BC Cancer Agency
CARE + RESEARCH
An agency of the Provincial Health Services Authority

Screening Mammography Program

Screening Mammography Program 2016 Annual Report

Updated: December 2016

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1.0 Message

Message from the Medical Director

I am very pleased to share the 2016 Screening Mammography Program (SMP) annual report.

As the new medical director for SMP, this report provides a timely opportunity to review the many achievements of the program in 2015. With 255,534 screening mammograms performed, and 1,408 breast cancers detected, the program has had a remarkable impact on British Columbia's cancer control strategy.

Key achievements captured in this report include an increase in the cancer detection rate to a program high of 5.5 cancers per 1000 women screened. The node negative rate for those women who had breast cancer detected is also notable at 76%, which exceeds the national target of 70%.

The program also launched two new digital mammography coaches this year, bringing our provincial total to three brand new state-of-the-art vehicles. These coaches have strengthened our mobile service by increasing access for BC women living in rural and remote communities, and allowing for a more comfortable and private experience for patients.

In 2017 the program will build upon these successes through continued review and support of breast cancer screening research. Combined with our ongoing focus on quality improvement and patient satisfaction, we will further our goal of optimizing positive impact on the health of women in BC.

I would like to thank program staff, screening centre staff, and program radiologists as well as all of our supporters and partners across the province for their effort, commitment and dedication to our mission. I am very excited about the year ahead, and look forward to working with all of you to further reduce breast cancer mortality in this province through early detection.

– Colin Mar, MD

Message from the Screening Operations Director

2015 was an eventful year for the Screening Mammography Program. Many of our activities, outlined in section 5 of this report, were focused on retention, including the partnership of the BC Cancer Agency with the Canadian Breast Cancer Foundation to run the successful *GOHAVE1* campaign. We also completed the launch of our fleet of digital mammography coaches that travel the province providing services for women in rural and remote communities. These activities are important for encouraging women to take advantage of the benefits from regular screening.

SMP participates as a member of the Canadian Breast Cancer Screening Network and collaborates on many national working groups. In this venue SMP has an opportunity to share some of its success and to gather information related to breast cancer screening.

Women can remain assured that screening quality is high within the program, with BC exceeding national targets for cancer detection rates, tumour size, and node negative rates. Continued evaluation of our program remains a priority so that we may continue to improve and provide a high quality service for the women of BC.

The program continues to benefit from the efforts of our many dedicated radiologists, technologists and program staff. Our community partners and stakeholders provide support critical to ensuring the women of BC have access to this life-saving service and we are grateful to everyone for their efforts.

– Janette Sam

2.0 Executive Summary

Dr. Christine Wilson,
SMP Medical Director 2011-2015

The BC Cancer Agency is proud of the achievements of the Screening Mammography Program. The population based breast cancer screening program was the first of its kind in Canada and is in its 28th year of operation. Since the inception of the program in 1988 to the end of 2015, the program has provided over 5,346,517 screening mammograms and detected 22,432 (breast) cancers.

The Screening Mammography Program has a participation target of 70% of eligible 50-69 year old women to have a screen every two years. The number of women 50-69 eligible for a screening mammogram grows each year as the population ages and this cohort increases in size. While the number of screens performed in this age group increased slightly in 2015 compared with 2014, the overall participation remained steady at 52.4%.

Once again the cancer detection rate increased to a program high of 5.5 cancers per 1000 women 40-79 screened. The node negative rate for those women who had breast cancer detected remains high as well at 76%, which exceeds the national target of 70% (Table 14). This is due in part to improved technology over time and a commitment to quality across the program. Screening helps find cancers when they are smaller, leading to more treatment options for women.

On a personal note, we wish to thank Dr. Christine Wilson, past SMP Medical Director, for her contribution to the Screening Mammography Program from 2011 – 2015. Dr. Wilson was appointed the Medical Director just as the Provincial Breast Health Strategy was getting underway and contributed significantly to the strategy.

Some of the many accomplishments during her tenure include the development of a provincial breast health clinical pathway and regional hub-and-spoke diagnostic care model, implementation of updated breast cancer screening guidelines for BC, the development and validation of a digital standardized test set for new screeners, and the development and ongoing circulation of new digital teaching sets for radiologists in the program. In 2013, she spoke to the Senate about breast density and was the spokesperson for the program, providing countless lectures, presentations and media interviews as well as over 8 publications.

We wish her all the best in her future endeavours.

3.0 Screening Recommendations for Women in British Columbia

BC's provincial breast screening recommendations are up-to-date with current evidence-based research findings, effective February 4, 2014. Recommendations encompass the use of mammography, MRI, breast self-examination, and clinical breast examination to screen for breast cancer.

BC recommendations include guidelines for women with a family history of breast cancer in a first degree relative (mother, sister, or daughter). These guidelines are critical as these women are approximately two times more likely to develop breast cancer.[1] More information about the BC breast screening recommendations may be found in Appendix 2, 2015 SMP Screening Services, and online at www.screeningbc.ca.

Risk / Age	Recommendation
Age 40 to 74 with a first degree relative (mother, daughter, sister) with breast cancer.	Screening is recommended every year. Women with a family history of breast cancer are almost two times more likely to develop breast cancer. A doctor's referral is not needed.
Age 40 to 49 without a family history of breast cancer	Women are encouraged to talk to their doctor about the benefits and limitations of mammography. If screening mammography is chosen, it is available every two years. A doctor's referral is not needed but is recommended.
Age 50 to 74 without a family history of breast cancer	Screening is recommended every two years. For women in this age group, the benefits of screening mammograms clearly outweigh the limitations. Book your appointment today. A doctor's referral is not needed.
Ages 75+	Women are encouraged to talk to their doctor about the benefits and limitations of mammography. If screening mammography is chosen, it is available every two to three years. A doctor's referral is not needed but is recommended.
Younger than age 40	Screening mammograms are not recommended unless you have a known BRCA1 or BRCA2 mutation, prior chest wall radiation or strong family history of breast cancer. A doctor's referral is needed for every screen.

1 Pharoah PD, Day NE, Duffy S, Easton DF, Ponder BA. Family history and the risk of breast cancer: a systematic review and meta-analysis. Int J Cancer. 1997 May 29;71(5):800–809.

4.0 About the Screening Mammography Program

Regular breast cancer screening is an important part of a women's health routine. Here in BC we have some of the best survival outcomes in Canada for those women who do get breast cancer. This success is largely due to improved cancer treatments and participation in breast cancer screening.

Going for a regular mammogram is a key component of early detection – regular breast cancer screening can find cancer when it is small, which means:

- There is a better chance of treating the cancer successfully.
- It is less likely to spread.
- There may be more treatment options.

A woman's risk of breast cancer increases as she ages; over 80% of breast cancers in BC are found in women 50 years and older. The BC Cancer Agency is committed to finding breast cancers early through breast cancer screening by its population based program - the Screening Mammography Program (SMP). SMP utilizes standard two-view bilateral mammography (x-ray of the breast) for breast cancer screening. Women ages 40-74 may self-refer to the program; however it is recommended that by age 50 average risk women have a screening mammogram every two years. Women are not eligible for a screening mammogram in BC if they have had breast cancer, breast implants, or if they currently have breast symptoms requiring a diagnostic investigation. These women must speak with their primary care provider and be referred for a diagnostic mammogram.

Centres and Mobile Services

There are 36 fixed centres across the province, and three mobile vans that visit over 170 smaller BC communities, including many First Nations communities. Mobile schedules are posted on the SMP website (www.screeningbc.ca) and are sent to local health professionals.

The Screening Process

The Screening Process is illustrated in Figure 3.1 at the end of this section. The process consists of four stages:

1. Identify and invite the target population for screening.
2. Conduct the screening examination.
3. Investigate any abnormalities identified on screening.
4. Issue a screening reminder at the appropriate interval.

FAST TRACK – Facilitated Referral to Diagnostic Imaging

On average approximately 9% of women who attend for screening will require additional diagnostic testing. Recognizing the importance of timely follow up, the Fast Track Referral System was established in 1999. The Fast Track system facilitates referral for women who require further testing.

Fast Track Overview

- At the time of screening, women are informed that if further tests are required, they will be called directly by a diagnostic facility to book their appointment.
- If further testing is required i.e. additional mammographic views or breast ultrasound, the woman is booked at the Fast Track diagnostic clinic closest to the screening site, usually at the same location.
- The SMP images and results are transferred to the diagnostic office prior to the appointment.
- SMP notifies the woman's health care provider where their patient has been referred for additional testing.
- The diagnostic facility makes every effort to provide an appointment within one week of receiving the referral.

Standardization of the Fast Track referral system ensures that all women benefit from the shortened time between an initial abnormal screening result and the first appointment for diagnostic assessment.

Program Evaluation

Data is collected and analyzed on an ongoing basis to monitor the program's effectiveness and to identify areas for improvement. SMP evaluation indicators, quality standards and systems are based on national and international guidelines and recommendations, including the 3rd edition of the *Report from the Evaluation Indicators Working Group: Guidelines for Monitoring Breast Cancer Screening Program Performance*, published in February 2013.[2]

Results of this analysis are presented in the "PROGRAM RESULTS" section of this report (Section 8). Age-specific breast cancer incidence and mortality rates are provided by the BC Cancer Registry.

2 Canadian Partnership against Cancer. Report from the Evaluation Indicators Working Group: Guidelines for Monitoring Breast Cancer Screening Program Performance (3rd edition). Toronto: Canadian Partnership Against Cancer; February, 2013

Quality Assurance

A team of Medical Physicists, Provincial Professional Practice Leader for Mammography Technologists, and a Quality Management Coordinator are dedicated to quality assurance at all SMP centres. This team supports imaging quality assurance and provides professional direction in equipment selection, acceptance testing, troubleshooting, quality control testing and accreditation at screening centres around the province. The Program also supports continuing education for radiologists and technologists.

The screening mammography workforce is comprised of certified technologists from across BC who are trained and experienced in breast imaging. The Provincial Professional Practice Leader for Mammography Technologists has developed various initiatives to support the professional development of our dedicated technologists, including:

- Certificate in Breast Imaging scholarship program, in partnership with the Canadian Breast Cancer Foundation;
- Educational Webinars throughout the year;
- A Quarterly Technologist Newsletter;
- An educational event at the bi-annual SMP Forum with continuing medical education (CME) credits that is also open to BCIT students comprised of up-to-date topics and speakers that are relevant to the profession;
- SMP Mammography Teaching Sets for Technologists for CME credits;
- Mammography and Patient Care In-Service presentations (CME credits) at the centres;
- A comprehensive SMP Technologist Manual with information to support a technologist's day-to-day duties.

Quality assurance and monitoring is a critical component of an organized screening program. Standards and systems in the SMP are developed based on guidelines and recommendations from the Canadian Association of Radiologists (CAR), Public Health Agency of Canada (PHAC), the Canadian Association of Medical Radiation Technologists (CAMRT), the BCCA Quality Assurance Support Group, and the scientific literature.

Accreditation: Accreditation is the certification of competence in an area of expertise. CAR Mammography Accreditation is mandatory for all SMP Centres. Centres participate in accreditation renewals every three years and are required to have an annual update. The team provides support and guidance for centers as they pursue accreditation. Accredited sites display a certificate for all women attending the service to see.

Image Quality Assurance: The SMP Quality Assurance Support Group provides leadership and technical support to centres for their quality control practices which are standardized and monitored regularly. All centres undergo regular annual equipment testing and are also supported through site visits, training, and comprehensive manuals. The team also provides technical support for centres as they transition from analog to digital mammography.

Based upon best practices, SMP has developed and implemented a comprehensive, harmonized quality control program specific for digital mammography equipment, as well as digital mammography-specific phantoms and a web based 'mQc' program. Technologists are trained to perform these quality control tests through site visit demonstrations. Access to the QC website allows technologists and physicists to review test results on site or remotely. SMP continues to work with other provinces to champion standardization of quality control programs for digital mammography.

Regular Promotion and Education Activities

Ongoing promotion activities include:

- Production of new promotional tools, such as brochures, posters, marketing giveaways, bookmarks and postcards that effectively communicate the benefits of mammography.
- Working with ethnic and First Nations groups to develop customized materials and culturally-sensitive approaches to increase understanding and interest in screening.
- Regular media advertisements to promote the mobile mammography service.
- A "@BCCancer_Agency" Twitter account that promotes relevant information about cancer screening including upcoming mobile visits in communities around the province.
- A website (www.screeningbc.ca) to support informed decision making about screening.
- Regular presence at health fairs and events throughout the province by the BC Cancer Agency's Prevention group.

Client Satisfaction Surveys

Each year SMP performs a client satisfaction survey to ask women their feedback about the program and their screening visit experience. The survey consists of 1000 surveys sent each month to women randomly selected from across the province that have attended the program.

In 2015 the survey was updated to include new overall satisfaction rate questions.

2015 Summary of SMP Client Satisfaction Survey Results:

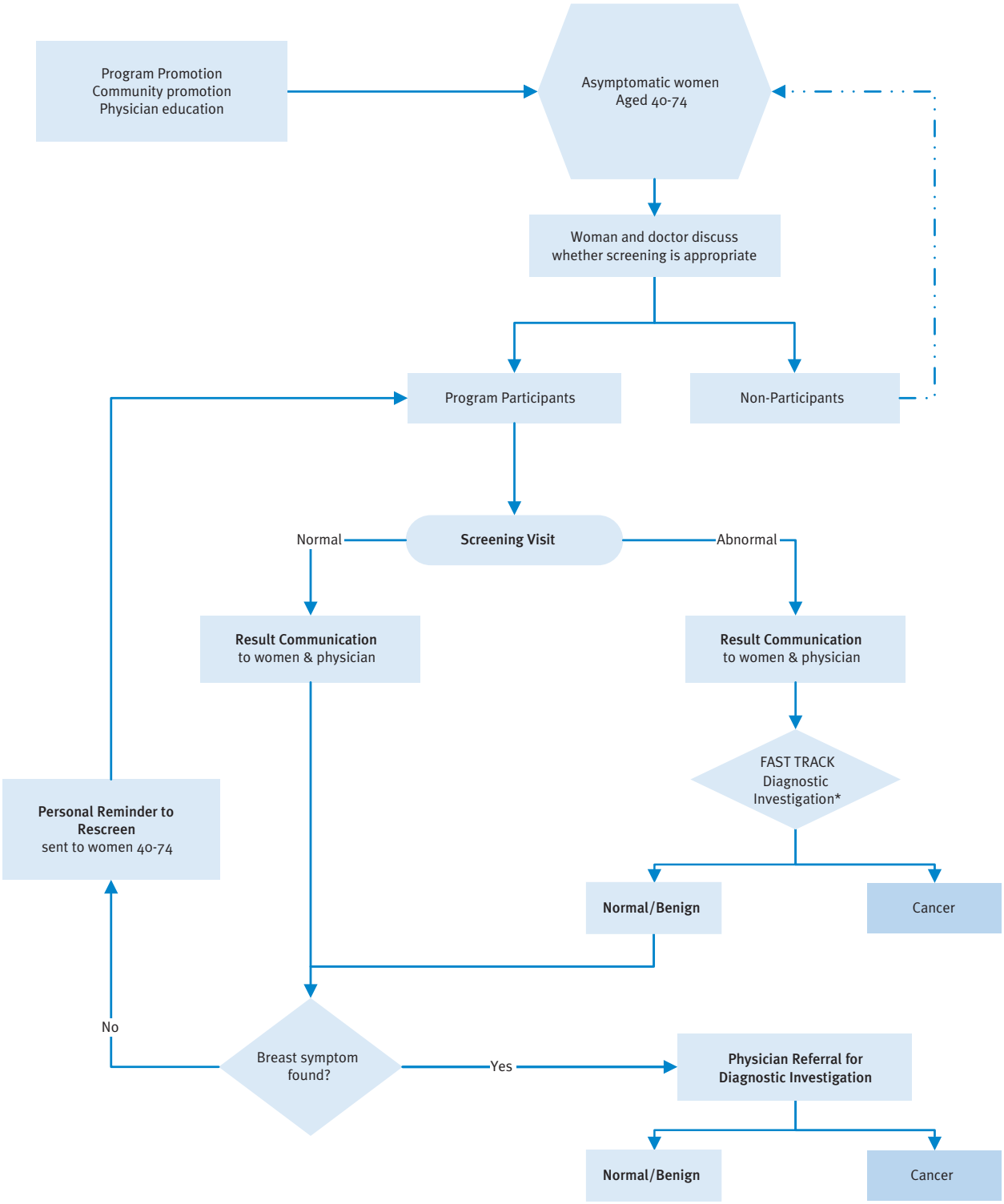
The total number of surveys sent – 12,178

Total number of surveys returned – 4,251 (35% return rate)

The results are compiled and both program wide and center specific results are shared with the centers twice a year. Any center specific comments provided by those surveyed are also forwarded to the centers for review.

