: The proportion of invasive cancers in which the cancer has not invaded the lymph nodes.

Stage of invasive cancer: Breast cancers are staged using the TNM7 classification system. Approximate stage definitions of breast cancer are as folllows: Stage I – tumour less than 2 cm, no cancer in lymph nodes, Stage II – tumour 2 to 5 cm, not involving the chest wall, if lymph nodes are involved they are movable, Stage III – advanced local tumour, fixed to skin or chest wall, or presence of lymph nodes attached to structures in the axilla, and Stage IV – cancer spread beyond breast and axilla to lymph nodes above the collarbone or to distant organs.

Post-screen detected interval cancer rate: The number of women with a diagnosis of invasive breast cancer after a negative screening episode per 10,000 person-years at risk within 12 and 24 months of the screen date.

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[7] *American Joint Committee on Cancer. AJCC Cancer Staging Manual - 5th Edition. Chicago (IL): American Joint Committee on Cancer, 1997.*