

# On the Organization of Screening in Canada

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Being screened for cancer is a voluntary activity that some people will choose and some will not. Organization is required to ensure that the appropriate people have an opportunity to be screened, that the screening test administered is of high-quality, that test results are available promptly, and that appropriate treatment is promptly provided for those with an abnormal test.

In Canada, responsibility for the organization of screening has, in the past, largely rested with those who promoted it. One of the first screening programs in the world for cancer of the cervix was initiated in British Columbia in 1949. The initiator, Dr Herb Fidler, a pathologist, recognized the potential utility of the test developed years before by Papanicolou. Fidler decided to make this available in the province and developed an informal organization involving general practitioners and a central laboratory founded by himself. The organization was eventually taken over by the provincial cancer agency, which recognized efficient screening was one of its functions in cancer control. Subsequently, mortality rates from cervix cancer in BC fell markedly. Even though the evidence for effectiveness of cervix cancer screening has come entirely from observational studies, and no randomized trial has been conducted to demonstrate its efficacy, few would doubt that the introduction of the "Pap test" has had a major impact on mortality of cervix cancer.

Fast forward to the Canadian Strategy for Cancer Control (CSCC) and its successor, the Canadian Partnership Against Cancer (CPAC). When plans for the CSCC were initially developed there was a screening working group which made recommendations. For a variety of reasons no Action Group on Screening was put in place. However, when the federal government indicated its priorities for the CPAC were prevention, screening and research, a Screening Action Group was established.

It is now generally recognized that the gold standard for establishing efficacy of screening has to be a randomized trial. With this standard, the only other cancers for which screening efficacy has been established are breast and colorectal. These trials showed a 30 per cent efficacy in reducing deaths from breast cancer in women age 50-69, and 20 per cent for colorectal cancers in men and women age 50-69.

Canada accepted the evidence for breast screening in 1988, and provincial programs with a target of 70 per cent

compliance were gradually introduced. No provincial program has achieved that level of compliance (Table 1). On the other hand, the organization introduced by screening programs in the UK has enabled them to exceed their 70 per cent target. Statistics Canada surveys indicate that if the women are added who receive mammography outside the organized provincial programs, the total numbers of women who receive mammography does reach the target in some provinces (Table 2). Nevertheless, it has been well demonstrated elsewhere that such "opportunistic" screening is far less efficient or effective because it may be performed on machines that have not been certified, or by radiographers and radiologists not specially trained in mammography. The question then arises: "Why do women and their physicians fail to use the organized programs, while using so much 'opportunistic' screening and why does Canada continue to lag so far behind the UK (and Scandinavia)?"

The reason appears to be that no province has accepted the necessity for introducing all the components regarded necessary to make an organized program successful<sup>1</sup> (See Table 3). These requirements may have been met in isolated instances (e.g. the Hamilton breast screening program), but there are only rare examples of efforts to replicate this model more widely. British Columbia, Saskatchewan and Manitoba have adopted more of these principles than have other provinces, but there is still some way to go.

Despite the relative failure of breast screening in Canada, the same organizations now plan to screen for colorectal cancer using the fecal occult blood test (FOBT). This raises several concerns. If the system cannot succeed in ensuring adequate compliance when screening for a cancer with such wide visibility as breast cancer, it may be unlikely to be even as effective in screening for colorectal cancer, especially using a test, that requires subjects to manipulate their own feces.

In randomized trials, the compliance with the fecal occult blood test has been far lower than with mammography. For example in a recent trial from Rome, compliance with invitations given by family doctors was only 17 per cent. This suggests population-based colorectal cancer screening using the FOBT will not have a major effect on colon cancer mortality, but will result in a major opportunity cost. Unless a major attempt is undertaken to enhance compliance to FOBT

as the main objective, in the absence of effective recruitment and timely follow-up, the investment is unlikely to deliver good results.