Overall Satisfaction Rate	98% indicated "Overall Satisfaction" with Screening
Percentage indicating they would return to screening	98% said that they would return to Screening
Percentage indicating they would recommend screening to others	96% said that they would recommend the program to others
Appointment check in	95% rated the staff GOOD/EXCELLENT at being courteous, helpful and caring
Mammography Experience overall	99% rated the technologists GOOD/EXCELLENT at being courteous, helpful and caring
Mammography compression	94% felt the compression was either somewhat uncomfortable or tolerable

Figure 1: SMP Screening Process Overview



* SMPBC obtains diagnostic investigation information from sources such as Medical Services Plan, surgeons, hospitals and BC Cancer Registry on women who consent to follow up.

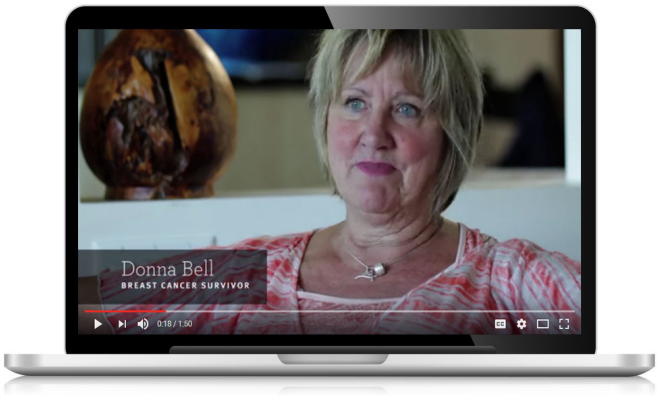
5.0 2015/16 Program Initiatives and Activities

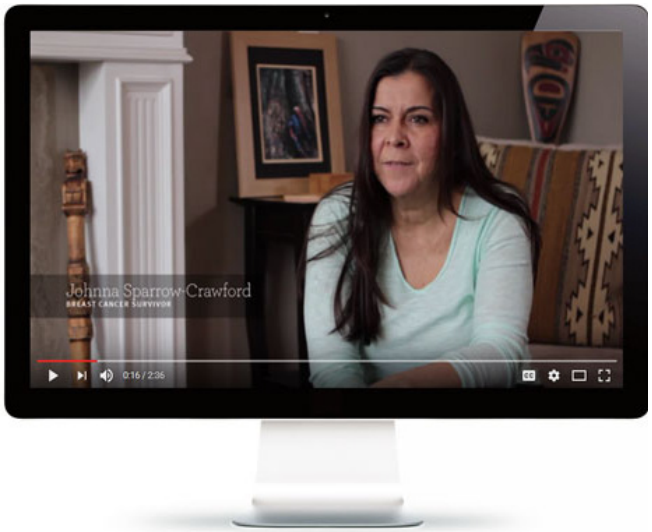
Program Initiatives

SMP regularly develops initiatives related to quality assurance, promotion and retention, and program expansion. This past year some of the initiatives and activities included:

Patient Story Videos

SMP has developed a series of videos that share patient's stories that highlight why they feel breast screening is important. These videos have been used in various campaigns to demonstrate the ease of access and importance of regular breast screening. They can be found on the screening program website: www.screeningbc.ca/breast



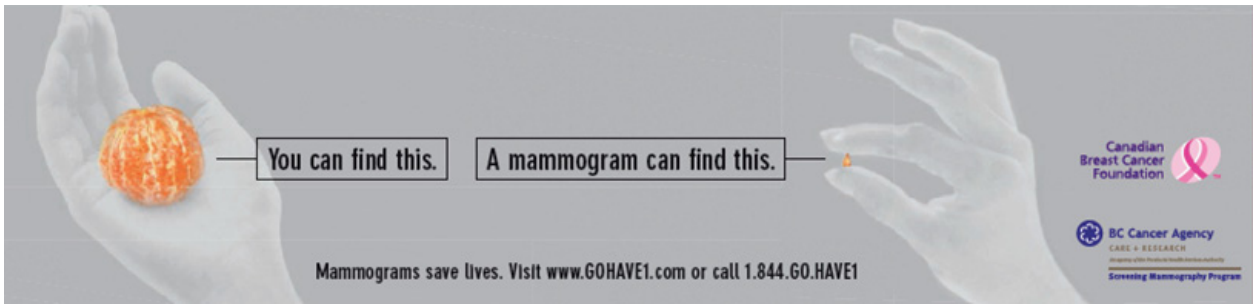


Go Have1 Campaign

In the summer of 2015 the Screening Mammography Program partnered with the Canadian Breast Cancer Foundation to provide a multi-media campaign — GOHAVE1. The campaign was intended to inform and encourage women to book a mammogram.

The campaign's creative and messaging is based upon the comparator of a small orange, and a seed one can find in it, illustrating the point about what a woman might find on her own, versus what mammography can find. The campaign tactics included an eight week television commercial run with Global TV including integrated PSA support by Global television anchors and staff, digital video placement on YouTube, digital display ads and grocery checkout divider ad placement.

The 2015 GOHAVE1 campaign had a positive effect on appointment bookings, with an increase of over 5,600 bookings during the campaign duration (July to September), compared to the same period in 2014 including over 680 additional new patients to the program compared with 2014.



BC Cancer Agency's digital mammography coaches

On February 1st 2015 two new BC Cancer Agency digital mammography coaches were launched and blessed during a ceremony at the Musqueam First Nation in Vancouver. The coaches provide access to breast cancer screening for British Columbian women in remote and rural communities. The blessing was witnessed by leaders from Métis Nation British Columbia, Chief Wayne Sparrow, Musqueam Indian Band, Dr. Moira Stilwell, MLA Vancouver-Langara, Bernice Scholten, Executive Director Canadian Breast Cancer Foundation, Lise Kuramoto, Vice President Operations Shoppers Drug Mart, and Dr. Malcolm Moore, BC Cancer Agency President.

After the blessing, the new digital mammography coaches got to work right away providing mammograms for women on site at the Musqueam First Nation. The launch of these new vehicles completes the conversion of the screening program mobile fleet to digital mammography.

See You in Two Campaign

SMP technologists play a critical role in strengthening program retention rates by providing a positive mammography experience and emphasizing the importance of re-screening to clients. Customer satisfaction data supports this, identifying the need for technologists to encourage clients to return for future mammograms.

Between September 2015 and January 2016, SMP piloted a promotional tactic within SMP centres in the Fraser South Health Service Delivery Area (HDSA). The promotion was called 'See You in Two', and emphasized the two year screening interval for average risk clients. It involved the technologist communicating the importance of regular mammograms during the appointment, and providing a fridge magnet gift to SMP clients after their mammogram. Posters and buttons were also developed to support this promotions initiative.

Through the use of surveys and analysis of retention data, SMP will evaluate the effectiveness of this tactic to determine whether the campaign should be expanded to other centres.

BC Cancer Agency Focus Groups

On October 16, 2015, SMP held a focus group with BC Cancer Agency staff in Vancouver to better understand attitudes and barriers towards screening mammography. Thirty-seven participants were recruited via an all-staff email.

Participants were asked to first complete a survey, and were later divided into groups of 5-10 for focus testing. Discussions were facilitated and documented by moderators.

Participants shared their thoughts on perceived barriers to screening including lack of physician recommendation; not receiving easily accessible reminders (email, text); fear - of the procedure, pain, radiation, being diagnosed with cancer, false positive, etc.; and misconceptions about mammography and breast cancer.

Participants also shared their preferred mode of receiving health information including their doctor, the internet and family/friends. The information gathered will be considered when planning future initiatives.

6.0 Professional Development and Academic Activities

Screening program representatives and scientists authored 1 paper for an international conference, and delivered 23 lectures and presentations.

The SMP plans and participates in professional and academic activities throughout the year. SMP Educational Webinars have resulted in good participation from radiologists and technologists across the province.

In 2015, SMP hosted the following educational activities:

- What's Coming – Mobile Mammography Goes Digital Webinar – Speaker: Nancy Aldoff RT(R)
- Expert Case Reviews – Screener One on One sessions with Dr. Edward Sickles, MD. Professor Emeritus, Department of Radiology, University of California at San Francisco School of Medicine; Former Chief, Breast Imaging Section, University of California at San Francisco Medical Centre, San Francisco, CA, USA.
- Screening Radiologist Teaching Files – 2 image sets of 10 SMP cases prepared for radiologist evaluation.

7.0 Partnerships and Collaborations

Canadian Breast Cancer Foundation

The BC Cancer Agency was proud to partner with Canadian Breast Cancer Foundation on multiple projects in 2015/16 including the GOHAVE1 campaign and the launch of the new digital mobile mammography units.

Canadian Cancer Society

The BC Cancer Agency is grateful to the Canadian Cancer Society for its ongoing support.

Canadian Partnership Against Cancer /Canadian Breast Cancer Screening Network

SMP participates as a member of the Canadian Partnership Against Cancer, Canadian Breast Cancer Screening Network. This national committee's purpose is to review, discuss and take action on inter-provincial matters of mutual interest or concern that are related to breast cancer screening.

National activities include representation by BCCA staff on the following committees and working groups:

Canadian Breast Cancer Screening Network

- Dr. Christine Wilson, Medical Director (past), Screening Mammography Program
- Ms. Janette Sam, Operations Director, Screening Mammography Program

Monitoring and Evaluation Working Group

- Ms. Janette Sam, Operations Director, Screening Mammography Program

Canadian Partnership Against Cancer

- Organized Breast Cancer Screening Programs Report on Program Performance Working Group
  – Ms. Janette Sam, Operations Director, Screening Mammography Program
- Informed Decision Making Working Group
  – Ms. Janette Sam, Operations Director, Screening Mammography Program
- Breast Cancer Screening Modelling Working Group
  – Dr. Andrew Coldman, Emeritus Scientist, BC Cancer Research Centre

Mobile Health Clinics Association of the Pacific Northwest

- The Mobile Health Clinics Association fosters advocacy on behalf of Mobile healthcare and facilitates communications among healthcare providers across North America.
  – Ms. Nancy Aldoff, Professional Practice Leader, Screening Mammography Program

Shoppers Drug Mart

- The BC Cancer Agency is grateful to the Shoppers Drug Mart for their generous support of the digital mammography mobile coaches as they travel around the province.

8.0 2015 Program Results

The program results section provides outcomes for various indicators including coverage, participation, follow-up, quality of screening, detection, and disease extent at diagnosis. The indicators used are adapted from the Canadian Partnership Against Cancer Guidelines for Monitoring Breast Cancer Screening Program Performance.[3]

The program results include outcomes where applicable for women who have indicated they have a family history (higher than average risk women). In section 8.8, the SMP performance measures are presented against the national targets set for Canadian breast cancer screening programs.

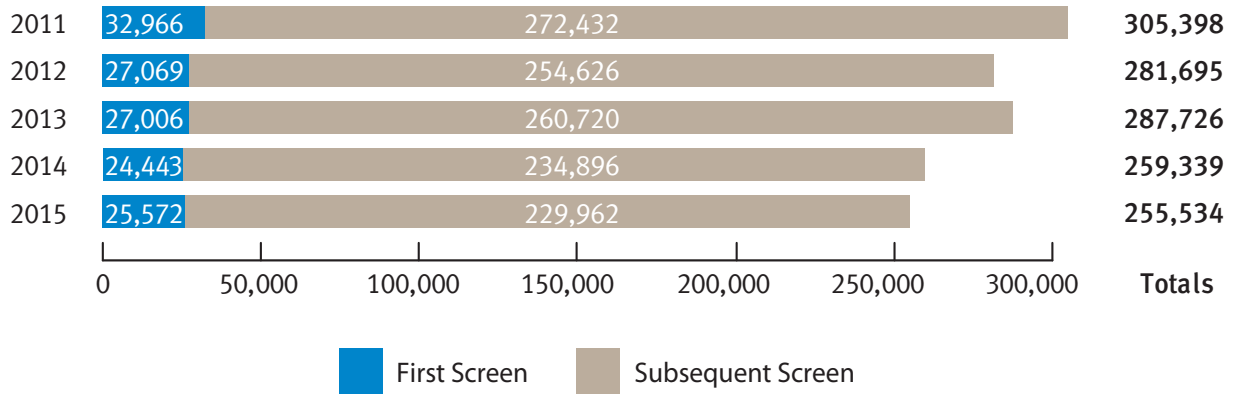
8.1 Recruitment and Re-screening

Screening Volume

The SMP provided 255,534 examinations in 2015. During this period 25,572 (10.0%) of those examinations were provided to first time attendees.

Figure 1 shows that the total number of exams provided by SMP in 2015 decreased by ~1.5% compared to 2014. There was a 4.5% increase in first time screen attendees, while the number of returning participants decreased by 2% over the previous year. The increase in first time screenees was due in part to a successful television advertising campaign held during the summer of 2015. The overall decrease in attendance was primarily due to the 2014 screening policy update transition, which recommended that average risk women 40-49 years old return to screen every two years rather than annually. The decrease was partially offset by increased attendance of women 50-69 years old.

Figure 1: SMP Annual Screening Volume Years: 2011 – 2015

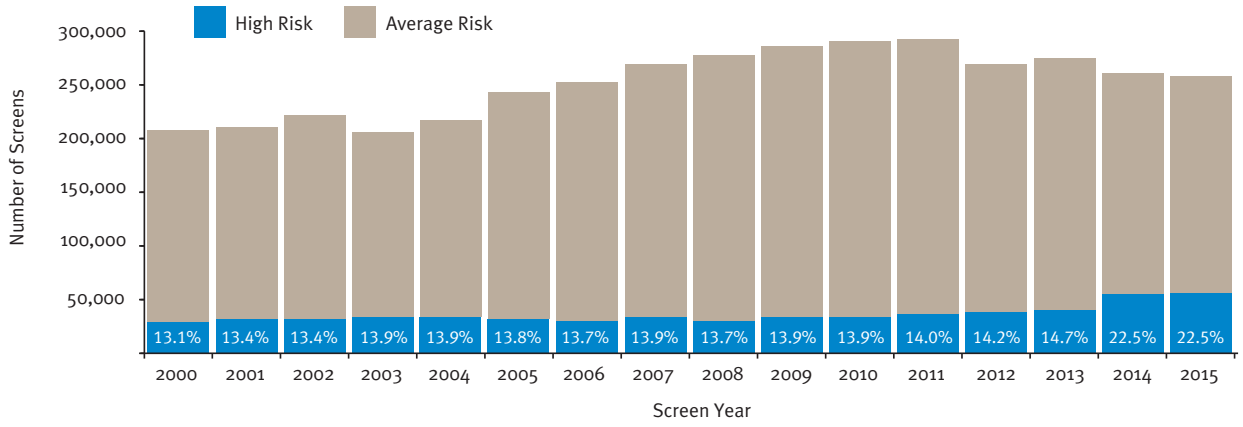


NOTE: SMP data extraction date: August 29, 2016

3 http://www.cancerview.ca/idc/groups/public/documents/webcontent/guideline_monitoring_breast.pdf

Figure 2 shows that the percentage of women who are at higher risk remains steady at 22.5% of the total number of women screened in 2015.

Figure 2: SMP Annual Screening Volume by Risk and Screen Years: 2000-2015



NOTE: SMP data extraction date: August 29, 2016

SMP Volume by Health Service Delivery Area (HSDA) 2015

The age distribution of all exams and first exams performed in 2015 by Health Services Delivery Areas (HSDA) are displayed in Table 1

- The majority of exams (67%) are performed for women between ages 50 to 69 in all HSDAs. This is a 1% increase over 2014.
- Majority of first time attendees were under 50 years of age; however, there are regional variations ranging from 38% in East Kootenay to an average of ~ 67% of first time attendees being under 50 years of age across most of the Lower Mainland.

