Quebec breast cancer screening program

A study of the perceptions of physicians in Laval, Que

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ABSTRACT

OBJECTIVE To identify physicians' perceptions of breast cancer prevention in order to generate strategies to increase women's participation in the Quebec breast cancer screening program (QBCSP).

DESIGN Qualitative study using archival data and in-depth interviews.

SETTING Laval, Que, a suburban city north of Montreal.

PARTICIPANTS Twenty family physicians and 1 gynecologist practising in Laval who had received at least 1 screening mammography report in 2004 or 2005.

METHODS Archival data were obtained in order to refine our understanding of the QBCSP. In-depth individual interviews were conducted with participating physicians until data saturation was reached in order to determine physicians' knowledge of, beliefs and attitudes about, and behaviour toward preventive breast cancer practices, as well as their suggestions for enhancing patient compliance. The interviews were recorded, transcribed, and coded, and the content was analyzed.

MAIN FINDINGS Respondents indicated that the screening age groups, the age for beginning clinical breast examination, and the instructions to patients about breast self-examination should be harmonized. Letters to patients should be shortened, simplified, and endorsed by physicians. Screening mammography reports should include more details and be clearer about patient follow-up. The need for patients to sign authorization forms for transmission of information related to their participation in the QBCSP should be reinforced by their physicians. Following abnormal mammogram results, services and procedures should be simplified and delays in appointments decreased. Referral for "orphan patients" (ie, patients without family physicians) should be supervised by nurse practitioners, with physician consultations when needed.

CONCLUSION This study provides a qualitative understanding of improvements or modifications needed in order to reach a screening mammography participation rate sufficient to reduce breast cancer mortality in women.

EDITOR'S KEY POINTS

- The Quebec breast cancer screening program (QBCSP) was introduced in 1998 to facilitate early breast cancer screening using mammography. The program aims to reach and maintain a 70% participation rate, the estimated rate needed to improve mortality. In Laval, Que, however, the participation rate is between 42% and 46%.
- This study used in-depth interviews to explore physicians perspectives on the QBCSP. Because screening and referral centres offered different services and other jurisdictions were often perceived to be more efficient, many physicians preferred to refer their patients to referral centres or to adjacent jurisdictions; this contributes to delays in appointment scheduling and prevents quality assurance and proper assessment of the QBCSP.
- Participants also disagreed about when mammography and clinical breast examination should be started and about whether to teach breast self-examination; they generally did not follow guidelines on these issues.

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Programme québécois de dépistage du cancer du sein

Opinion des médecins de Laval, Québec

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RÉSUMÉ

OBJECTIF Vérifier l'opinion des médecins sur la prévention du cancer du sein afin d'établir des stratégies pour augmenter la participation des femmes au programme québécois de dépistage du cancer du sein (PQDCS).

TYPE D'ÉTUDE Étude qualitative à l'aide de données d'archives et d'entrevues en profondeur.

CONTEXTE Laval, Québec, une ville de banlieue au nord de Montréal.

PARTICIPANTS Vingt médecins de famille et 1 gynécologue pratiquant à Laval qui avaient reçu au moins 1 rapport de mammographie en 2004 ou 2005.

MÉTHODES On a eu recours à des données d'archives pour mieux comprendre le PQDCS. On a effectué des entrevues en profondeur avec les médecins participants jusqu'à l'atteinte de saturation afin d'établir leurs connaissances, croyances, attitudes et comportements en rapport avec les méthodes de prévention du cancer du sein et de recueillir leurs suggestions pour promouvoir la conformité chez les patientes. Les entrevues ont été enregistrées, transcrites et codées, et leur contenu a été analysé.