### Conclusions

FOBT, while it has trial results showing a potential 20 per cent reduction in mortality, brings a higher than usual risk of non-compliance. Recruitment for any cancer screening is a hurdle that has not yet been successfully overcome in Canada. As a gateway test for accessing colonoscopy, which is said but not proven to be a more accurate screening test, FOBT, if not done correctly, has the potential to repel the very patients it is meant to serve. For those who pursue colorectal screening, the shortage of specialists to deal with suspicious results will still mean long waits for diagnosis and treatment, and their increase, as a part of the colorectal screening program, ought to be a high priority. An organized screening program must address recruitment and follow-up in order to produce benefits for patients.

### Recommendations

- Colorectal cancer control would probably be much more effective by encouraging a healthy diet, physical exercise, and drinking alcohol in moderation (see News section in this Report Card).
- The new research funding being made available to CPAC could be allocated for translational research to study ways of ensuring compliance with screening. Experience shows that a population-wide screening program, even though based upon the best evidence, still requires research to determine how to obtain maximum effectiveness.

### Reference

1. Hakama, M., Chamberlain, J., Day, N.E., Miller, A.B. and Prorok, P.C. Evaluation of screening programmes for gynecological cancer. *Br. J. Cancer* 1985; 52:669-673.

Disclaimer: Dr Miller has been Chair of the Quality Performance Assurance Action Group of the CSCC, a member of the Council of the CSCC and of the Primary Prevention Action Group of the CSCC. However, this article represents his personal views and can not be regarded as reflecting the policy of the Council of the CSCC or of any of its Action Groups, nor of CPAC.

TABLE 3: **RECOMMENDED FEATURES OF ORGANIZED SCREENING PROGRAMS**

- The target population is identifiable
- Measures are available to guarantee high coverage and attendance of the target population
- There are adequate facilities for performing high quality screening tests
- There is an effective referral system for diagnosis and treatment of abnormalities
- There are adequate facilities for diagnosis and subsequent curative treatment of malignancy, diagnosed (at an early stage) through screening.

TABLE 1: **DATA AVAILABLE TO THE CACC ON PROVINCIAL/TERRITORIAL ORGANIZED BREAST SCREENING PROGRAMS**

PROVINCE/TERRITORY	YEAR PROGRAM INITIATED	COMPLIANCE IN 2001-2002*	% OF TARGET POPULATION SCREENED IN 2004 **
Northwest Territories	2003	NA	NA
Yukon Territory	1990	NA	NA
British Columbia	1988	50.7%	48%
Alberta	1990	12.0%	NA
Saskatchewan	1990	53.0%	Approx. 57%
Manitoba	1995	48.5%	51.4%
Ontario	1990	22.4%	26%
Quebec	1998	43.7%	48%
New Brunswick	1995	51.9%	55%
Nova Scotia	1991	34.0%	45%
Prince Edward Island	1998	43.5%	NA
Newfoundland and Labrador	1996	23.2%	30% in 1 year

\* Source: Organized Breast Cancer Screening Programs in Canada – Report on Program Performance in 2001 and 2002. PHAC 2005 (Cat no. HP32-1/2002)

\*\* As reported to the CACC in 2005, for screening every two years

TABLE 2: **MAMMOGRAMS OBTAINED IN THE LAST TWO YEARS, FEMALES AGE 50–69, AS REPORTED IN JUNE 2005**

AREA	% MAMMOGRAMS FOR SCREENING	% MAMMOGRAMS FOR OTHER REASONS	TOTAL %
Canada	50.8	19.6	70.4
Newfoundland and Labrador	45.2	23.1	68.3
Prince Edward Island	41.9	22.4	64.1
Nova Scotia	49.9	22.0	69.9
New Brunswick	54.8	19.8	74.6
Quebec	50.5	22.3	72.8
Ontario	53.0	17.8	70.8
Manitoba	42.6	23.0	65.6
Saskatchewan	46.4	23.1	69.5
Alberta	52.3	16.7	69.0
British Columbia	48.2	17.4	65.6
Yukon Territory	38.2	17.4	55.6
Northwest Territories	37.8	34.1	71.9
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Source: Statistics Canada, Canadian Community Health Survey (CCHS 3.1) 2005, and Statistics Canada Publication (catalogue no. 82-221 Vol 2006 No. 1).