Table 1: SMP Volume by Health Service Delivery Area (HSDA): 2015

HSDA	Total Exams	Age Distribution of All Exams			First Exams		Age Distribution of First Exams		
		<50	50-69	70+	n	% Total	<50	50-69	70+
East Kootenay	3,965	13%	72%	14%	394	10%	38%	58%	4%
Kootenay Boundary	4,039	11%	73%	16%	344	9%	43%	51%	7%
Okanagan	23,343	14%	70%	17%	2,115	9%	46%	49%	5%
Thompson Cariboo Shuswap	13,011	15%	70%	14%	991	8%	59%	39%	2%
Interior	**44,358**	**14%**	**70%**	**16%**	**3,844**	**9%**	**48%**	**48%**	**4%**
Fraser East	15,349	20%	66%	14%	1,604	10%	56%	41%	3%
Fraser North	32,929	24%	65%	10%	3,665	11%	68%	30%	2%
Fraser South	40,077	23%	65%	12%	4,432	11%	65%	33%	2%
Fraser	**91,962**	**25%**	**63%**	**12%**	**9,836**	**11%**	**66%**	**32%**	**2%**
Richmond	12,240	22%	68%	10%	1,279	10%	67%	31%	2%
Vancouver	32,919	25%	65%	10%	3,631	11%	69%	29%	2%
North Shore / Coast Garibaldi	16,895	20%	67%	13%	1,602	9%	64%	34%	2%
Vancouver Coastal	**62,707**	**24%**	**64%**	**12%**	**6,345**	**10%**	**67%**	**31%**	**2%**
South Vancouver Island	22,508	15%	70%	15%	1,879	8%	51%	46%	3%
Central Vancouver Island	17,052	13%	71%	17%	1,456	9%	44%	53%	3%
North Vancouver Island	7,221	12%	72%	16%	595	8%	41%	56%	3%
Vancouver Island	**47,856**	**14%**	**70%**	**16%**	**3,621**	**8%**	**49%**	**48%**	**4%**
Northwest	3,269	20%	68%	11%	368	11%	63%	35%	2%
Northern Interior	7,238	20%	69%	11%	699	10%	61%	37%	2%
Northeast	2,137	20%	71%	9%	276	13%	59%	40%	1%
Northern	**12,644**	**20%**	**69%**	**11%**	**1,343**	**11%**	**61%**	**37%**	**2%**
Program	**255,534**	**20%**	**67%**	**13%**	**25,572**	**10%**	**60%**	**37%**	**3%**

NOTE: SMP data extraction date: August 29, 2016

The age and volume distribution of all screens performed for women who self-identified as having a family history (higher risk) are displayed in table 2.

- A higher percentage (26%) of the screens performed in the Interior, Vancouver Island and the North are for higher risk women
- The majority of higher risk exams (81%) are performed for women between ages 50 to 74 in all HSDAs

Table 2: SMP Age and Volume Distribution for Higher Risk Women by Health Service Delivery Area (HSDA) 2015

HSDA	Number of Higher Risk Exams	% Higher Risk Exams	Age Distribution of Higher Risk Exams		
			40-49	50-74	75+
East Kootenay	784	20%	12%	84%	4%
Kootenay Boundary	959	24%	9%	87%	4%
Okanagan	5,812	25%	11%	85%	5%
Thompson Cariboo	3,225	25%	12%	83%	4%
Interior	10,780	24%	11%	84%	4%
Fraser East	3,525	23%	15%	80%	4%
Fraser North	7,158	22%	19%	78%	3%
Fraser South	8,306	21%	18%	78%	3%
Fraser	18,989	21%	18%	78%	4%
Richmond	2,260	18%	16%	80%	4%
Vancouver	6,240	19%	21%	76%	3%
North Shore / Coast Garibaldi	4,054	24%	16%	81%	3%
Vancouver Coastal	12,554	20%	18%	78%	3%
South Vancouver Island	5,626	25%	13%	84%	3%
Central Vancouver Island	4,539	27%	11%	85%	4%
North Vancouver Island	1,951	27%	11%	86%	3%
Vancouver Island	12,116	26%	12%	84%	4%
Northwest	837	26%	14%	83%	2%
Northern Interior	1,828	25%	17%	80%	3%
Northeast	528	25%	16%	82%	2%
Northern	3,193	25%	16%	81%	3%
Program	57,894	23%	15%	81%	4%

NOTES:
HR is Higher Risk Women are women who self-identified at the time of screening as having a mother, sister, or daughter with breast cancer
SMP data extraction date: August 29, 2016

Screening Participation

Participation rate is the percentage of British Columbian screen-eligible women who completed at least one SMP screening mammogram in a 30 month period.

The biennial screening participation rates are shown by HSDA for each age group in Table 3.

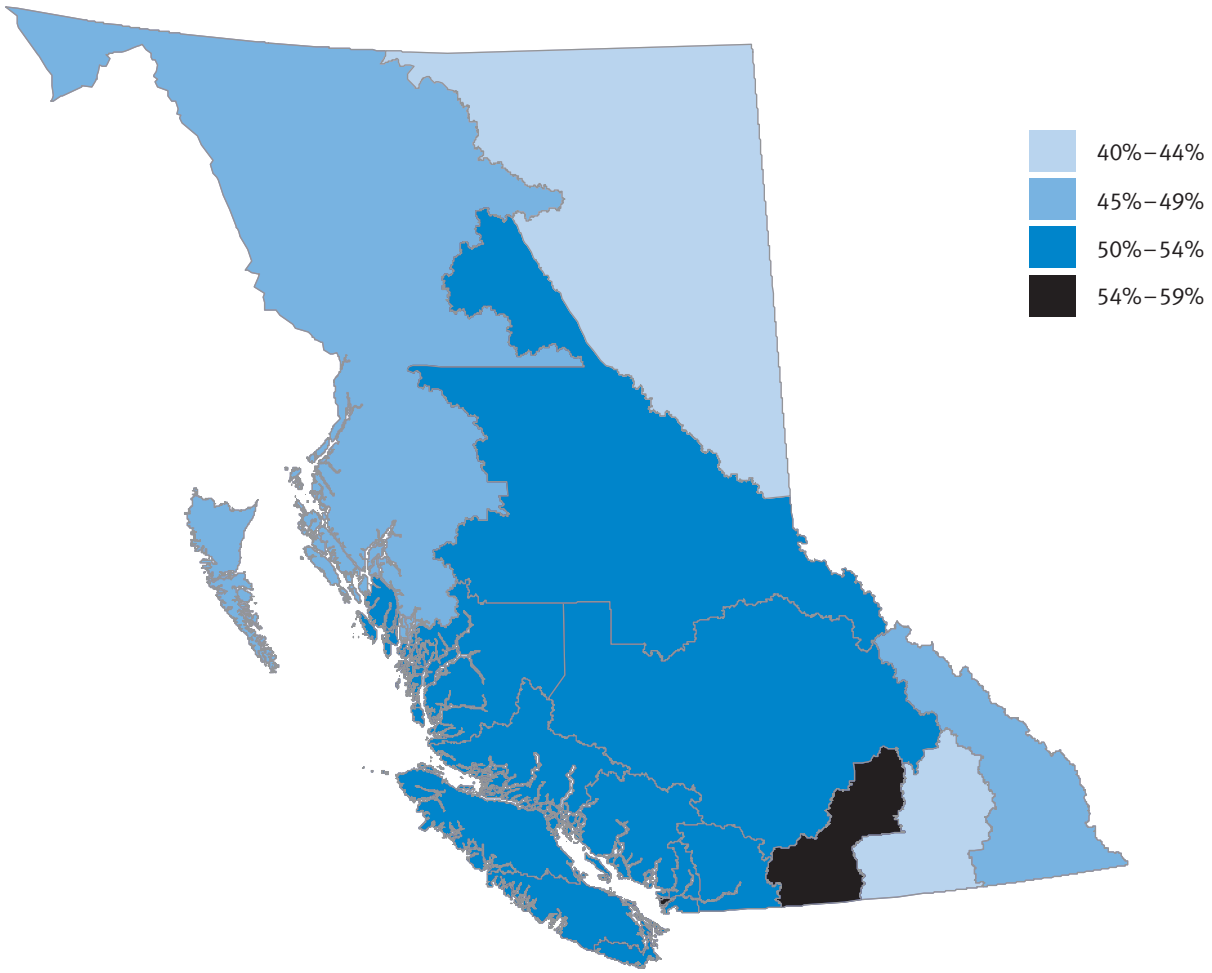
- In the 30 month period between July 1, 2013 and December 31, 2015, 519,463 women ages 40 and over participated in the SMP.
- The highest overall participation rates were seen in the 50 to 59, and 60 to 69 age groups, with a combined participation rate of 52.4%. Northeast had the lowest participation rate at 40%, while the Okanagan and Richmond had the highest at 55%.
- Compared with 2014, the participation decreased slightly in the 40-49 and 70-79 age groups. Participation remained the same for 50-59 and 60-69 year olds.

Table 3: Regional 30-Month Participation Rates by 10-Year Age Groups Ending December 31, 2015 Inclusive

HSDA	10-Year Age Groups					Ages
	40-49	50-59	60-69	70-79	80-89	50-69
East Kootenay	27%	47%	53%	38%	3%	50%
Kootenay Boundary	23%	42%	46%	36%	3%	44%
Okanagan	33%	51%	58%	42%	3%	55%
Thompson Cariboo Shuswap	33%	47%	55%	39%	3%	51%
Interior	**32%**	**48%**	**55%**	**40%**	**3%**	**52%**
Fraser East	36%	49%	54%	39%	2%	51%
Fraser North	40%	51%	54%	37%	3%	53%
Fraser South	39%	51%	54%	37%	2%	52%
Fraser	**39%**	**51%**	**54%**	**37%**	**3%**	**52%**
Richmond	40%	53%	57%	37%	3%	55%
Vancouver	38%	49%	54%	35%	2%	51%
North Shore/Coast Garibaldi	38%	51%	57%	40%	2%	54%
Vancouver Coastal	**38%**	**51%**	**55%**	**37%**	**2%**	**53%**
South Vancouver Island	33%	51%	57%	41%	2%	54%
Central Vancouver Island	31%	49%	58%	42%	3%	53%
North Vancouver Island	29%	48%	57%	41%	2%	52%
Vancouver Island	**31%**	**50%**	**57%**	**41%**	**3%**	**53%**
Northwest	32%	44%	48%	34%	1%	45%
Northern Interior	34%	50%	54%	36%	3%	51%
Northeast	22%	38%	43%	28%	2%	40%
Northern	**31%**	**45%**	**50%**	**34%**	**2%**	**47%**
British Columbia	**36%**	**50%**	**55%**	**39%**	**3%**	**52.4%**

NOTES: 1. Based on the weighted average average of 2013, 2014 and 2015 female population estimates 2. Population data source: P.E.O.P.L.E. 2015 population projection (Sept 2015), BC Stats, Ministry of Technology, Innovation and Citizens' Services, Government of the Province of British Columbia. 3. Postal code translation file: TMF201505 (May 2015). 4. Population and postal code data acquired through BC Stats, Ministry of Technology, Innovation and Citizens' Services, Government of the Province of British Columbia 5. SMP data extraction date: August 29, 2016.

Figure 3: Biennial Screening Participation by Women Ages 50 to 69 over 30 month period between July 1, 2013 and December 31, 2015



NOTES:

1. Based on the weighted average of 2013, 2014 and 2015 female population estimates
2. Population data source: P.E.O.P.L.E. 2014 population projection (Sept 2014), BC Stats, Ministry of Technology, Innovation and Citizens' Services, Government of the Province of British Columbia.
3. Postal code translation file: TMF201505 (May 2015).
4. Population and postal code data acquired through BC Stats, Ministry of Technology, Innovation and Citizens' Services, Government of the Province of British Columbia
5. SMP data extraction date: August 29, 2016

Bilateral mammography may be used for both screening and diagnostic purposes. A proportion of the bilateral mammography services paid through the Medical Services Plan (MSP) are directly related to screening. Data on bilateral mammography utilization were obtained from the MSP.

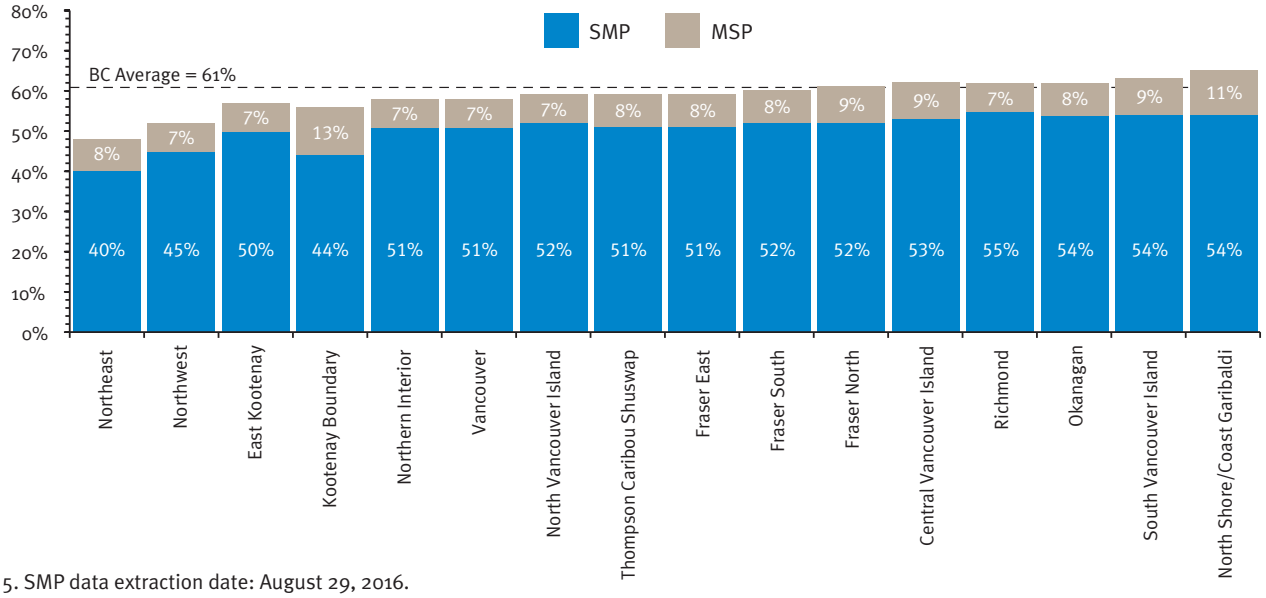
Figure 4 shows the proportion of women receiving bilateral mammography services through the either SMP or MSP over a 30 month period. Some women may have had bilateral mammograms through both SMP and MSP. Thus, the proportions presented here may be slightly higher than the actual figures due to this possible duplication. In HSDA with long established SMP services, the proportion of women using the MSP funded bilateral mammography has stabilized to 8% –10%.

- During the 30-month reporting period, 61% of BC women ages 50 to 69 received bilateral mammography services through either the screening program or MSP. This rate has remained stable since 2014.
- The percentage of women ages 50 to 69 receiving bilateral mammography ranged from 48% to 65% across the province, with Northeast (48%) and Northwest (52%) having the lowest percentages.
- Overall, the SMP provided 86% of the bilateral mammography services for this age group.

Figure 4: Bilateral Mammography Utilization by Women Ages 50 to 69 in BC between July 1, 2013 and December 31, 2015 Inclusive

NOTES:

1. MSP data includes only MSP Fee-For-Service item 8611 on female patients only; all out of province claims are excluded.
2. MSP data contains payment date to June 30, 2016 for services provided between July 1, 2013 and December 31, 2015.
3. SMP data includes single and mulitiple screens per woman provided between July 1, 2013 and December 31, 2015.
4. 2013 to 2015 Projected Population Data Source: P.E.O.P.L.E. 2015 (Sept 2015), BC Stats, Ministry of Technology, Innovation and Citizens' Services, Government of the Province of British Columbia.



5. SMP data extraction date: August 29, 2016.

Participation rates of women ages 50 to 69 by selected ethnic groups are shown in Table 4. The percentage of each ethnic group in the population was computed based on National Household Survey Custom Profile, 2011 (original data source) data. The ethnic population size for each HSDA was estimated based on this ethnic population percentage and the P.E.O.P.L.E. 2015 population projections. The use of single ethnic response data may represent an under-estimation of the ethnic population size, especially the East/South East Asian population in the Fraser North, Richmond, and Vancouver HSDAs. The SMP data on ethnic origin was collected at the time of SMP registration on approximately 86% of attendee's ages 50 to 69 screened between July 1, 2013 and December 31, 2015. 14% of attendees did not specify their ethnicity and were excluded from this analysis.

- Participation in SMP by select ethnic groups has increased slightly compared with 2014
- Participation by First Nations women has increased 1% overall (from 57% to 58%)
- Participation by South Asians has increased by 1% overall (from 55% in 2014 to 56% in 2015)
- Participation by East/South East Asians has increased by 2% (from 56% in 2014 to 58% in 2015)
- Participation by select ethnic groups has increased over the last five consecutive years, and is higher than the overall provincial rate of 52.4%

Table 4 indicates that there are regional variations in participation. This information helps inform future promotional activities.