PRINCIPALES OBSERVATIONS Les répondants ont indiqué qu'il faudrait uniformiser les directives sur les groupes d'âges devant subir un dépistage, l'âge du début de l'examen clinique des seins et les instructions aux patientes concernant l'auto-examen des seins. Les lettres de rappel devraient être raccourcies, simplifiées et signées par le médecin. Le rapport des mammographies de dépistage devrait contenir plus de détails et mieux préciser le suivi des patientes. Les médecins devraient insister sur la nécessité pour les patientes de signer les formulaires d'autorisation pour la transmission des informations en lien avec leur participation au PQDCS. En cas de résultat anormal de mammographie, les services et façons de faire devraient être simplifiés et les délais de rendez-vous réduits. Les demandes de consultation pour les « patientes orphelines » (celles qui n'ont pas de médecin de famille) devraient être supervisées par des infirmières praticiennes, avec consultations médicales au besoin.

CONCLUSION Cette étude qualitative permet de mieux comprendre les améliorations ou modifications requises pour atteindre un taux suffisant de participation au dépistage par mammographie pour réduire la mortalité due au cancer du sein chez la femme.

POINTS DE REPÈRE DU RÉDACTEUR

- Le programme québécois de dépistage du cancer du sein (PQDCS) a été instauré en 1998 pour faciliter le dépistage précoce par mammographie de ce cancer. Le programme cherche à atteindre et à maintenir un taux de participation de 70 %, taux jugé nécessaire pour améliorer la mortalité. À Laval, toutefois, ce taux se maintient entre 42 à 46 %.
- Dans cette étude, on s'est servi d'entrevues en profondeur pour déterminer l'opinion de médecins sur le PQDCS. Parce que les centres de dépistage et d'orientation offraient différents services, et que d'autres instances étaient souvent perçues comme plus efficaces, plusieurs médecins préféraient diriger leurs patientes vers les centres d'orientation ou vers les instances adjacentes, ce qui contribuait à retarder la prise de rendez-vous et empêchait d'avoir une assurance de la qualité et une évaluation adéquate du PQDCS.
- En outre, les participants différaient d'opinion concernant l'âge où la mammographie et l'examen clinique des seins devaient débuter, et sur la pertinence d'enseigner l'auto-examen des seins; en général, ils ne suivaient pas les directives sur ces points.

Cet article a fait l'objet d'une révision par des pairs.
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Breast cancer is the most commonly diagnosed cancer among women in Canada and represents the second most common cause of death due to cancer.[1] Early screening using mammography is the best approach to reducing mortality and morbidity. Like many jurisdictions, Quebec has established a structured cancer screening program. The program, started in 1998, is known as the Programme québécois de dépistage du cancer du sein (Quebec breast cancer screening program [QBCSP]). This program is supported by a specific computer system for invitation and reminder letters, data collection, and mammography reports. Women aged 50 to 69 years are invited for systematic screening mammograms every 2 years; names and contact information are provided by the Quebec public health insurance plan. Mammography is done in designated screening centres; following abnormal results, additional investigations are provided by designated screening centres or designated referral centres that must meet quality control standards. The program aims to reach and maintain a 70% participation rate.[2] However, since 1998, the rate for Laval, Que, varied between 42% and 46%.[3]

Some have suggested that certain patient characteristics and physician attitudes and medical practices facilitate breast cancer screening participation in women. Previous research has indicated that people with socioeconomic characteristics similar to those of Laval residents are likely to participate in breast cancer screening.[4] Laval is a suburban city north of Montreal with a population of 343 005.[5] Most residents have a moderate or high socioeconomic status: only 13% have fewer than 9 years of education, and 16% live below the low-income cutoff.

Considerable research also suggests that physicians exert a decisive influence on women's participation in breast cancer screening.[6] Their recommendations can result in 4- to 12-fold increases in their patients' use of mammography.[7-9] Such increases are also observed in vulnerable populations, such as visible minorities and those with lower socioeconomic status.[10,11] Many women even ask their physicians to help them decide about the use of mammography.[6]

Evidence suggests that several factors facilitate or hamper referral of women for breast cancer screening by physicians. These factors are related to physicians' personal characteristics (eg, age, sex), the characteristics of their medical practices (eg, specialty, type of practice),[7,12-15] their knowledge, beliefs, and attitudes about breast cancer screening,[9,16-19] and the way care is organized.[20-24]

In order to increase women's participation in the breast cancer screening program, we conducted a study in 2006 to identify physicians' knowledge about, attitudes toward, and perceptions of preventive actions.

METHODS

Archival data, including publications, promotional tools, and presentations, were collected to refine our understanding of the program and were classified according to categories and subcategories during data analysis.[25]

In-depth individual interviews were also conducted with a sample of physicians. Sampling was done from a list of general practitioners (300) and gynecologists (16) practising in Laval who had received at least 1 screening mammography report in 2004 or 2005. In qualitative analyses, data saturation is generally reached after about dozen interviews.[26] Based on that premise and on the response rate of approximately 40% obtained in a study conducted in a neighbouring region,[27] 40 physicians were selected. In order to ensure transferability of the results, we sampled diverse sites and cases.[28,29] Physicians were chosen on the basis of the following characteristics: sex, specialty, location of practice, number of years of practice, number of screening mammography reports received in 2004 and 2005, whether they had worked for the QBCSP, whether they had been president of a professional association, and whether they had been on the list of volunteer physicians for "orphan patients" (ie, women without family physicians).

Interview questions were based on variables related to personal behaviour[30,31]: 1) knowledge about the guidelines for practice and about risk factors, and beliefs and attitudes about the effectiveness of breast cancer screening; 2) use of tools and strategies (eg, invitation, follow-up, and reminder letters every 2 years, normal and abnormal test result reports sent to women and to their physicians), and ability to motivate female patients; 3) follow-up of reports of abnormal test results and understanding of the services of designated breast cancer centres; and 4) reactions of female patients and physician colleagues.

A letter was sent to the sample of physicians, and 2 to 6 telephone calls were made for each appointment. Of the 40 invited physicians, 2 no longer worked as family physicians or gynecologists. With 21 participants, the response rate was 55.3%.

The interviews took between 45 and 60 minutes and were conducted by a trained professional who had never worked with the QBCSP to ensure interviewer objectivity. They were audiotaped with participants' signed consent; approval was provided by the ethics and research committee of a regional hospital. The interviews were transcribed verbatim for data integrity. Three preliminary readings of the transcripts were done to identify the main themes addressed. Categories and subcategories were coded according to meaning units[25,32] with NVivo software.[33] Two researchers conducted the analyses for interrater reliability.[34,35] Similarities and differences were discussed to provide alternative interpretations and

refine coding frames. Physicians' characteristics were analyzed using SPSS.[36] Nonparametric analyses were performed for differences between groups. Interviews were conducted in French, and the quotations given here have been translated.

FINDINGS

Respondent characteristics

As shown in **Table 1,** most of the respondents were men, family physicians who had practised for more than 20 years, and in group practice. Based on the characteristics selected for sampling, however, no clear tendencies were observed between groups on their knowledge and beliefs about and attitudes toward breast cancer screening and mammography follow-up.

Table 1. Characteristics of the respondents: *N* = *21.*

CHARACTERISTIC	N (%)*
Sex	
• Male	12 (57.1)
• Female	9 (42.9)
Specialty	
• General practitioner	20 (95.2)
• Gynecologist	1 (4.8)
Place of practice	
• Medical clinic (group of physicians)	13 (61.9)
• Public local community service centre	4 (19.0)
• Hospital	2 (9.5)
• Private office (1 or 2 physicians)	2 (9.5)
Years in practice	
• ≤ 14	1 (4.8)
• 15-20	3 (14.3)
• 21-30	11 (52.4)
• ≥ 31	6 (28.6)
No. of mammography reports received in 2004 and 2005	3 (14.3)
• ≤ 9	5 (23.8)
• 10-24	5 (23.8)
• 25-54	8 (38.1)
• ≥ 55	

*Percentages might not add to 100 owing to rounding.

Knowledge, beliefs, and attitudes

Respondents were unanimous in recognizing mammography screening as an effective way of reducing breast cancer mortality in women. According to them, all their physician colleagues supported breast cancer screening and their patients were receptive to mammography prescriptions.