Table 4: Regional Participation Rates of Women Ages 50-69 by Selected Ethnic Groups between July 1, 2013 and December 31, 2015 Inclusive

HSDA	First Nations		East/South-East Asians		South Asians	
	Population %	Participation Rate	Population %	Participation Rate	Population %	Participation Rate
East Kootenay	1%	100%	1%	100%	1%	38%
Kootenay Boundary	<1%	100%	1%	55%	<1%	100%
Okanagan	1%	77%	1%	50%	1%	68%
Thompson Cariboo Shuswap	4%	53%	1%	79%	1%	44%
Interior	**2%**	**64%**	**1%**	**61%**	**1%**	**60%**
Fraser East	2%	54%	2%	77%	9%	51%
Fraser North	<1%	61%	25%	59%	4%	59%
Fraser South	<1%	79%	10%	66%	15%	49%
Fraser	**1%**	**63%**	**14%**	**62%**	**10%**	**51%**
Richmond	<1%	100%	51%	58%	6%	56%
Vancouver	1%	47%	41%	50%	4%	63%
North Shore/Coast Garibaldi	2%	51%	7%	60%	2%	93%
Vancouver Coastal	**1%**	**51%**	**33%**	**54%**	**4%**	**65%**
South Vancouver Island	1%	61%	4%	53%	1%	77%
Central Vancouver Island	2%	41%	2%	57%	1%	43%
North Vancouver Island	2%	49%	1%	71%	<1%	100%
Vancouver Island	**1%**	**48%**	**3%**	**55%**	**1%**	**67%**
Northwest	15%	55%	3%	25%	1%	94%
Northern Interior	4%	73%	2%	36%	1%	62%
Northeast	4%	72%	1%	9%	<1%	55%
Northern	**7%**	**62%**	**2%**	**28%**	**1%**	**67%**
British Columbia	1%	58%	13%	58%	4%	56%

PARTICIPATION RATE:

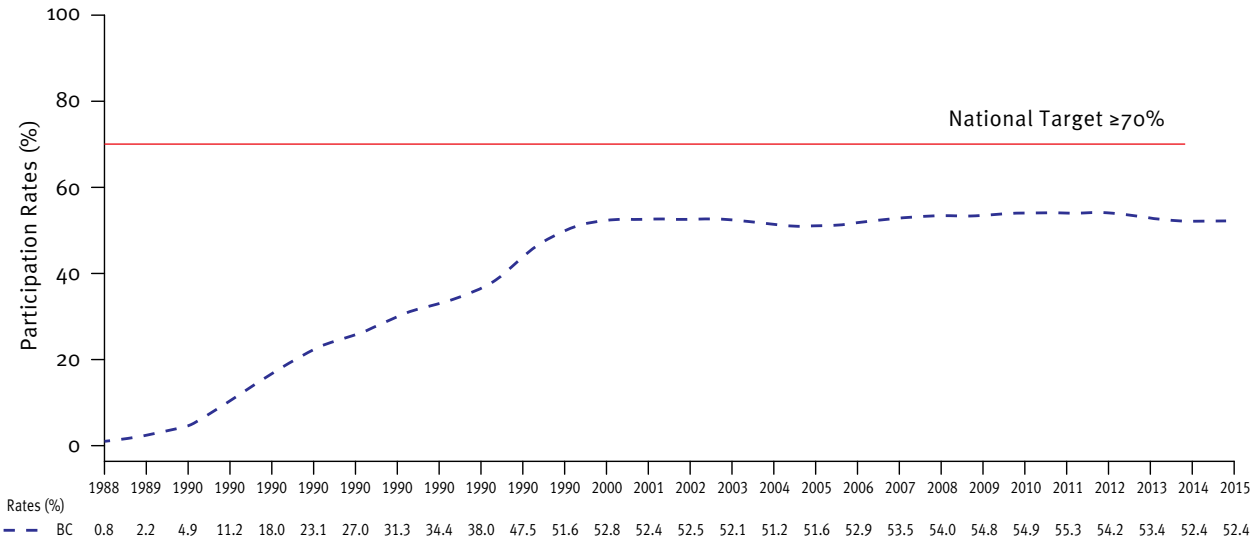
1. Population data sources: P.E.O.P.L.E. 2015 population projection (Sept 2015), BC STATS, Ministry of Technology, Innovation and Citizens' Services, Government of British Columbia, and Statistics Canada, National Household Survey Custom Profile, 2011 (original data source).
2. Postal code translation file: TMF201505 (May 2015).
3. Women attended the SMP at least once between July 1, 2013 and December 31, 2015 inclusive
4. East/South-East Asians include Chinese, Japanese, Korean, Filipino, Burmese, Cambodian, Laotian, Thai, Vietnamese, Indonesian, Malay, and other Asians.
5. South Asians include Bangladeshi, Bengali, East Indian, Gujarati, Pakistani, Punjabi, Sinhalese, Sri Lankan, Tamil.
6. SMP data extraction date: August 29, 2016.

POPULATION PERCENTAGE:

1. Original data source - Statistics Canada, National Household Survey Custom Profile, 2011
2. East/South-East Asians include Chinese, Filipino, Burmese, Cambodian, Hmong, Khmer, Laotian, Thai, Vietnamese, Indonesian, Japanese, Korean, Malaysian, Singaporian, Mongolian, Taiwanese, Tibetan, Asian n.o.s. and East/Southeast Asian n.i.e
3. South Asians include Bangladeshi, Bengali, East Indian, Goan, Gujarati, Kashmiri, Nepali, Pakistani, Punjabi, Sinhalese, Sri Lankan, Tamil, and South Asian n.i.e.

By 2000 there were 36 fixed and mobile mammography centers enabling all BC women to have reasonable access to screening services. There are now 39 fixed and mobile centers serving BC. The percentage of women participating each year in the target population increased until 2000 and has remained steady since then, ranging between 51-55%. This participation rate does not include women screened outside of the program.

Figure 5: SMP Participation rates (%) for women 50 to 69 by calendar year: 1988–2015



NOTE: SMP data extraction date August 29, 2016

Screening Return Rates

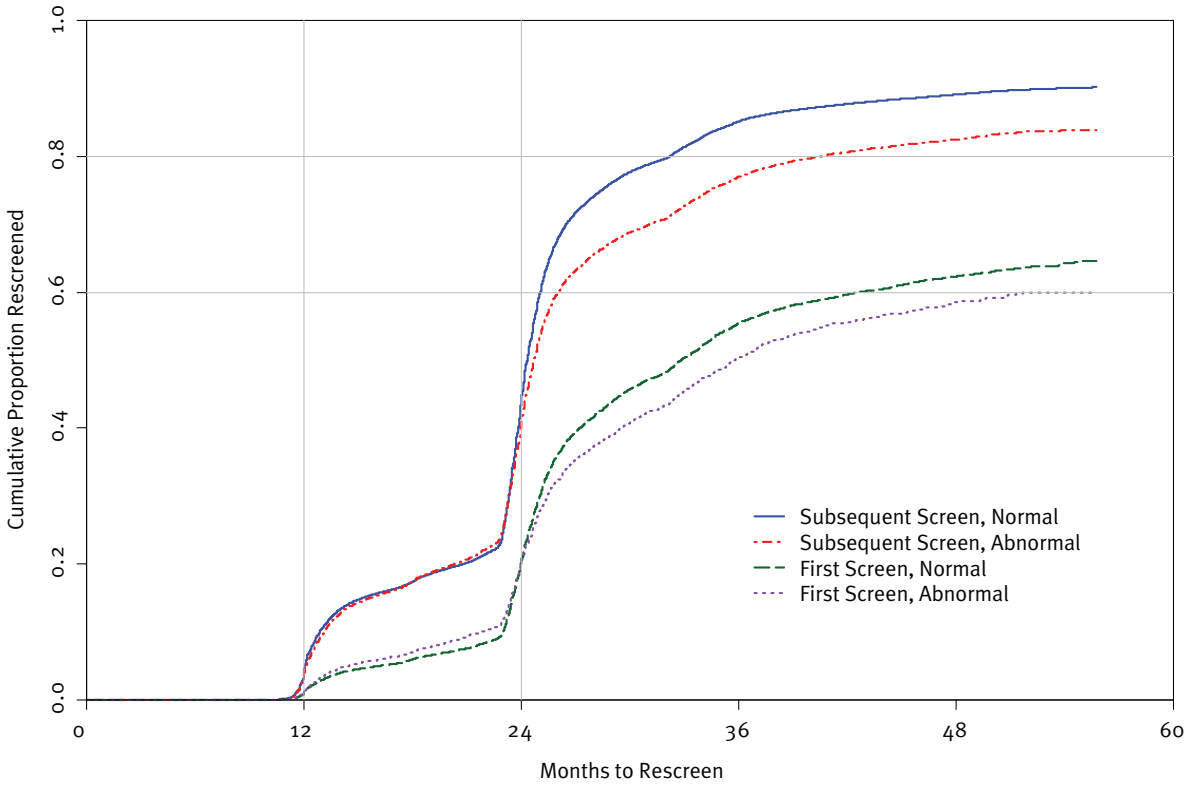
Retention rate is the percentage of screen eligible women age that had a subsequent SMP screening mammogram within 30 months of their previous program mammogram.

Regular attendance for screening is important in order to benefit from a reduction in breast cancer mortality. The SMP sends recall reminders to women when they are due for their next screening interval. A second letter is sent if there is no appointment scheduled within four to six weeks of the first letter. This two-letter reminder system is repeated again the following year if there is no response.

Figure 6 and Table 5 show return rates for women ages 50 to 69 who attended SMP between 2012 and 2014.

By 24 months, when SMP recall mailing is active, women with normal results are more likely to respond to the recall letters than women who previously had an abnormal result. First time women attendees have a much lower rate of return than those who have had two or more visits already. The 30 month retention rate remained the same for women 50-69 with normal or abnormal results. SMP has developed support material for the technologists to share with women at their first appointment to encourage them to return when they are recalled for future screening.

Figure 6: Return Rates for Women Age 50-69 by First/Subsequent Screens and Screen Result: 2012 –2014



NOTE: SMP data extraction date: August 29, 2016

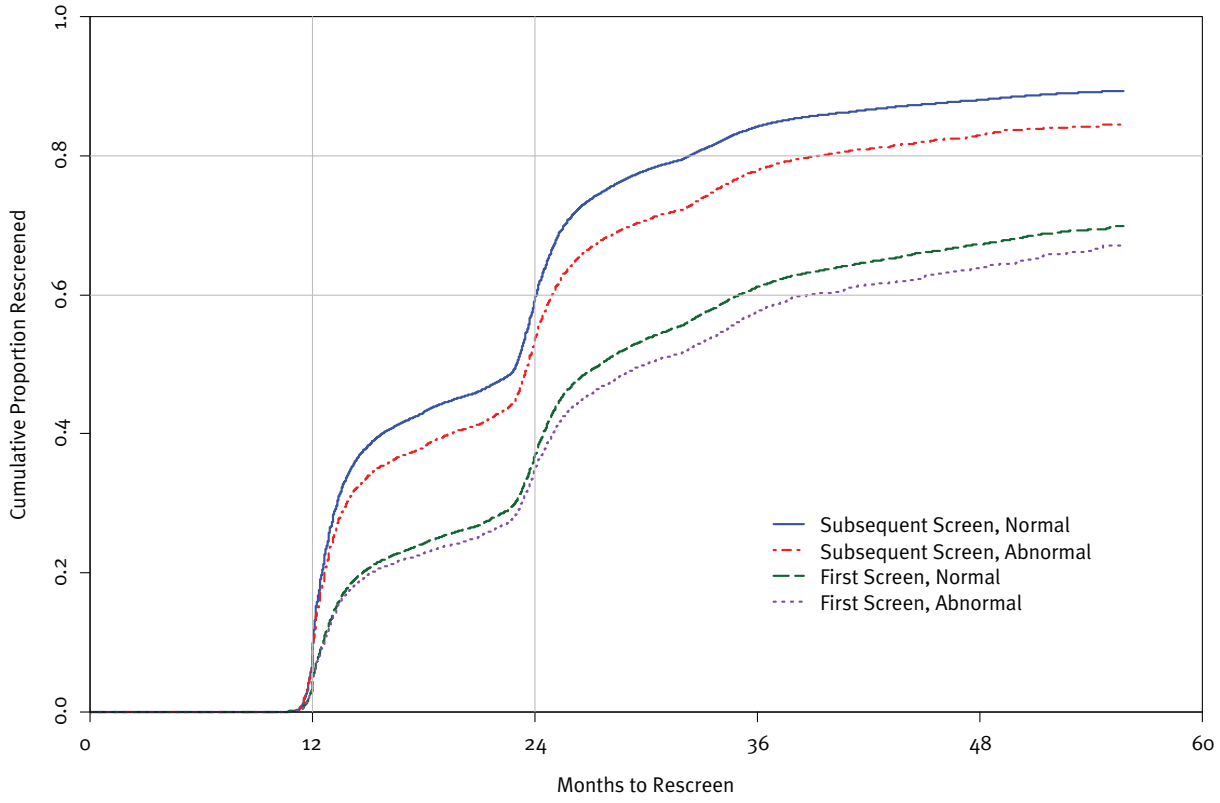
Table 5: Return Rates for Women Age 50 to 69: 2012 – 2014

	First Screen		Subsequent Screen		Overall	
	Normal	Abnormal	Normal	Abnormal	Normal	Abnormal
Total Number to be Re-screened	21,155	4,473	431,686	28,319	452,841	32,792
Returned by 12 months	1%	1%	5%	4%	4%	4%
18 months	6%	7%	17%	17%	17%	16%
24 months	20%	20%	44%	41%	43%	38%
30 months	46%	41%	78%	69%	76%	65%
36 months	55%	50%	85%	77%	84%	73%

NOTE: SMP data extraction date: August 29, 2016.

Figure 7 shows a graph of return rates for women ages 40 to 49 who attended SMP previously between 2012 and 2014. Women in this cohort were contacted and notified of the change in screening frequency for their age group (every two years rather than annually) in 2014. As a result of the policy change there was a significant shift in women delaying their return to screening compared with previously. By 24 months 55%of women with a previous normal result and 47% of women with an previous abnormal result had returned to screening. Just as observed for women ages 50-69, first time women ages 40-49 also have a much lower rate of return than those who had two or more visits already.

Figure 7: Return Rates for Women Age 40-49 by First/Subsequent Screens and Screen Result: 2012 – 2014



NOTE: SMP data extraction date: August 29, 2016

Table 6: Return Rates for Women Age 40-49: 2012 – 2014

	First Screen		Subsequent Screen		Overall	
	Normal	Abnormal	Normal	Abnormal	Normal	Abnormal
Total Number to be Re-screened	41,887	7,861	165,697	12,905	207,584	20,766
Returned by 12 months	5%	4%	10%	9%	9%	7%
18 months	24%	23%	43%	38%	39%	32%
24 months	37%	35%	59%	54%	55%	47%
30 months	54%	50%	78%	71%	73%	63%
36 months	61%	58%	84%	78%	80%	70%

NOTE: SMP data extraction date: August 29, 2016.

8.2 2015 Screening Results

Table 7 summarizes the outcome indicators for screening exams provided in 2015 by 10-year age groups:

- Of the 255,534 screening mammograms performed, 23,152 (9.1%) had an abnormal result.
- There were 1,408 breast cancers reported in 2015 as of August 29, 2016 (5.5 per 1,000 exams).
- The 2015 overall cancer detection rate increased compared with 2014, from 5.4 to 5.5 cancers detected per 1000 women screened.
- The cancer detection rate has increased over time, from an average of 4.2 per 1000 exams in 2010, to 5.5 per 1000 in 2015
- The overall cancer detection rate is highest on both first and subsequent screens for women who reported a family history (mother, sister, daughter).
- The proportion of cancers detected increases as women age

Abnormal Call Rate

Abnormal call rate is the percentage of women who were referred for further testing because of an abnormal screening mammogram result.

- The overall, first and subsequent screen abnormal call rates increased in 2015 compared to 2014 (from 8.4% to 9.1%).
- The abnormal call rate is lower on subsequent screens than on first screens.
- The overall abnormal call rate decreases as women age, from 12.5% for ages 40 to 49 to 7.2% for ages 70 to 74.

Cancer Detection Rate

Cancer Detection rate is the number of women with a screen detected cancer per 1,000 women who had a screening mammogram. Cancer detection rates may be presented as invasive cancer detection rates, in-situ cancer detection rates and overall cancer detection rates.

- The overall cancer detection rate increased in 2015 compared to 2014 (from 5.4 per 1000 screens to 5.5 per 1000).
- The higher risk cancer detection rate was higher than the average risk cancer detection rate for both first and subsequent screens.
- The overall DCIS detection rate increased in 2015 compared to 2014 (from 1.1 to 1.2 per 1000)

Positive Predictive Value

Positive Predictive Value (PPV) is the percentage of women with an abnormal mammogram result who were diagnosed with breast cancer (DCIS or invasive) after completion of diagnostic work-up.

- The overall positive predictive value decreased compared with 2014 from 6.5% to 6.1% overall.