Respondents mentioned referring their patients to the breast cancer screening program and did clinical breast examinations (CBEs) on their female patients during periodic health examinations. However, more than half (n = 11) preferred to broaden the age group recommended for mammography: one-third prescribed mammography as soon as their patients reached the age of 40, one-third continued to do so after their patients reached the age of 69, and the rest adopted both of these practices. Moreover, one-third of respondents chose to prescribe mammography more often than every 2 years for women who showed high levels of anxiety about breast cancer (n = 4) and for those with denser breasts (n = 3). A third of the respondents did not agree about the age for beginning CBE: most believed it was between 30 and 35 years of age, while others reported it was around 40 or 50 years of age. "There are no clear guidelines; in any case, I don't know them."

Although no questions addressed breast self-examination (BSE), more than half the respondents (n = 11) mentioned this subject. The Canadian Task Force on Preventive Health Care has published firm recommendations to exclude the teaching of BSE from the periodic examination.[37] Despite that, local public organizations still advocate its instruction to all age groups. As stated by one respondent: "The dissemination of contradictory information makes the physicians' clinical practice difficult and their female patients confused." Close to half of respondents (n = 9) also felt uncomfortable not teaching BSE, "a widely practised procedure for over 30 years," to their female patients. According to them, "this practice helps women develop a tactile memory, making it easier for them to detect lesions or lumps"; this practice also "encourages them to take control of their health and be aware of the importance of breast cancer screening."

Tools and strategies

Personalized invitation letters and systematic reminder letters every 2 years. Our respondents unanimously approved of these strategies. According to them, these letters replaced their prescriptions, made their female patients aware of the issues of breast cancer and mammography screening, and allowed attending physicians to do only reinforcement and follow-up in their offices. Four respondents emphasized that "the letters were essential for women without ... family physician[s]." Four others indicated that during this period of physician shortages in Quebec, even their own patients had great difficulty getting appointments: "Physicians can at least count on the letters to ensure a rigorous follow-up of breast cancer screening with their female patients."

Some respondents (n = 4) suggested that the letters should be "shortened," "simplified," "more direct," and "endorsed by physicians in order to reassure women and encourage them to have their screening mammograms."

Five respondents indicated that appointment waiting times in the screening centres were too long, varying from 3 to 6 months. They suggested sending reminder letters to women every 2 years, specifically on their birthdays, in order to present mammography as a routine examination for women.

Two respondents suggested implementing a computer program based on each patient's medical and family history to allow physicians to provide better follow-up on screening mammography.

Authorization form for the transmission of information related to participation in the program. At the screening centres, patients are asked to sign authorization forms to indicate that they either allow or refuse to allow transmission of information related to their mammograms. More than half our respondents (n = 11) were not aware of this authorization form. Among those who were, 2 thought that their patients signed this form solely for their first mammograms, 2 questioned its usefulness, and 4 did not understand the consequences following data transmission refusal by their patients.

Reports of screening mammography results. Most respondents emphasized that the abnormal test results report is written in "small print," "has too many abbreviations," and "is not sufficiently detailed." They strongly suggested that "the written report should include a diagram indicating the location of the abnormality and be accompanied by the dictated radiological report."

In response to questions about additional examinations, one-third of respondents (n = 7) indicated that they found the wording of the reports ambiguous about follow-up on additional investigations:

> It is written on the report: "the patient will be called back. If the patient is reached, the additional examination will be done".... I don't know whether she was reached or not. [So,] I call the patient again. This is stressful for her when she receives 2 calls [1 from the radiologist and 1 from her attending physician]: gee, it must be serious, with 2 doctors calling me!

This duplication of work is not only stressful for a woman already worried about the abnormal results of her mammogram, it is also a burden for physicians whose schedules are already overloaded:

> The usual sentence: "if your patient agrees, an ultrasound will be done." If the ultrasound is not done, I don't know .... You don't want to have anyone fall between the cracks. Therefore, you have to carry out the process yourself, even if it may not be necessary. So I find that it is just a waste of time. And time is so expensive!