Table 7: SMP Outcome Indicators by 10-Year Age Group: 2015

Outcome Indicators		Age at Exam 40-49	50-59	60-69	70-74	75+	All
Number of Exams		50,070	89,346	83,046	25,018	7,836	255,534
% on first screens		30.1%	7.3%	3.7%	2.1%	2.4%	10.0%
% on higher risk screens		17.8%	21.2%	25.2%	27.9%	26.2%	22.7%
Number of Cancers		142	402	562	211	91	1,408
% on first screens		40.1%	13.9%	7.8%	4.3%	3.3%	12.0%
% on higher risk screens		19.7%	21.4%	27.6%	25.6%	29.7%	24.9%
Abnormal Call Rate		12.5%	8.9%	7.8%	7.2%	8.2%	9.1%
on first screens	Overall	17.5%	20.4%	18.4%	18.4%	15.1%	18.3%
	Higher Risk	19.2%	21.3%	18.7%	16.1%	15.4%	19.5%
	Average Risk	18.3%	20.6%	20.1%	15.7%	18.4%	19.0%
on subsequent screens	Overall	9.9%	7.9%	7.4%	7.0%	8.0%	7.9%
	Higher Risk	9.6%	7.5%	7.1%	6.3%	7.9%	7.5%
	Average Risk	10.0%	8.1%	7.5%	7.2%	8.0%	8.1%
Overall Cancer Detection Rate (per 1,000)		2.8	4.5	6.8	8.4	11.6	5.5
on first screens	Overall	3.8	8.6	14.3	17.5	15.7	6.6
	Higher Risk	4.7	5.1	19.2	---	25.6	6.8
	Average Risk	3.7	9.1	13.6	21.1	13.2	6.6
on subsequent screens	Overall	2.4	4.2	6.5	8.2	11.5	5.4
	Higher Risk	2.8	4.5	7.2	7.8	12.9	6.0
	Average Risk	2.3	4.1	6.2	8.4	11.0	5.2
DCIS Detection Rate (per 1,000)		0.7	1.2	1.5	1.4	1.3	1.2
on first screens	Overall	1.0	2.0	3.3	---	---	1.5
	Higher Risk	1.8	1.3	4.8	---	---	1.9
	Average Risk	0.9	2.1	3.0	---	---	1.4
on subsequent screens	Overall	0.5	1.1	1.4	1.5	1.3	1.2
	Higher Risk	0.6	1.6	1.7	0.9	2.5	1.4
	Average Risk	0.5	1.0	1.3	1.7	0.9	1.1
Positive Predictive Value of Screening Mammography		2.3%	5.1%	8.7%	11.9%	14.3%	6.1%
on first screens	Overall	2.1%	4.2%	7.3%	11.4%	8.8%	3.5%
	Higher Risk	2.4%	2.4%	10.3%	---	16.7%	3.5%
	Average Risk	2.0%	4.5%	6.9%	13.6%	7.1%	3.5%
on subsequent screens	Overall	2.5%	5.3%	8.8%	11.9%	14.6%	6.8%
	Higher Risk	2.9%	6.1%	10.2%	12.5%	16.4%	8.1%
	Average Risk	2.4%	5.1%	8.4%	11.7%	14.0%	6.5%

Table 7: SMP Outcome Indicators by 10-Year Age Group: 2015 (cont'd)

Outcome Indicators	Age at Exam					
	40-49	50-59	60-69	70-74	75+	All
Core Biopsy Yield Ratio	15.0%	28.4%	43.7%	56.5%	54.4%	33.9%
on first screens	11.5%	22.0%	26.8%	53.3%	50.0%	18.1%
on subsequent screens	18.8%	29.9%	46.0%	56.7%	54.6%	38.4%
Open Biopsy Yield Ratio	11.0%	19.6%	32.5%	19.4%	21.7%	21.3%
% on first screens	9.7%	11.1%	31.8%	50.0%	---	14.2%
% on higher risk screens	12.0%	21.5%	32.6%	18.3%	21.7%	23.1%

NOTES:

1. See glossary in the Appendix for definitions of terms.
2. Overall Cancer Rate includes ductal carcinoma in situ (DCIS)
3. An additional 172 abnormal screens had incomplete or lost to follow-up. Information from these screens is excluded from all entries in the table other than exam counts and abnormal call rates.
4. The final number of cancers is still to be determined.
5. 218 exams were performed for women < 40 years old. No cancers were detected for this age group.
6. The "All" column includes women less than 40 years of age.
7. SMP data extraction date: August 29, 2016.

Diagnostic procedure information is available to date on 22,980 (99%) of the screening mammograms with abnormal findings. Table 8 shows the proportion of women receiving specific diagnostic procedures as part of the work-up on their screen-detected abnormalities.

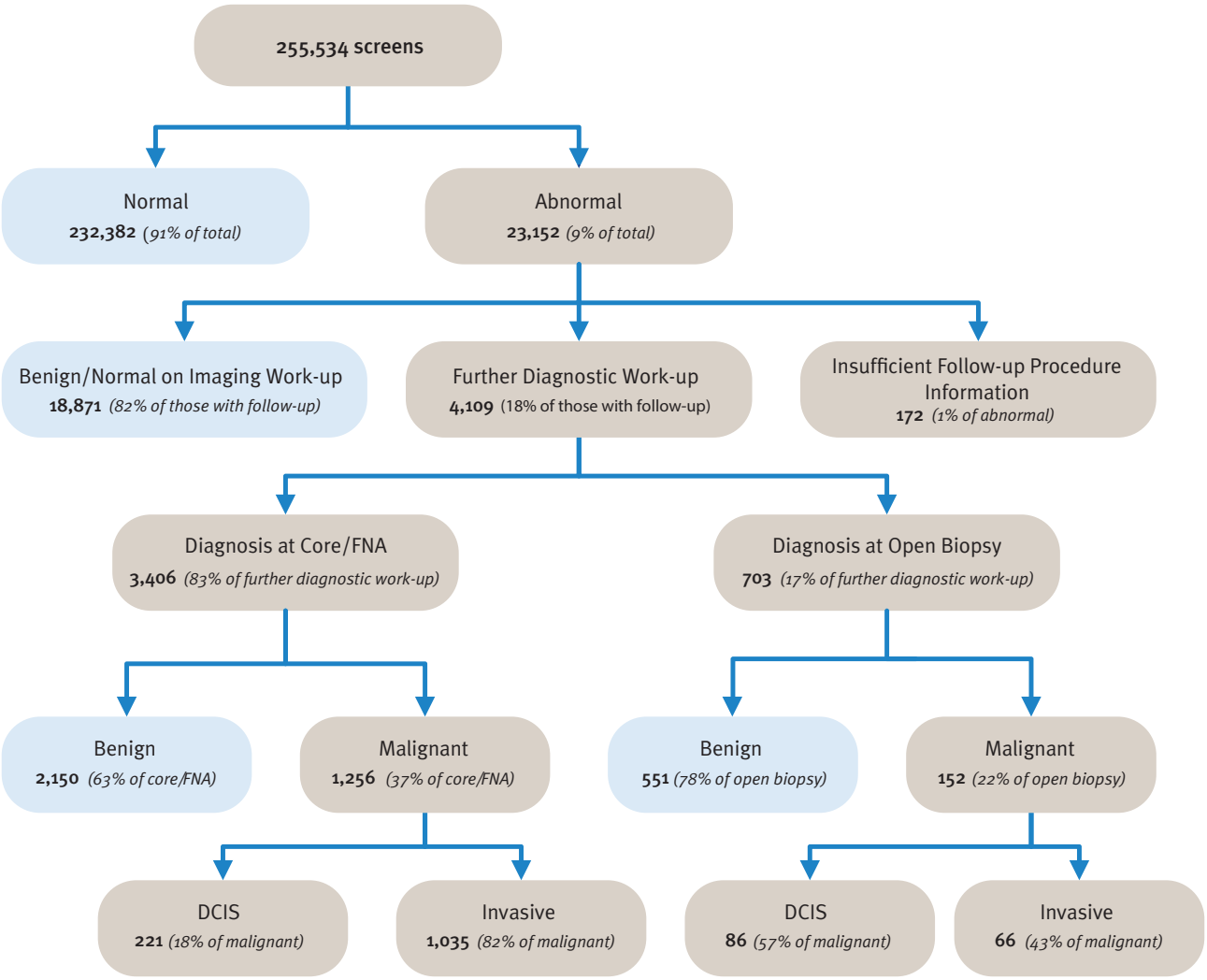
Overall, 16% and 3% of women with abnormal screening mammograms had core biopsy and open biopsy, respectively. The number of fine needle aspirates remained the same compared to the previous year.

Table 8: Diagnostic Procedures Received by SMP Participants with "Abnormal" Screening Mammograms: 2015

Procedure	Age at Exam						
	<40	40-49	50-59	60-69	70-79	80+	All
Diagnostic Mammogram	94%	94%	95%	94%	95%	94%	94%
Ultrasound	74%	68%	66%	66%	66%	66%	67%
Fine Needle Aspiration	0%	1%	1%	1%	1%	0%	1%
Core Biopsy	3%	13%	15%	17%	21%	31%	16%
Surgical Biopsy	0%	3%	3%	3%	3%	5%	3%
with Localization	0%	3%	3%	3%	3%	5%	3%
Number of cases with diagnostic assessment information available	31	6,193	7,872	6,470	2,306	108	22,980

NOTE: SMP data extraction date: August 29, 2016.

Figure 8: Screening Outcome Summary (2015)



8.3 2014 Cancer Detection

Histologic features of breast cancers detected by the SMP in 2014 are summarized by 10-year age groups in Table 9. Histologic features of breast cancer cases were obtained from the pathology reviews, if available. Otherwise, they were obtained from the original diagnostic reports. Invasive tumour size was determined from the best available source: (1) pathological, (2) radiological, or (3) clinical.

- Overall, 21% of cancers detected were in situ.
- Of the invasive cancers detected, 64% were ≤15 mm, 76% did not have invasion of the regional lymph nodes, and 24% were grade 3 (i.e. poorly differentiated) tumours, unchanged from 2014.
- Of the grade 3 tumours, 48% were smaller than 15 mm compared with 33% in 2014. This outcome measure is now similar to the historical program average (Table 13).

These overall outcome indicators met the international targets[4] recommended for screening programs.

Table 9: Histologic Features of Breast Cancers Detected by SMP: 2014

Histological Features	Age at Exam 40-49		50-59		60-69		70-79		Age 40-79	
Number of Cancers	149		398		541		303		1,391	
in situ	48	32%	83	21%	96	18%	59	19%	286	21%
invasive	101	68%	315	79%	445	82%	244	81%	1,105	79%
Invasive Cancers Tumour Size										
≤5 mm	12	13%	28	9%	52	12%	21	9%	113	11%
6-10 mm	22	23%	69	23%	122	28%	59	25%	272	26%
11-15 mm	17	18%	83	28%	113	26%	89	37%	302	28%
16-20 mm	18	19%	40	13%	68	16%	28	12%	154	14%
›20 mm	25	27%	79	26%	78	18%	43	18%	225	21%
unknown size	(7)		(16)		(12)		(4)		(39)	
Invasive Cancers with tumour ≤ 15 mm	**51**	**54%**	**180**	**60%**	**287**	**66%**	**169**	**70%**	**687**	**64%**
Node Involvement in Invasive Cancers										
no	65	71%	218	74%	319	77%	183	80%	785	76%
yes	26	29%	77	26%	93	23%	46	20%	242	24%
no nodes sampled / unknown	(10)		(20)		(33)		(15)		(78)	
Histologic Grade of Invasive Cancers										
1 - well differentiated	23	24%	90	30%	153	37%	66	28%	332	32%
2 - moderately differentiated	49	51%	126	42%	176	42%	116	49%	467	45%
3 - poorly differentiated	25	26%	83	28%	87	21%	55	23%	250	24%
unknown grade	(4)		(16)		(29)		(7)		(56)	
Grade 3 tumour ≤ 15 mm	**12**	**48%**	**32**	**39%**	**48**	**55%**	**27**	**49%**	**119**	**48%**

NOTES:

1. Targets[1] : ›50% invasive tumours ≤15mm, ›70% with negative nodes, ›30% grade 3 tumours ≤15mm.
2. SMP data extraction date: August 29, 2016.

4 Tabàr L, Fagerberg G, Duffy SW, Day NE, Gad A, Gröntoft O. Update of the Swedish two-country program of mammographic screening for breast cancer. Radiol Clin North Am. 1992 Jan:30(1):187-210

8.4 Outcome Indicators by Calendar Year: 2011–2015

Table 10 shows the outcome indicators for screening exams provided over five years.

- Abnormal call rates, cancer detection rates, and positive predictive values have increased the five year period.
- Core biopsy yield ratios have settled around 35% in the last five years.
- Open biopsy yield ratios, on the other hand, have been declining steadily. In 2015, 21.3% of the open biopsies performed found breast cancer.

Regular record linkage with the British Columbia Cancer Registry enables the SMP to determine the number of non-screen detected (interval) cancers in the SMP participants. Sensitivity (i.e. probability of finding women with breast cancer) and specificity (i.e. probability of a negative mammography in women without breast cancer) by calendar year are shown in Table 10. The SMP conducts formal reviews, both blinded and retrospective, of ~ 50% of interval cancers in SMP participants.

Comparison of prevalence rate at first screen with the historical incidence rate prior to the onset of screening practice provides another measure of program performance. The expected age-specific incidence rates in the absence of screening were derived from the 1982 breast cancer incidence data reported for British Columbia. Since screening may be obtained outside of the SMP, prevalent screens have been restricted to those women with no previous outside mammogram within 24 months of their first SMP encounter.

Table 10: SMP Outcome Indicators by Calendar Year between 2011 and 2015 Inclusive

Outcome Indicators	Calendar Year 2011	2012	2013	2014	2015	5-Year Cumulative
Number of Exams	305,398	281,695	287,726	259,339	255,534	1,389,692
% on first screens	10.8%	9.6%	9.4%	9.4%	10.0%	9.9%
Number of Cancers	1,479	1,273	1,398	1,413	1,408	6,971
% on first screens	13.7%	11.1%	12.1%	12.3%	12.0%	12.3%
Abnormal Call Rate	7.8%	7.5%	7.4%	8.4%	9.1%	8.0%
on first screens	16.8%	16.0%	16.6%	18.3%	19.1%	17.3%
on subsequent screens	6.7%	6.5%	6.5%	7.4%	7.9%	7.0%
Overall Cancer Detection Rate (per 1,000)	4.8	4.5	4.9	5.4	5.5	5.0
on first screens	6.2	5.2	6.3	7.1	6.6	6.3
on subsequent screens	4.7	4.4	4.7	5.3	5.4	4.9
DCIS Detection Rate (per 1,000)	1.0	0.9	1.0	1.1	1.2	1.1
on first screens	1.6	1.0	1.4	1.6	1.5	1.4
on subsequent screens	0.9	0.9	1.0	1.1	1.2	1.0
Positive Predictive Value of Screening Mammography	6.2%	6.1%	6.6%	6.5%	6.1%	6.3%
on first screens	3.7%	3.3%	3.8%	3.9%	3.5%	3.7%
on subsequent screens	7.0%	6.8%	7.3%	7.2%	6.8%	7.0%
Core Biopsy Yield Ratio	35.0%	33.6%	35.5%	35.1%	33.9%	34.6%
on first screens	17.9%	16.0%	18.3%	19.8%	18.1%	18.0%
on subsequent screens	40.8%	38.7%	40.6%	39.1%	38.4%	39.5%
Open Biopsy Yield Ratio	26.3%	24.0%	23.8%	24.8%	21.3%	24.2%
on first screens	18.0%	15.9%	14.9%	20.5%	14.2%	16.7%
on subsequent screens	29.0%	26.2%	26.7%	25.9%	23.1%	26.3%
Interval Cancer Rate (per 1,000)						
0-12 months	0.55	0.69	0.67	0.53	---	---
after first screens	0.21	0.78	0.85	0.41	---	---
after subsequent screens	0.59	0.68	0.65	0.55	---	---
13-24 months	0.76	0.73	0.69	---	---	---
Sensitivity (i.e. 1 - false negative rate)	89.7%	86.7%	87.9%	---	---	---
Specificity (i.e. 1 - false positive rate)	92.7%	93.0%	93.1%	92.1%	---	---
Prevalence to Expected Incidence Ratio for Age 50-79 (target[1]: >3.0)	6.20	4.60	5.20	5.60	5.60	5.40

NOTES:

1. See glossary in the Appendix for definitions of terms.
2. Overall Cancer Rate includes ductal carcinoma in situ (DCIS)
3. The final number of cancers in 2015 is still to be determined.
4. Number of cancers and related rates do not include data for women whose follow-up is incomplete.
5. SMP data extraction date: August 29, 2016.

1 Day NE, Williams DRR, Khaw KT. Breast Cancer Screening Programmes: The Development of a Monitoring and Evaluation System. Br J Cancer 1989: 59:954-958

8.5 Outcome Indicators by 10-Year Age Groups: 2011 – 2015 Cumulative

Table 11 shows the outcome indicators for screening exams provided in a five-year period by 10-year age groups.