Five respondents thought that the designated screening centres should complete the entire imaging process before following up with the attending physicians:

> When I prescribe a mammogram, as long as the radiologist is not satisfied with the examination, he should go further ... he should send me [a report] at the end of the imaging process .... If eventually we have a suspect lesion, then I want to be notified. I am probably the best person for explaining to the patient what is happening to her, for understanding her, for conducting an information transmission process, for showing compassion for her worries, fears, and distress.

Follow-up of abnormal test results

Referral for additional investigations following abnormal mammogram results. Designated screening centres can perform free additional radiographs, but ultrasound scans must be paid for by the patients. Designated referral centres do an additional range of investigation services all free of charge. In Laval, however, patients are also automatically sent for examination by surgeons.

More than half of respondents (n = 11) preferred to send their patients to the designated referral centres because of the advantages these centres offered. Such a procedure, however, creates ambiguity about the role of the attending physician and leads to congestion problems and delays for appointments:

> When I see the actual delays for an appointment at the designated referral centre, it's worrisome when you have to wait; it's a worry. We try to have the shortest waiting times possible in order to reassure them.

Thus 4 respondents preferred to send their patients to centres in adjacent regions or to centres not designated by the QBCSP because appointment scheduling and procedures were more efficient.

List of physicians for orphan patients. Almost 1 in 4 Laval women 18 years of age or older (22.3%) report that they do not have family physicians.[38] The QBCSP therefore drew up a list of physicians who agreed to provide follow-up care for these women, known as "orphan patients," starting when they received abnormal test results for their examinations and until medical intervention was no longer necessary.

Among our respondents, 3 indicated that they had agreed to be on this list in 1998, when the QBCSP began; however, 2 of them had withdrawn. The first respondent who had withdrawn reported that he had spent a lot of time on telephone calls before reaching the orphan patients. In addition, he found it a particularly sensitive issue to be leaving messages about on voice mail or with a third party when ethnic communities were involved, owing to language and custom barriers. The other respondent did not see the usefulness of his intervention with these patients:

> I make sure that Dr X. or another surgeon in the hospital becomes involved in the file. Then, after that, the

> patient ... has a lot of appointments, then we will see her sometimes 2 years, 3 years afterwards, when the entire process is over. In fact, she is a total stranger.

Since he saw them only sporadically, he did not feel that he could reassure them and offer them the same support that he provided to his own patients.

Some participants suggested that it might be effective to have nurse practitioners supervise and facilitate all of the procedures with the orphan patients and to have access available to the services of general practitioners for medical follow-up when needed.

DISCUSSION

In this study, the interviewed physicians' reported attitudes and behaviour were favourable to breast cancer screening, mammography, and CBE. Most practised in medical clinics. This corroborates the results of previous studies that indicated that this type of practice tended to motivate physicians to perform preventive actions, particularly when they perceived, as did our respondents, reinforcement by their colleagues and receptiveness among their patients.[39-41]

The respondents were, however, uncomfortable with QBCSP recommendations about the appropriate age group for screening, the presence of some risk factors, the age for beginning CBE, and the teaching of BSE to patients. According to the literature on breast cancer, a lack of consensus in the medical community[18,27] and conflicting recommendations[14,39] can constitute important barriers to preventive practice. Periodic clarifications or position statements to harmonize medical practices seem to be important to promoting the optimal involvement of physicians and increasing women's participation in breast cancer screening.

The effects of the required authorization form for the transmission of information related to women's participation in the breast cancer screening program are unclear. More than half of our respondents were not aware of the authorization form. They also did not realize that by refusing the data transfer, the women would not have their examination data recorded in the information system and would not receive reminder letters every 2 years. If physicians encouraged women to authorize data transmission, their patient follow-up would be more efficient.

Our respondents were satisfied with the tools and strategies used for breast cancer screening, namely the invitation and follow-up letters, as well as the screening mammogram reports. They did, however, suggest improvements to these letters and reports, and they recommended implementation of a computerized program for patient files.