- From 2011 to 2015, the SMP provided 1,389,692 screening mammography examinations, and detected 6,971 breast cancers.
- About 87% of the cancers detected during this five year period were in women 50 years of age or older. The screen-to-cancer ratio ranges from 113:1 for women in their 70's to 421:1 for women in their 40's.
- Although the risk of breast cancer increases with age, the abnormal call rates were higher in the younger age groups.
- The abnormal-to-cancer ratio ranges from 7:1 for women in their 70's to 41:1 for women in their 40's.
- The cancer detection rate and positive predictive value increases for women as they get older.

Table 11: SMP Outcome Indicators by 10-Year Age Groups between 2011 and 2015 Inclusive

Outcome Indicators	Age at Exam 40-49	50-59	60-69	70-79	80+	All
Number of Exams	**380,147**	**444,572**	**385,253**	**172,938**	**5,635**	**1,389,692**
% first screens	23.0%	7.0%	3.7%	1.9%	2.9%	9.9%
Number of Cancers	903	1,898	2,556	1,528	86	6,971
% on first screens	36.1%	13.8%	7.7%	4.4%	5.8%	12.3%
Abnormal Call Rate	9.7%	7.9%	7.0%	6.6%	7.5%	8.0%
on first screens	16.6%	18.9%	18.0%	17.8%	15.3%	17.3%
on subsequent screens	7.7%	7.1%	6.6%	6.4%	7.3%	7.0%
Overall Cancer Detection Rate (per 1,000)	2.4	4.3	6.6	8.8	15.3	5.0
on first screens	3.7	8.4	14.0	20.9	30.9	6.3
on subsequent screens	2.0	4.0	6.4	8.6	14.8	4.9
DCIS Detection Rate (per 1,000)	0.7	1.0	1.3	1.5	2.0	1.1
on first screens	1.2	1.6	2.5	2.5	0.0	1.4
on subsequent screens	0.6	0.9	1.2	1.5	2.0	1.0
Positive Predictive Value of Screening Mammography	2.5%	5.4%	9.5%	13.5%	20.4%	6.3%
on first screens	2.3%	4.5%	7.9%	12.0%	20.8%	3.7%
on subsequent screens	2.6%	5.6%	9.7%	13.5%	20.4%	7.0%
Core Biopsy Yield Ratio	16.6%	30.0%	45.5%	56.1%	69.6%	34.6%%
on first screens	12.0%	20.4%	31.3%	42.8%	71.4%	18.0%
on subsequent screens	20.8%	32.3%	47.3%	56.9%	69.4%	39.5%
Open Biopsy Yield Ratio	12.6%	22.7%	31.6%	38.9%	35.3%	24.2%
on first screens	12.7%	19.0%	27.2%	33.3%	0.0%	16.7%
on subsequent screens	12.5%	23.5%	32.0%	39.3%	35.3%	26.3%
Interval Cancer Rate (per 1,000)						
0-12 months	0.55	0.48	0.56	0.49	0.36	0.52
after first screens	0.45	0.45	0.78	0.31	<0.01	0.48
after subsequent screens	0.58	0.49	0.55	0.49	0.37	0.53
13-24 months	0.02	0.60	0.75	0.91	1.60	0.53
Sensitivity (i.e. 1 - false negative rate)	81.3%	89.8%	92.2%	94.8%	97.7%	90.6%
Specificity (i.e. 1 - false positive rate)	90.5%	92.5%	93.7%	94.3%	93.9%	92.5%

NOTES:

1. See glossary in the Appendix for definitions of terms.
2. Overall Cancer Rate includes ductal carcinoma in situ (DCIS)
3. The final number of cancers in 2015 is still to be determined.
4. Number of cancers and related rates do not include data for women whose follow-up is incomplete.
5. The “All” column includes women less than 40 years of age.
6. SMP data extraction date: August 29, 2016.

8.6 Outcome Indicators by HSDA: 2011–2015 Cumulative

Outcome indicators for 2011 to 2015 are summarized by HSDA in Table 12.

- South Vancouver Island region has the lowest abnormal call rate (5%), while Fraser East has the highest (11%).
- Northeast has the lowest cancer detection rate (2.8 per 1,000), and Central Vancouver Island has the highest (5.9 per 1,000).
- Northeast has the lowest positive predictive value (3%) and South and Central Vancouver Island regions have the highest (9%).
- All of the HSDAs meet the international targets[5] recommended for screening programs for invasive tumour detection size (target › 50%); ten out of the sixteen HSDAs meet the international target recommended for percentage of cases with negative nodes (target › 70%).

Table 12: SMP Outcome Indicators by Health Service Delivery Area (HSDA) between 2011 and 2015 Inclusive

HSDA	% Called Abnormal	Cancer Detection Rate (per 1000)	PPV	In-Situ : Invasive (number)	% Invasive ≤15 mm	% Invasive with -ve nodes
East Kootenay	9%	4.4	5%	11 : 85	69%	76%
Kootenay Boundary	7%	5.0	8%	19 : 87	60%	74%
Okanagan	6%	5.4	8%	106 : 545	63%	76%
Thompson Cariboo	8%	5.7	7%	75 : 326	60%	74%
Interior	**7%**	**5.4**	**8%**	**211 : 1043**	**62%**	**75%**
Fraser East	11%	5.4	5%	84 : 346	58%	66%
Fraser North	8%	4.8	6%	233 : 678	64%	70%
Fraser South	10%	5.0	5%	249 : 842	60%	70%
Fraser	**9%**	**5.0**	**5%**	**566 : 1866**	**61%**	**69%**
Richmond	8%	4.7	6%	89 : 229	61%	72%
Vancouver	9%	4.9	6%	245 : 645	62%	67%
North Shore / Coast Garibaldi	8%	5.0	7%	94 : 377	66%	72%
Vancouver Coastal	**8%**	**4.9**	**6%**	**428 : 1251**	**63%**	**69%**
South Vancouver Island	5%	4.7	9%	73 : 483	54%	67%
Central Vancouver Island	7%	5.9	9%	99 : 448	64%	77%
North Vancouver Island	6%	4.9	8%	34 : 162	64%	79%
Vancouver Island	**6%**	**5.2**	**9%**	**206 : 1093**	**60%**	**73%**
Northwest	7%	4.5	7%	15 : 64	55%	61%
Northern Interior	7%	4.4	6%	28 : 146	62%	67%
Northeast	9%	2.8	3%	4 : 26	54%	65%
North	**7%**	**4.1**	**6%**	**47 : 236**	**59%**	**65%**
Program	**8%**	**5.0**	**6%**	**1463 : 5508**	**61%**	**71%**

NOTES: 1. See glossary in the Appendix for definitions of terms. 2. Targets1: ›50% invasive tumours ≤15mm, ›70% with negative nodes
3. SMP data extraction date: August 29, 2016.

8.7 Cancer Characteristics by Age: Cumulative Up To and Including 2014

From the start of the program in July 1988 to December 2014, 22,432 women were found to have breast cancer through screening-initiated work-up. Histologic features of breast cancers detected by the SMP cumulative up to and including 2014 are summarized by 10-year age groups in Table 13. Internationally recommended targets have been achieved.

Overall, invasive cancers found in women ages 40 to 49 tend to be larger and more likely to have node involvement than cancers found in older women.

Table 13: Histologic Features of Breast Cancers Detected by SMP Cumulative up to and including 2014

Histological Features	Age at Exam 40-49		50-59		60-69		70-79		80+		Age 40+	
Number of Cancers	3,608		6,326		7,184		4,965		349		22,432	
in situ	1,140	32%	1,554	25%	1,451	20%	882	18%	38	11%	5,065	23%
invasive	2,468	68%	4,772	75%	5,733	80%	4,083	82%	311	89%	17,367	77%
Invasive Cancers Tumour Size												
≤5 mm	243	10%	439	9%	517	9%	311	8%	30	10%	1,540	9%
6-10 mm	475	20%	1,123	24%	1,549	27%	1,230	30%	78	25%	4,455	26%
11-15 mm	652	27%	1,319	28%	1,688	30%	1,225	30%	92	30%	4,976	29%
16-20 mm	377	16%	777	17%	849	15%	601	15%	52	17%	2,656	16%
>20 mm	661	27%	1,038	22%	1,066	19%	668	17%	56	18%	3,489	20%
unknown size	(60)		(76)		(64)		(48)		(3)		(251)	
Invasive Cancers with tumour ≤ 15 mm	1,370	57%	2,881	61%	3,754	66%	2,766	69%	200	65%	10,971	64%
Node Involvement in Invasive Cancers												
no	1,554	70%	3,252	73%	4,111	78%	2,901	81%	180	81%	11,998	76%
yes	678	30%	1,180	27%	1,187	22%	699	19%	43	19%	3,787	24%
no nodes sampled / unknown	(236)		(340)		(435)		(483)		(88)		(1582)	
Histologic Grade of Invasive Cancers												
1 - well differentiated	595	26%	1,400	32%	1,763	33%	1,360	36%	108	38%	5,226	32%
2 - moderately differentiated	995	44%	1,855	42%	2,378	45%	1,695	45%	121	43%	7,044	44%
3 - poorly differentiated	694	30%	1,176	27%	1,202	22%	713	19%	55	19%	3,840	24%
unknown grade	(184)		(341)		(390)		(315)		(27)		(1257)	
Grade 3 tumour ≤ 15 mm	287	41%	529	45%	618	51%	354	50%	24	44%	1,812	47%

NOTES:

1. Targets[1]: >50% invasive tumours ≤15mm, >70% with negative nodes, >30% grade 3 tumours ≤15mm.
2. SMP data extraction date: August 29, 2016.

8.8 Comparison with Canadian Standards

The Canadian Breast Cancer Screening Initiative (CBCSI) was launched in 1992. Under this initiative, Health Canada (now Public Health Agency of Canada) facilitated a federal/provincial/territorial network that enabled collaboration in the implementation and evaluation of breast cancer screening programs in Canada. In 2012 the CBCSI component transferred to the Canadian Partnership Against Cancer (CPAC).

The Canadian Breast Cancer Screening Database (CBCSD) was first established in 1993. All provincial and territorial programs in Canada contribute data to the CBCSD. The first evaluation report on Organized Breast Cancer Screening Programs in Canada was published in 1999, and prompted the creation of the Evaluation Indicators Working Group to begin the task of defining performance measures for Canadian breast cancer screening programs. Biennial evaluation reports are now produced regularly from the CBCSD by CPAC.

In this section, the SMP performance measures are presented against the targets set for Canadian breast cancer screening programs.[6] This document defined a set of performance measures that were developed on the basis of recognized population screening principles, evidence from randomized controlled trials, demonstration projects, and observational studies.

SMP achieves national targets in invasive cancer detection rates, positive predictive values, invasive tumour sizes, and node negative rates. Improvements are needed to: increase participation and retention rates; and to reduce abnormal call rates, diagnostic intervals, and benign to malignant open biopsy ratio.

- The participation rate decreased slightly compared to 2014 (52.4% plus 8% MSP compared to 52.5% plus 8% MSP in 2014).
- The retention rate decreased by 1% for first screens compared with 2014.

Comparison of SMP Performance with Canadian Breast Screening Standards for Ages 50 to 69 is summarized in Table 14.

6 Report from the Evaluation Indicators Working Group: Guidelines for Monitoring Breast Screening Program Performance third Edition. Health Canada 2013

Table 14: Comparison of SMP Performance with Canadian Breast Screening Standards for Ages 50 to 69 Years

Performance Measure	National Target[7]	SMP
Participation Rate (1)	≥70% of the eligible population	52.4% (plus 8% MSP)
Retention Rate (2)		
Initial Rescreen	≥75% initial re-screen within 30 months	45%
Subsequent Rescreen	≥90% subsequent re-screen within 30 months	77%
Abnormal Call Rate (3)		
First Screens	‹10% first screens	20.4%
Subsequent Screens	‹5% re-screens	7.7%
Invasive Cancer Detection Rate (per 1000) (3)		
First Screens	›5.0 per 1,000 first screens	8.1 per 1000
Subsequent Screens	›3.0 per 1,000 re-screens	4.1 per 1000
In Situ Cancer Detection Rate (3)		
First Screens	Surveillance and Monitoring only	2.4 per 1000
Subsequent Screens	Surveillance and Monitoring only	1.3 per 1000
Diagnostic Interval (3)		
no tissue biopsy performed	≥90% within 5 weeks if no tissue biopsy performed	77.4%
tissue biopsy performed	≥90% within 7 weeks if tissue biopsy performed	58.2%
Positive Predictive Value (3)		
First Screens	≥5% first screen	5.2%
Subsequent Screens	≥6% re-screens	7.0%
Benign Core Biopsy Rate (per 1000) (3)		
First Screens	Surveillance and Monitoring only	29.5 per 1000
Subsequent Screens	Surveillance and Monitoring only	7.7 per 1000
Benign to Malignant Core Biopsy Ratio (3)		
First Screens	Surveillance and Monitoring only	3.2 : 1
Subsequent Screens	Surveillance and Monitoring only	1.6 : 1
Benign Open Biopsy Rate (per 1000) (3)		
First Screens	Surveillance and Monitoring only	5.8 per 1000
Subsequent Screens	Surveillance and Monitoring only	1.7 per 1000
Benign to Malignant Open Biopsy Ratio (3)		
First Screens	≤1:1	4.6 : 1
Subsequent Screens	≤1:1	2.7 : 1
Invasive Tumour size ≤10 mm (4)	›25%	37%
Invasive Tumour size ≤15 mm (4)	›50%	64%
Node Negative Rate in Cases of Invasive Cancer (4)	›70%	76%

NOTES:

1. Screen years: (1) = July 1, 2013 - December 31, 2015, (2) = 2012-2014, (3) = 2015, (4) = 2014
2. Population data source: P.E.O.P.L.E. 2015 population projection (Sept 2015), BC Stats, Ministry of Technology, Innovation and Citizens' Services, Government of the Province of British Columbia.
3. SMP data extraction date: August 29, 2016.

8.9 Cost Analysis

The BC Cancer Agency Screening mammography Program is funded by the provincial Ministry of Health through the Provincial Health Services Authority (PHSA). The SMP contracts with regional health authorities and private community imaging clinics to provide screening mammography services, including mobile services, throughout the province.

Overall program administration and coordination is provided by the SMP Central Office, including: promotion, a provincial toll-free call centre, mobile service coordination and staff travel, result mail-out to women and physicians, invitation and recall reminder system, follow-up tracking, quality management, program evaluation, and research support.

Costing analysis by fiscal year is summarized in Table 15

Financial reports for PHSA and BCCA are available at the PHSA website:
www.phsa.ca/AboutPHSA/PHSA_Budget_Financials/default.htm

Table 15: Cost Comparison by Fiscal Year

Indicator	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016
Total Cost	**$21,716,688**	**$21,633,483**	**$21,936,860**	**$20,364,256**	**$19,976,921**
Total cost per screen	**$74.76**	**$75.63**	**$79.51**	**$78.32**	**$79.35**
Central Services	$16.83	$17.05	$19.62	$18.98	$17.52
Screen Provision Costs	$43.29	$43.87	$45.11	$44.56	$46.98
Professional Reading Fees	$14.64	$14.71	$14.78	$14.78	$14.85
Cost per cancer detected	**$15,074.27**	**$16,294.50**	**$15,702.83**	**$14,661.09**	**Not Available**

NOTES:

1. Program Expenses are audited through PHSA Finance annually.
2. Screen Provision Costs includes, but are not limited to, staffing costs, equipment related costs, and mobile operation costs.
3. The professional reading fee was $14.85 per screen effective April 1, 2015.
4. Number of cancers detected in 2015-16 is not available yet, and thus the cost per cancer detected is not computed.
5. Cost per cancer detected is based upon screens with complete follow-up.
6. The cost per screen is exclusive of salary and benefit increases to public screening centers which, commencing in fiscal 2006, have gone directly to the Health Authority.
7. SMP data extraction date: August 29, 2016.

Appendix 1 — Cancer Screening Program Overview

Definition of Screening

Screening is a prevention strategy. Primary cancer prevention strategy involves changes of behaviour or habits that reduce a risk, for example, stopping smoking, fat reduction in the diet, etc. Screening for cancer is a secondary prevention strategy. Secondary cancer prevention strategy targets disease in process . A secondary prevention can reduce cancer morbidity and mortality by: diagnosing invasive disease at an earlier, more favourable prognostic stage; and, detecting precursor lesions associated with some cancers that once eliminated, prevent progression to invasive disease. Screening is "the application of various tests to apparently healthy individuals to sort out those who probably have risk factors or are in the early stages of specified conditions."[8]

Limitations of Screening

The decision to screen an at-risk population for pre-clinical signs of cancer is based on well-established criteria related to cancer and the screening tests that we used to identify individuals who may have occult disease.[9,10,11]

The overall objective of a screening program is to reduce morbidity and mortality from cancer. The goal of screening is to "apply a relatively simple, inexpensive test to a large number of persons in order to classify them as likely or unlikely to have the cancer". The emphasis on likelihood underscores the limits of what should be expected from screening (i.e., screening tests are not diagnostic tests).