Implementing more effective tools and strategies would lighten the physicians' load, especially during this period of physician shortages. In a study conducted in Quebec,[42] physicians admitted that they lacked the time to present the breast screening program to their own patients. In another study carried out across Canada, salaried physicians indicated not being able to perform more preventive actions than their colleagues who worked in private clinics.[43] A lack of time and the congestion of Canadian medical clinics are important impediments to physicians' preventive practices. The availability of effective resources, in terms of tools and personnel, would encourage physicians to take preventive action more often.[21,23,44]

Our respondents found the procedure for referring patients for additional examinations following abnormal mammogram results to be complex: some centres do follow-up, while others do not; some centres perform free investigations, and others cannot. Therefore, most of our respondents preferred to send their patients to designated referral centres where the examinations were all free and medical follow-up was provided by surgeons. However, the use of this service corridor by a large number of physicians leads to congestion and delays in appointment scheduling, thus increasing patients' anxiety.

As previous studies have found, physicians in our study preferred not to comply with guidelines for practice when they considered them inappropriate, difficult to carry out, or poorly adapted to their workplace.[22,39] Our respondents referred their patients to designated centres in adjacent regions or to centres not designated by the QBCSP that they considered more efficient: such behaviour has negative effects on the quality assurance process because these centres are not subject to quality control and follow-up standards.[45] In addition, the data related to these women's examinations are not recorded in the program information system, thus compromising its systematic evaluation. Harmonization of follow-up, free investigations, and better accessibility in designated centres are essential to making service corridors more functional and to increasing their use by physicians and patients' participation in breast cancer screening.

Of the 3 respondents in our study who agreed in 1998 to be on the list of physicians available for orphan patients, only 1 was still on the list. This service is aimed at 1 in 4 Laval women.[38] Questions about the effectiveness of this intervention and the poor continuity of care for these patients,[39,42] as well as about the lack of time and the congestion of Canadian medical clinics, suggest that the list of physicians for orphan patients tends to be inefficient. Our respondents suggested that referral for orphan patients should be supervised by nurse practitioners, with physician consultations available when needed.

Limitations

In this study, data were collected from a sample of 21 physicians and by means of individual interviews. Thus,

in order to minimize biases related to validity, reliability, social desirability, and transferability, we made sure to comply with rigorous criteria for sampling (eg, purposive sampling, diversity of sites and cases), data collection (eg, saturation, tape recording, interviewer objectivity), and subsequent analysis (eg, detailed transcriptions, interrater reliability). The qualitative approach provides us with in-depth knowledge about physicians' perceptions of the breast cancer screening program.

Conclusion

This study suggests that medical practices, tools, and strategies for breast cancer screening in Laval are functional but need improvement. In particular, the organization of care following abnormal mammogram results for patients with or without family physicians should be modified to become more efficient. The data presented here should contribute to more effective action plans to reach a screening mammography participation rate sufficient to reduce breast cancer mortality in women.

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Contributors

Dr Nguyen and **Ms Larocque** contributed to concept and design of the study; data gathering, analysis, and interpretation; and preparing and approving the manuscript for submission and publication. **Drs Paquette** and **Irace-Cima** contributed to data interpretation and preparing and approving the manuscript for submission and publication.

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References

1. Institut national du cancer du Canada. *Statistiques canadiennes sur le cancer du sein.* Ottawa, ON: Government of Canada; 2007.
2. Ministère de la santé et des services sociaux. *Programme québécois de dépistage du cancer du sein. Cadre de référence*. Quebec, QC: Gouvernement du Québec, Direction générale de la santé publique; 1996.
3. Institut national de santé publique du Québec. *Résultats au 30 juin 2006*. Quebec, QC: Gouvernement du Québec, Équipe d'évaluation du PQDCS; 2006.
4. George SA. Barriers to breast cancer screening: an integrative review. *Health Care Women Int* 2000;21(1):53-65.
5. Corbeil MR, Duval E, Grignon R. *Profil sociosanitaire de la population de Laval.* Laval, QC: Direction de santé publique, Agence de la santé et des services sociaux de Laval; 2006.
6. Chamot E, Charvet A, Perneger TV. Women's preferences for doctor's involvement in decisions about mammography screening. *Med Decis Making* 2004;24(4):379-85.
7. Bulliard JL, de Landtsheer JP, Levi F. Fidélisation aux programmes de dépistage du cancer du sein en Suisse: rôle central du médecin. *Praxis* 2005;94(36):1381-7.
8. Lemkau JP, Grady KE. Impact of family physicians on mammography screening. *Am Fam Physician* 1998;58(4):854-9.
9. Santé Canada. *Déterminants de la qualité des programmes organisés de dépistage du cancer du sein*. Ottawa, ON: Gouvernement du Canada, Groupe de travail sur les déterminants de la qualité; 2003.
10. Beaulieu MD, Roy D, Béland F, Falardeau M, Hébert G. Dépistage du cancer du sein: l'intervention du médecin de famille est-elle efficace? *Union Med Can* 1994;123(3):154-62.
11. Manfredi C, Czaja R, Freels S, Trubitt M, Warnecke R, Lacey L. Improving cancer screening in physician practices serving low-income and minority populations. *Arch Fam Med* 1998;7(4):329-37.
12. Metsch LR, McCoy CB, McCoy HV, Pereyra M, Trapido E, Miles C. The role of the physician as an information source on mammography. *Cancer Pract* 1998;6(4):229-36.
13. Pham HH, Schrag D, Hargraves JL, Bach PB. Delivery of preventive services to older adults by primary care physicians. *JAMA* 2005;294(4):473-81.
14. Symons AB, Mahoney MC, Englert J, Mirand AL. Variations in approaches to breast cancer screening among primary care physicians. *J Cancer Educ* 2002;17(4):205-10.
15. Van Harrison R, Janz NK, Wolfe RA, Tedeschi PJ, Stross JK, Huang X, et al. Characteristics of primary care physicians and their practices associated with mammography rates for older women. *Cancer* 2003;98(9):1811-21.
16. Bekker H, Morrison L, Marteau TM. Breast screening: GPs' beliefs, attitudes and practices. *Fam Pract* 1999;16(1):60-5.
17. Sheinfeld Gorin S, Gemson D, Ashford A, Bloch S, Lantigua R, Ahsan H, et al. Cancer education among primary care physicians in an underserved community. *Am J Prev Med* 2000;19(1):53-8.
18. Parochka J, Paprockas K. A continuing medical education lecture and workshop, physician behavior, and barriers to change. *J Contin Educ Health Prof* 2001;21(2):110-6.
19. Sharp PC, Michielutte R, Spangler JG, Cunningham L, Freimanis R. Primary care providers concerns and recommendations regarding mammography screening for older women. *J Cancer Educ* 2005;20(1):34-8.
20. Costanza ME, Stoddard AM, Luckmann R, White MJ, Spitz Avrunin J, Clemow L. Promoting mammography. Results of a randomized trial of telephone counseling and a medical practice intervention. *Am J Prev Med* 2000;19(1):39-46.
21. Gaston MH, Moody LE. Improving utilization of breast and cervical cancer screening in your office practice. *J Natl Med Assoc* 1995;87(9):700-4.
22. Koutsavlis AT. *Dissémination des guides de pratiques chez les médecins*. Montreal, QC: Direction de santé publique de la Régie régionale de la santé et des services sociaux de Montréal-centre et Institut national de santé publique du Québec; 2001.
23. Lepage C. *Les interventions favorisant la participation des femmes au dépistage par mammographie: revue de la littérature.* Beauport, QC: Agence de développement de réseaux locaux de services de santé et de services sociaux de la Capitale nationale, Direction régionale de santé publique; 2005.