7 US Preventive Services Task Force: Guide to Clinical Preventive Services, Ed 2. Baltimore, Williams & Wilkins, 1996

8 Morrison A: Screening in Chronic Disease. New York, Oxford Press, 1992

9 Cole P, Morrison AS: Basic issues in cancer screening. In Miller AB (ed); Screening in Cancer. Geneva, International Union Against Cancer, 1978, P7

10 Miller AB; Fundamentals of Screening. In Screening for Cancer. Orlando, Academic Press, 1985, P3

11 Wilson JMG, Junger G; Principles and Practice of Screening for Disease. Geneva, World Health Organization, 196

A person with an abnormal screening test does not have a definitive diagnosis until additional, more sophisticated diagnostic tests are completed. The emphasis on likelihood also is important because screening tests are inherently limited in their accuracy, which varies by test, cancer site, and individual characteristics. Although most of screening interpretations are accurate, it is inevitable that some individuals are identified as possibly having cancer when they do not (false-positive screen), and screening tests may fail to identify some individuals who do have the disease (false-negative screen).

The comparative evaluation of accuracy versus misinterpretation cannot be considered in absolute terms, but rather should be evaluated in terms of the relative consequences of one or the other kind of error.

Organized Population Screening Program

To reduce morbidity and mortality from cancer in a population by screening, there must be coordinated and effective strategies to ensure acceptance and utilization of the established screening test. Since screening is targeted at asymptomatic women, the fine balance between maximizing benefits and minimizing undesirable effects must be maintained.

An organized approach to screening ensures that the target population has access to the screening service and that it accepts and uses the services offered. This is achieved by including the following six program components:

1. Health Promotion
2. Professional Development/Education
3. Recruitment & Retention
4. Screening Test & Reporting
5. Follow-up

Appendix 2 — 2015 Screening Services

In 2014 SMP provided screening mammography to women ages 40 and over. The recall frequency shown below was used to calculate the program results for the period of January 1, 2014 – December 31, 2014.

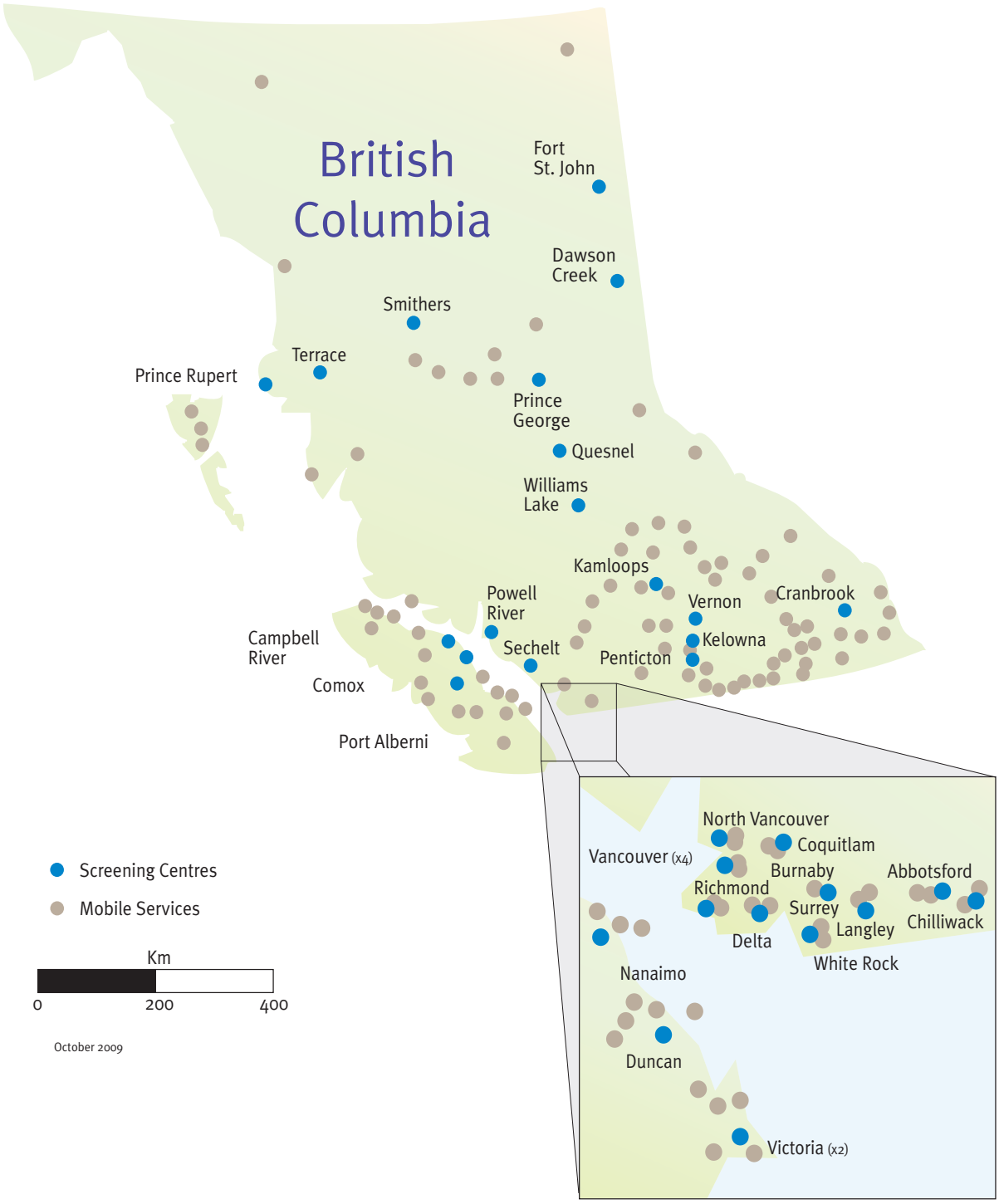
Age	Recall Frequency
<40	Will accept with primary health care provider referral, no recall provided
40-74 Average Risk	Reminders for 24-month and 36-month anniversary to age 74
40-74 High Risk	Reminders for 12-month and 24-month anniversary to age 74
75+	Will accept, no recall provided

Eligibility Criteria

- Have no breast changes*.
- Have not had a mammogram within 12 months.
- Have not had breast cancer.
- Do not have breast implants.
- Are not pregnant or breast feeding.
- Can provide the name of a primary care provider to receive the results.

**If there is a new lump, thickening or discharge, we recommend seeing a doctor immediately, even if the last mammogram was normal.*

Appendix 3 — Map of Screening Centres



Appendix 4 — Screening Centre Contact Information

Abbotsford	604-851-4750
Burnaby	604-436-0691
Campbell River	1-800-663-9203
Chilliwack	1-800-663-9203
Comox	250-890-3020
Coquitlam	604-927-2130
Cranbrook	250-417-3585
Dawson Creek	1-800-663-9203
Delta	604-946-1121
Duncan	1-800-663-9203
Fort St. John	1-800-663-9203
Kamloops	250-828-4916
Kelowna	250-861-7560
Langley	604-514-6044
Nanaimo	250-716-5904
IK and NLM Mobile	1-800-663-9203
North Vancouver	604-903-3860
Penticton	250-770-7573
Port Alberni	1-800-663-9203
Powell River	1-800-663-9203
Prince George	250-565-6816
Prince Rupert	1-800-663-9203
Quesnel	1-800-663-9203
Smithers	1-800-663-9203
Sechelt	1-800-663-9203
Richmond	604-244-5505
Surrey – JPOCSC	604-582-4592
Terrace	1-800-663-9203
Vernon	250-549-5451
White Rock	604-535-4512
Williams Lake	1-800-663-9203
Vancouver	
BC Women's Health Centre	604-775-0022
Mount St. Joseph Hospital	604-877-8388
5752 Victoria Drive	604-321-6770
#505-750 West Broadway	604-879-8700
Victoria	
305 – 1990 Fort Street	250-952-4232
Victoria General Hospital	250-727-4338

Mobile Screening Service Delivery Areas

Agassiz	Dawson Creek	Kitisumkalum	Peachland	Sicamous
Alert Bay	Dease Lake	Kitwanga	Pemberton	Skidegate
Alexis Creek	Delta	Ladysmith	Pender Island	Slocan
Anahim Lake	Elkford	Lake Cowichan	Pitt Meadows	Sointula
Armstrong	Enderby	Lillooet	Port Alice	Sooke
Ashcroft	Fernie	Logan Lake	Port Clements	Sorrento
Balfour	Fort Nelson	Lumby	Port Coquitlam	Southside
Barriere	Fort Rupert	Lytton	Port Hardy	Sparwood
Beaver Valley	Fort St. James	Mackenzie	Port McNeill	Squamish
Bella Bella	Fountain	Maple Ridge	Princeton	Stewart
Bella Coola	Fraser Lake	Massett	Qualicum Beach	Summerland
Blind Bay	Gabriola	McBride	Queen Charlotte	Surrey
Bowen Island	Golden	Merritt	Queensborough	Tatla lake
Burnaby	Gold River	Midway	Radium	Tofino
Burns Lake	Grand Forks	Mill Bay	Revelstoke	Trail
Castlegar	Granisle	Mission	Richmond	Tumbler Ridge
Chase	Greenwood	Mount Currie	Rock Creek	Ucluelet
Chemainus	Hazelton	Nakusp	Rossland	Valemount
Chetwynd	Hope	Nelson	Saanichton	Vancouver
Chilliwack	Houston	New Denver	Sandspit	Vanderhoof
Christina Lake	Hudson's Hope	New Westminster	Salmo	Westbank
Clearwater	Invermere	North Vancouver	Salmon Arm	Whistler
Clinton	Kaslo	Old Massett	Salt Spring Island	Williams Lake
Coquitlam	Keremeos	Oliver	Savona	Windermere
Crawford Bay	Kimberley	Osoyoos	Sayward	Winfield
Creston	Kitimat	Parksville	Scotch Creek	100 Mile House

Lower Mainland locations change from time to time.

Latest visits include: Latest visits include: Alouette Correctional Centre, Life Labs Burnaby, BCIT Campus, BC Hydro, Ballard Auto, Buchanan Lodge, Burnaby City Hall, Chilliwack City Hall, Creation Technologies, Downtown Eastside Women's Health Centre, ICBC North Vancouver, Indo-Canadian Senior Centre, Maple Ridge City Hall, New Vista Society, North Vancouver City Hall, Overwaitea Head Office, Pacific Blue Cross, Richmond City Hall, Salvation Army Caring Place, Surrey Primary Care Centre, SFU Campus, Translink, Vancouver Primary Care Centre/Native Health, Vancouver Tax Centre, West Vancouver City Hall, Work Safe BC (Richmond)

First Nations Communities

Akisqnuk First Nation	Windermere	Nadleh Whut'en First Nation	Fraser Lake
Aq'am First Nation	Cranbrook	Nak'azdli First Nation	Fort St. James
Blueberry River First Nation	Buick	Nazko First Nation	Quesnel
Bonaparte Indian Band	Cache Creek	Okanagan Indian Band	Vernon
Boston Bar Indian Band	Boston Bar	Pauquachin First Nation	Saanich
Canim Lake Indian Band	Canim Lake	Prophet River First Nation	Fort Nelson
Doig River First Nation	Rose Prairie	Saik'uz First Nation	Vanderhoof
Esketemc First Nation	Alkali Lake	Seabird Island Band	Agassiz
Fort Nelson First Nation	Fort Nelson	Shuswap Band	Invermere
Ginglox Indian Band	Kincolith	Simpcw First Nation	Barriere
Gitanyow First Nation	Kitwanga	Skeetchestn First Nation	Savona
Gitlakdamix First Nation	New Aiyansh	Soda Creek Indian Band	Williams Lake
Halfway River First Nation	Wonowon	Splatsin First Nation	Enderby
Katzie First Nation	Pitt Meadows	Squamish First Nation	North Vancouver
Kispiox First Nation	Hazelton	Squamish First Nation	Squamish
Kitselas First Nation	Terrace	Stella'ten First Nation	Fraser Lake
Kwantlen First Nation	Langley	Sto:lo First Nation	Chilliwack
Laxgalts First Nation	Greenville	Sts'ailes First Nation	Agassiz
Leq'amel First Nation	Deroche	Sumas First Nation	Abbotsford
Little Shuswap Lake Indian Band	Chase	Tlaz'ten First Nation	Fort St. James
Lower Nicola Indian Band	Merritt	Tsawwassen First Nation	Tsawwassen
Lower Similkameen Indian Band	Keremeos	Tsleil-Waututh Nation	North Vancouver
Musqueam Indian Band	Vancouver	Upper Nicola Indian Band	Merritt

Appendix 5 — Educational Materials Order Form

The materials order form can be found online at www.screeningbc.ca

BC Cancer Agency
CARE + RESEARCH
An agency of the Provincial Health Services Authority

Order Form

Cancer Screening Promotion and Resource Materials

Cancer screening promotion and resource materials are available free of charge for use in your office/clinic.
To order materials, please complete this form and email to screening@bccancer.bc.ca or fax to 604-660-3645.

Screening Mammography Program of BC

Item	Quantity Requested
SMP Tear-Off Pad (50 sheets)	(max. 20)
SMP Program Brochure – "Is Screening Mammography Right for You?"	(max. 50)
SMP Physician Protocol Fact Sheet	(max. 5)
Fridge Magnet - "Pass it On"	(max. 50)
Poster - "Why Mammograms Work" (8.5" by 11")	(max. 10)

Cervical Cancer Screening Program

Item	Quantity Requested
CCSP Program Brochure – "Is Cervical Screening Right for You?" (English)	(max. 50)
CCSP Program Brochure – "Is Cervical Screening Right for You?" (Punjabi)	(max. 50)
CCSP Program Brochure – "Is Cervical Screening Right for You?" (Traditional Chinese)	(max. 50)
CCSP Program Brochure – "Is Cervical Screening Right for You?" (Simplified Chinese)	(max. 50)
CCSP Program Brochure – "Abnormal Pap Test" (English)	(max. 50)
CCSP Program Brochure – "Abnormal Pap Test" (Punjabi)	(max. 50)
CCSP Program Brochure – "Abnormal Pap Test" (Traditional Chinese)	(max. 50)
CCSP Program Brochure – "Abnormal Pap Test" (Simplified Chinese)	(max. 50)
CCSP Tear-Off Pad (50 sheets) – "After Your Pap Test"	(max. 3)
Poster – "You Can Get A Pap Test in the Time it Takes to..." (8.5" by 11")	(max. 10)
Postcard – "You Can Get A Pap Test in the Time it Takes to..." (8.5" by 11")	(max. 50)

Colon Screening Program

Item	Quantity Requested
CSP Program Brochure – "Is Colon Screening Right for You?" (English)	(max. 50)
CSP Program Brochure – "Is Colon Screening Right for You?" (Punjabi)	(max. 50)
CSP Program Brochure – "Is Colon Screening Right for You?" (Traditional Chinese)	(max. 50)
CSP Program Brochure – "Is Colon Screening Right for You?" (Simplified Chinese)	(max. 50)
CSP Program Brochure – "What is a Colonoscopy?" (English)	(max. 50)
CSP Program Brochure – "What is a Colonoscopy?" (Punjabi)	(max. 50)
CSP Program Brochure – "What is a Colonoscopy?" (Traditional Chinese)	(max. 50)
CSP Program Brochure – "What is a Colonoscopy?" (Simplified Chinese)	(max. 50)
Colonoscopist Reference	(max. 5)
Colonoscopy Referral Pad (50 sheets)	(max. 5)
Colonoscopy Reporting Form	(max. 200)
Colonoscopy Specimen Table Example	(max. 5)
CSP Program Fact Sheet	(max. 5)
Patient Assessment Process	(max. 5)
Patient Coordinator Bowel Preparation Decision Algorithm	(max. 5)
Polyp Info Sheet	(max. 5)

Contact Information

Name		Organization	
Phone Number		Email	
Delivery Address			

Email to screening@bccancer.bc.ca or Fax to 604-660-3645

Appendix 6 — Glossary

- **Abnormal Call Rate:** Proportion of screening mammography examinations determined to require further diagnostic assessment (i.e. called "abnormal").

$$\text{Abnormal Call Rate} = \frac{\text{Number of exams called abnormal}}{\text{Total number of exams}} \times 100\%$$

- **Benign Core Biopsy Rate:** Proportion of cases with complete follow-up that resulted in a benign core biopsy for diagnostic purposes, where each core biopsy represents a case.

- **Benign Open Biopsy Rate:** Proportion of cases with complete follow-up that resulted in a benign open biopsy for diagnostic purposes, where each open biopsy represents a case.

- **Benign to Malignant Core Biopsy Ratio**

$$\text{Benign to Malignant Core Biopsy Ratio} = \frac{B_b}{M_b} : 1$$

B_b Number of benign cases detected by core biopsy, where each core biopsy performed represents a case.

M_b Number of malignant cancers cases detected by core biopsy, where each core biopsy represents a case.

- **Benign to Malignant Open Biopsy Ratio**

$$\text{Benign to Malignant Open Biopsy Ratio} = \frac{B_b}{M_b} : 1$$

B_b Number of benign cases detected by core biopsy, where each open biopsy performed represents a case.

M_b Number of malignant cancers cases detected by core biopsy, where each open biopsy represents a case.

- **Core Biopsy Yield Ratio:** Proportion of cases with core biopsy that resulted in a diagnosis of breast cancer, where each core biopsy performed represents a case.

$$\text{Core Biopsy Yield Ratio} = \frac{M_b}{B_b + M_b} \times 100\%$$

B_b Number of diagnostic core biopsies without breast cancer diagnosis.

M_b Number of diagnostic core biopsies with breast cancer diagnosis.

- **DCIS (or In Situ Cancer) Detection Rate:** Number of ductal carcinoma in situ (DCIS) cases detected per 1,000 screens with complete follow-up.

- **Invasive Cancer Detection Rate:** Number of invasive cancer cases detected per 1,000 screens with complete follow-up.

- **Interval Cancer Rate:** Number of women being diagnosed with post-screen breast cancer at a breast location which was called normal at previous screen within the specified period of time per 1,000 screens.

- **Node Negative Rate in Cases of Invasive Cancer:** Proportion of invasive cancers in which the cancer has not invaded the lymph nodes.

- **Open Biopsy Yield Ratio:** Proportion of cases with open biopsy that resulted in a diagnosis of breast cancer, where each open biopsy performed represents a case.

$$\text{Open Biopsy Yield Ratio} = \frac{M_b}{B_b + M_b} \times 100\%$$

  B_b Number of diagnostic open biopsies without breast cancer diagnosis.

  M_b Number of diagnostic open biopsies with breast cancer diagnosis.

- **Overall Cancer Detection Rate:** Number of cancer cases detected per 1,000 screens with complete follow-up.

- **Participation Rate:** The percentage of women who have a screening mammogram within 30 months as a proportion of the eligible population. The eligible population is estimated by the weighted average of the three-year population from forecast.

- **Positive Predictive Value (PPV) of Screening Mammography:** Proportion of “abnormal” cases found to have breast cancer after diagnostic workup.

$$\text{PPV} = \frac{\text{Number of screen-detected cancers}}{\text{Number of "abnormal" cases with complete follow-up}}$$

- **Prevalence to Expected Incidence Ratio:** Comparison between incidence rates at first (prevalent) screen with historical incidence rate prior to onset of screening practice. Prevalent screens have been restricted to those women with no previous outside mammogram within 24 months of their first program screens. The 1982 incidence rates by five-year age group obtained from the BC Cancer Registry were chosen as the comparison reference.

  $$\text{P : I Ratio} = \frac{\sum_i Ca_i}{\sum_i N_i R_i}$$

  Where Ni is the number of prevalent screens for age group i, Cai is the number of cancers detected in prevalent screens for age group i and Ri is the expected incidence rate for age group i. Prevalence to expected incidence ratio for ages 50 to 79 would be calculated by summing over age groups 50 to 54, 55 to 59, 60 to 64, 65 to 69, 70 to 74, and 75 to 79 in the numerator and denominator.

- **Retention Rate:** The estimated percentage of women returned for rescreen within 30 months of their previous screen. This rate is estimated using Kaplan-Meier method.

- **Return (Compliance) Rate:** The estimated percentage of women without history of breast cancer diagnosis returned for rescreen within a certain period of time. This rate is estimated using Kaplan-Meier method.

- **Sensitivity:** Probability of interpreting screening mammograms of breast cancer cases as "abnormal". It measures how well screening mammography determines the presence of breast cancer.

  $$\text{Sensitivity} = \frac{TP}{TP + FN}$$

  TP Number of screen-detected breast cancer cases.

  FN Number of breast cancer cases called "normal" and diagnosed within 12 months post screen.

- **Specificity:** Probability of interpreting screening mammograms of cases with no evidence of breast cancer as "normal". It measures how well screening mammography determines the absence of breast cancer.

  $$\text{Specificity} = \frac{TN}{TN + FP}$$

  TN Number of cases with "normal" screening mammograms that remained without evidence of breast cancer before the next screening visit, or within 12 months after the last screening visit.

  FP Number of cases with no evidence of breast cancer but whose screening mammograms were called "abnormal".

Appendix 7 — Acknowledgements

The SMP would like to thank its partners who have supported and contributed to the Program over the years. The success of the Program depends on an integrated system of:

- Community health professionals promoting the benefits of screening.
- Dedicated and highly trained staff to perform and interpret the screening mammograms.
- Primary care providers and medical specialists to provide diagnostic follow-up and treatment.
- Community facilities providing space and personnel to support mammography.

We would like to thank the following organizations for their ongoing support (alphabetical):

- BC Cancer Foundation
- BC Radiological Society
- BC Women's Health Centre
- BC/Yukon Women's Cancer Alliance
- Canadian Breast Cancer Foundation
- Canadian Cancer Society
- College of Physicians and Surgeons
- Doctors of BC
- Divisions of Family Practice
- University of British Columbia
- Women's Health Bureau

Appendix 8 — Committees

Quality Management Committee

Ms. Nancy Aldoff
Ms. Carla Brown-John
Dr. Stephen Chia
Ms. Ritinder Harry
Dr. Malcolm Hayes
Ms. Lisa Kan
Ms. Sheila MacMahon
Ms. Janette Sam
Dr. Linda Warren
Dr. Colin Mar – Chair

Screener's Advisory Committee

Dr. Ken Bentley
Dr. Ron Campbell
Dr. Michael Clare
Dr. Eleanor Clark
Dr. Brenda Farnquist
Dr. Nancy Graham
Dr. Dennis Janzen
Dr. Rob Johnson
Ms. Lisa Kan
Dr. Tahir Khalid
Dr. Nicola Lapinsky
Dr. Grant Larsen
Dr. Brent Lee
Dr. Richard Lee
Dr. Patrick Llewellyn
Dr. Heather MacNaughton
Dr. Colin Mar – Chair
Dr. Peter McNicholas
Dr. Julie Nichol
Dr. David O'Keeffe
Dr. Rasika Rajapakshe
Ms. Janette Sam
Dr. Greg Shand
Dr. Stuart Silver
Dr. Catherine Staples
Dr. Phil Switzer
Dr. Beth Tanton
Dr. Linda Warren
Dr. Christine Wilson

Quality Assurance Support Group

Ms. Nancy Aldoff
Ms. Sheila MacMahon
Ms. Meagan McGuinness
Ms. Moira Pearson
Dr. Rasika Rajapakshe
Dr. Derek Wells
Dr. Joseph Yang

Alphabetical Listing

Appendix 9 — Radiologist Screeners

Abbotsford & Chilliwack
Dr. Amarjit Bajwa
Dr. Tahir Khalid*
Dr. Marion J. Kreml
Dr. Caroline Pon

Burnaby & Richmond
Dr. Theodore Blake
Dr. Bill Collins
Dr. Henry Huey
Dr. Marty Jenkins
Dr. Vanindar (Vee) Lail
Dr. Beth Tanton*
Dr. Lynette Thurber
Dr. Betty Tuong

Comox
Dr. Kevin Irish
Dr. Grant Larsen*
Dr. David McKeown*

Coquitlam
Dr. Debra Chang
Dr. Jennifer Dolden
Dr. Brad Halkier
Dr. Heather MacNaughton*
Dr. Anita McEachern
Dr. Robert Van Wiltenburg

Cranbrook
Dr. Daryn Maisonneuve
Dr. Julie Nicol*

Interior & Kootenay / Northern & Lower Mainland
Dr. Marie-Josee Cloutier
Dr. Dorothy Harrison
Dr. Colin Mar
Dr. Christine Wilson
Dr. Charlotte Yong-Hing

Kamloops
Dr. Michael Clare*
Dr. Donal Downey
Dr. Dellano Fernandez

Kelowna
Dr. Brenda Farnquist*
Dr. Michael Partrick
Dr. Catherine Staples
Dr. Timothy Wall

Langley
Dr. Ron Campbell*
Dr. Tahir Khalid*
Dr. Marion J. Kreml
Dr. John Lai
Dr. John Matheson
Dr. Caroline Pon
Dr. Xing Wong

Nanaimo/Islands & Coastal Mobile
Dr. David Coupland
Dr. Rob Johnson*
Dr. Zenobia Kotwall
Dr. David O'Keeffe*
Dr. Paul Trepanier

North Vancouver
Dr. Sven Aippersbach
Dr. Simon Bicknell
Dr. Patrick Llewellyn*
Dr. Catherine Phillips
Dr. David Spouge

Penticton
Dr. Peter McNicolas*
Dr. Stacey Piche

Prince George
Dr. Alasdair Leighton
Dr. Greg Shand*

Sechelt
Dr. Sven Aippersbach
Dr. Simon Bicknell
Dr. Patrick Llewellyn*
Dr. Catherine Phillips
Dr. David Spouge

Surrey & JPOSC
Dr. Sanjiv Bhalla
Dr. Don Coish
Dr. Guy Eriksen
Dr. Fin Hodge
Dr. Dennis Janzen*
Dr. Dennis Lee
Dr. Amir Neyestani
Dr. John Sisler
Dr. L. Earl Tregobov

Vancouver – BC Women's Health Centre
Dr. Marie-Josee Cloutier
Dr. Paula Gordon
Dr. Linda Warren*

Vancouver – Mount St. Joseph Hospital
Dr. Jessica Farrell
Dr. Jennifer Jessup
Dr. Amie Padilla-Thornton*

Vancouver – Victoria Drive
Dr. Connie Siu
Dr. Phil Switzer*

Vancouver – #505–750 West Broadway
Dr. Theodore Blake
Dr. Paula Gordon
Dr. Nicola Lapinsky*
Dr. Linda Warren

Vernon
Dr. Ken Bentley*
Dr. Ian Marsh
Dr. Glenn Scheske

Victoria General Hospital/ Victoria Richmond Ave
Dr. Richard Eddy
Dr. George Hodgins
Dr. Chris King
Dr. Robert Koopmans
Dr. Brent Lee*
Dr. Nicola Proctor
Dr. Stuart Silver*
Dr. Rick Smith
Dr. Paul Sobkin

White Rock
Dr. Eleanor Clark*
Dr. Joanne Coppola
Dr. Jeffrey Hagel
Dr. Maria Kidney

Alphabetical Listing
* Indicates Chief Screener

Appendix 10 — Publications & Presentations

Publications

Wilson, C., Sam, J (2015, June) International Cancer Screening Network – Poster - Development of a Decision Aid for women contemplating breast screening; Rotterdam, Netherlands.

Presentations and Lectures

Nancy Aldoff

Aldoff, N. (2015, March 27) Interview with REDFM

Aldoff, N. (2015, April). SMPBC – What is the Screening Mammography Program? Webinar to Health Records Association of BC conducted from Vancouver, BC.

Aldoff, N. (2015, May). Mobile Mammography – Lessons Learned on the Road, Mobile Health Clinics Association of the Pacific Northwest. Lecture presented at the Evergreen Health Medical Centre, Kirkland, Washington.

Aldoff, N. (2015, July). What's Coming – Mobile Mammography Goes Digital. Webinar conducted from Vancouver, BC.

Aldoff, N. (2015, October). Mobile Mammography Screening. First Nations Health Authority. Lecture presented in Prince George, BC.

Paula Gordon

Gordon, P. (2015, Sept). Radiology Residents' Academic Half-Day. The Mammography Screening Controversy

Gordon, P. (2015, Oct). UBC School of Population and Public Health. Screening Mammography.

Gordon, P. (2015, Nov). UBC General Surgery Resident Teaching Half Day. The really Fast Breast Course.

Gordon, P. (2015, Apr). Annual Meeting, American Roentgen Ray Society. ARRS-CTSR Focus Session on Breast Cancer Screening, Toronto, ON

Janette Sam

Sam, J (2015, October). Screening Mammography Program Overview. First Nations Health Authority. Lecture presented in Prince Rupert, BC.

Linda Warren

Warren, L. (2015, April). Society of Breast Imaging. Breast density 2015 Evolving Concepts and Technology. Los Angeles, CA.

Warren, L. (2015, June). Grand Rounds, UBC. Breast density 2015 Evolving Concepts and Technology CPD#107. Vancouver, BC

Warren, L. (2015, November) Radiological Society of North America. Radio Interview – RSNA-On-The-Air – Tomosynthesis-its added value in mammography screening. Chicago, IL.

Warren, L. (2015, November) 2nd Opinion. Radiological Society of North America. 1 – Medicaid Expansion Improves Breast Cancer Screening for Low-Income Women. 2 – Study Suggests Breast Density Alone Not a Risk Factor for Cancer. Chicago, IL.

Warren, L. (2015, December) Radiological Society of North America Instructor – Techniques for Interventional Sonography and Thermal Ablation. Chicago, IL.

Christine Wilson

Wilson, C. (2015, January) CCOPE Breast Cancer Workshop Follow-Up Session – Vernon teleconference.

Wilson, C. (2015, February) General Practice Oncology Training Program – session on SMP and screening principles.

Wilson, C. (2015, March) Family Practice Oncology Network CME webcast – Breast Cancer Screening -Practice Changing Guidelines.

Wilson, C. (2015, April) CME on the Run – Controversies in Breast Cancer Screening: Applying the Latest Guidelines. Vancouver General Hospital.

Wilson, C. (2015, June) Medical Grand Rounds, Nelson BC. Screening Mammography Program of BC.

Wilson, C. (2015, September) Vancouver Imaging Review – "Effectiveness of Mammography Screening: Is a different modality required?" Rosewood Hotel Georgia, Vancouver, BC.

Wilson, C. (2015, September) Vancouver Imaging Review – Breast MRI – current concepts and practical applications. Rosewood Hotel Georgia, Vancouver, BC.

Wilson, C. (2015, September) MEDD 411 – Chest Wall Anatomy; Introduction to Breast Screening and Breast Imaging; UBC Medical School, Vancouver, BC.

Wilson, C. (2015, November) SPPH 525 – Masters of Public Health Program – Issues and Concepts in Public Health "Secondary prevention of cancer: the example of mammography screening for breast cancer".

Wilson, C. (2015) Co–developer of UBC CPD online e module "Breast Cancer Screening Update: What's New in BC?"

Wilson, C. (2015, February) Mobile Launch, BC Legislature, Victoria BC.

Wilson, C. (2015, July) – "That Talk Show" Shaw TV – Screening Mammography and "Go Have 1".

Wilson, C. (2015, August) – Global TV – "Go Have 1".

Appendix 11 — SMP / BCCA Contact Information

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Screening Programs Administration Office
801 – 686 West Broadway
Vancouver, BC V5Z 1G1
Phone: 604.877.6200
Fax: 604.660.3645
Website: www.smpbc.ca
E-mail: Screeningadmin@bccancer.bc.ca

Alphabetical Listing

BC Cancer Agency
CARE + RESEARCH
An agency of the Provincial Health Services Authority

BC Cancer Agency Centres:

Abbotsford Centre
32900 Marshall Road
Abbotsford, BC V2S 1K2
604.851.4710 or toll-free 1.877.547.3777

Centre for the North
1215 Lethbridge Street
Prince George, BC V2N 7E9
250.645. 7300 or toll-free 1.855.775.7300

Fraser Valley Centre
13750 96th Avenue
Surrey, BC V3V 1Z2
604.930.2098 or toll-free 1.800.523.2885

Sindi Ahluwalia Hawkins Centre for the Southern Interior
399 Royal Avenue
Kelowna, BC V1Y 5L3
250.712.3900 or toll-free 1.888.563.7773

Vancouver Centre
600 West 10th Avenue
Vancouver, BC V5Z 4E6
604.877.6000 or toll-free 1.800.663.3333

Vancouver Island Centre
2410 Lee Avenue
Victoria, BC V8R 6V5
250.519.5500 or toll-free 1.800.670.3322

BC Cancer Agency Research Centre
675 West 10th Avenue
Vancouver, BC V5Z 1L3
604.675.8000 or toll-free 1.888.675.8001

BC Cancer Foundation
150 - 686 W. Broadway
Vancouver, BC V5Z 1G1
604.877.6040 or toll-free 1.888.906.CURE/2873

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