24. Mandelblatt JS, Yabroff KR. Effectiveness of interventions designed to increase mammography use: a meta-analysis of provider-targeted strategies. *Cancer Epidemiol Biomarkers Prev* 1999;8(9):759-67.
25. Mayer R, Deslauriers JP. Quelques éléments d'analyse qualitative. In: Mayer R, Ouellet F, Saint-Jacques MC, Turcotte D, editors. *Méthodes de recherche en intervention sociale*. Montreal, QC: Gaëtan Morin Éditeur; 2000. p. 159-89.
26. Guest G, Bruce A, Johnson L. How many interviews are enough? An experiment with data saturation and variability. *Field Methods* 2006;18(1):59-82.
27. Borduas L, Sauvageau L, Blais J, Doray G, Moreault L, Lemieux AP. *Étude exploratoire des perceptions des médecins au regard du Programme québécois de dépistage du cancer du sein*. Quebec, QC: Direction de santé publique de la Régie régionale de la santé et des services sociaux de Québec et Coordination des services régionaux du Programme québécois de dépistage du cancer du sein; 2002.
28. Golafshani N. Understanding reliability and validity in qualitative research. *Qual Rep* 2003;8(4):597-607.
29. Laperriere A. Les critères de scientificité des méthodes qualitatives. In: *Les méthodes qualitatives en recherche sociale: problématique et enjeux.* Rimouski, QC: Acte du colloque du Conseil québécois de la recherche sociale; 1993.
30. Green LW, Kreuter MW. *Health program planning. An educational and environmental approach.* 2nd ed. Toronto, ON: Mayfield Publishing Company; 1991.
31. Green LW, Kreuter MW. *Health program planning. An educational and ecological approach.* New York, NY: McGraw-Hill; 2005.
32. Miles MB, Huberman AM. *Qualitative data analysis*. 2nd ed. Thousand Oaks, CA: Sage Publications Inc; 1994.
33. Deschenaux F, Bourdon S, Baribeau C. *Introduction à l'analyse qualitative informatisée à l'aide du logiciel QSR NVivo 2.0*. Trois-Rivières, QC: Association pour la recherche qualitative; 2005. Available from: **www.recherche-qualitative.qc.ca/Nvivo_2.0.pdf**. Accessed 2009 Apr 21.
34. Barbour RS. Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? *BMJ* 2001;322(7294):1115-7.
35. Pope C, Ziebland S, Mays N. Qualitative research in health care. Analysing qualitative data. *BMJ* 2000;320(7227):114-6.
36. SPSS Inc. *Base system user's guide version 12.0.* Chicago, IL: SPSS Inc; 2004.
37. Baxter N; Canadian Task Force on Preventive Health Care. Preventive health care, 2001 update: should women be routinely taught breast self-examination to screen for breast cancer? *CMAJ* 2001;164(13):1837-46.
38. Corbeil MR. *Sondage auprès des Lavallois sur la disponibilité d'un médecin de famille.* Laval, QC: Direction de santé publique, Agence de la santé et des services sociaux de Laval; 2006.
39. Burack RC. Barriers to clinical preventive medicine. *Prim Care* 1989;16(1):245-50.
40. Grady KE, Lemkau JP, McVay JM, Carlson S, Lee N, Minchella M, et al. Clinical decision-making and mammography referral. *Prev Med* 1996;25(3):327-38.
41. St-Amour M. *Analyse des déterminants de la prescription de mammographie de dépistage. Rapport de stage*. Montreal, QC: Direction de la santé publique de Montréal-centre; 2000.
42. Rossi C, Borduas F, Gagnon L, Moreault L, Vaillancourt L. *Pratiques préventives en cancer du sein: comparaison de trois milieux de pratique médicale*. Quebec, QC: Groupe de travail Actions-médecins en cancer du sein, équipe Organisation des services et évaluation, Direction régionale de santé publique de la Capitale nationale; 2004.
43. Hudon E, Beaulieu MD, Roberge D; Canadian Task Force on Preventive Health Care. Integration of the recommendations of the Canadian Task Force on Preventive Health Care: obstacles perceived by a group of family physicians. *Fam Pract* 2004;21(1):11-7.
44. Sin JP, St Leger AS. Interventions to increase breast screening uptake: do they make any difference? *J Med Screen* 1999;6(4):170-81.
45. Ministère de la Santé et des Services sociaux. *Renseignements importants sur le dépistage du cancer du sein*. Quebec, QC: Gouvernement du Québec, Direction générale de la santé publique; 2001.