Workshop Report

Reducing deaths from breast cancer in Canada

The Workshop Group*

All of the provincial deputy ministers of health endorsed a request made Sept. 22, 1987, by Dr. Maureen Law, deputy minister of the Department of National Health and Welfare, that the provinces participate in an expert group proposed by the department and the Canadian Cancer Society to recommend a Canadian position on the early detection of breast cancer. The strong support of the provinces was instrumental in the subsequent decision to hold a workshop in Ottawa Mar. 16 and 17, 1988. The workshop was sponsored by the Canadian Cancer Society, the Department of National Health and Welfare and the National Cancer Institute of Canada on behalf of the Conference of Federal–Provincial Deputy Ministers of Health. The number of organizations involved was greater than would have been possible for an expert working group that met on a number of occasions to prepare its report. The participants represented key voluntary and professional organizations as well as government.

The first day of the meeting consisted of presentations and discussions on the evidence supporting breast cancer screening, early detection procedures and systems, the implications of early detection programs for various organizations and the proposals for such programs in three provinces (British Columbia, Alberta and Ontario). The second day comprised further discussions on the evidence of benefits from clinical examination of the breasts and breast self-examination, small group discussions to help develop a Canadian consensus and a concluding plenary session.

Participants: Dr. John Laidlaw (chairman), Toronto; Dr. David Allison, Fredericton; Dr. Joan Bain, Willowdale, Ont.; Dr. Cornelia Baines, Toronto; Dr. Vivien Basco, Vancouver; Professor Joan Brailey, Toronto; Dr. Jacques Brisson, Ste-Foy, PQ; Dr. Aileen Clarke, Toronto; Ms. Jennifer Clinch, Winnipeg; Dr. Harold Colburn, Ottawa; Dr. William Dorsett, Regina; Dr. Dagny Dryer, Charlottetown; Mrs. L'ainée Duncan, Halifax; Ms. Louise Fawcett, Ottawa; Dr. Guy Hébert, Montreal; Dr. Pierre Lavigne, Halifax; Dr. Alan Lees, Edmonton; Dr. Richard Margolese, Montreal; Dr. Anthony Miller, Toronto; Ms. Cheryl Moyer, Toronto; Dr. Lucille Robillard, Ottawa; Dr. Peter Scholefield, Toronto; Professor Carol Smillie, Halifax; Dr. May Smith, Ottawa; Dr. Gordon Winsor, St. John's; Dr. Ann Worth, Vancouver; Dr. Martin Yaffe, Toronto; and Ms. Elizabeth Yves-Ruyter, Pembroke, Ont.

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Recommendations

Women aged 50 to 69 years

Canadian women in this age group should be offered, and encouraged to participate in, an early detection program consisting of mammography, physical examination of the breasts by a health care professional, and teaching and monitoring of breast self-examination every 2 years. Such a program should be operated through dedicated screening centres.

The rationale for an early detection program for women in this age group is described in the next section. Pending further clarification of the respective roles of physical examination and breast self-examination it is considered desirable to include these two components in early detection programs.

Dedicated screening centres are recommended because they are the most likely to ensure identification and recruitment of the target group, standardization, quality control, appropriate follow-up of women with abnormal findings and the lowest unit cost. Moreover, experience has indicated that they are more acceptable to women.

Women aged 40 to 49 years

There is still no conclusive evidence that mammography, physical examination or breast

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self-examination, or any combination of these, can reduce the rate of death from breast cancer in this age group. The effectiveness of screening in this age group is being investigated in such studies as the Canadian National Breast Screening Study.[1]

Although the above is true there are many women in this age group who seek and are obtaining some form of screening. Hence, each province must decide whether it will make screening available. If screening by means of mammography or physical examination, or a combination, is provided it should be done through dedicated screening centres.

Women under 40 years

Screening is not recommended, for the reasons given in the next section.

Evidence of reduction in mortality rate through screening

The results of two completed randomized trials[2,3] and three case-control studies[4-6] have shown that screening can reduce the rate of death from breast cancer. All have shown effectiveness among women aged 50 years or more. The upper age limit in those studies ranged from 64 to 74 years on entry. In the Health Insurance Plan (HIP) trial[2] and the Nijmegen project[5] there was some indication of lesser effectiveness among women aged 60 years or more than among women aged 50 to 59. In the Utrecht study[4] the reverse situation applied. In the Swedish trial[3] screening was as effective among women aged 60 to 69 years as it was among those aged 50 to 59 but was less effective among women aged 70 to 74.

The results of only one of those studies (the HIP trial[2]) suggested effectiveness among women aged 40 to 49 years but only after prolonged follow-up.

In the HIP trial and the Utrecht study the combination of mammography and physical examination was used for screening.[2,4] In the other studies mammography alone was used, although in the Swedish trial[3] the screening process incorporated a visual examination of the breasts, and each woman received a pamphlet advising her to practise breast self-examination and explaining the technique. For mammography the mediolateral oblique view was used in the Swedish trial[3] and the lateral view in the Nijmegen project;[5] both views were used in the other studies. Xerography was initially used in the Utrecht study but was replaced by film-screen mammography in 1980.[4] In the other studies film or film-screen mammography was used.

Screening was done annually only in the HIP trial.[2] In the Utrecht study the intervals were 18 months, 2 years and 4 years.[4] Screening was done biennially in the Nijmegen project[5] and every 2½ years in the Florence study.[6] In the Swedish trial women aged 40 to 49 years were screened every 21 months, and those who were older were screened every 33 months.[3]

Indirect evidence for the optimal frequency of screening can be obtained from the studies that had a long interval between screening sessions by determining the proportion of the expected incidence of breast cancer (measured in the control group or from other data) that occurred in that interval. Data from both the Swedish trial and the Nijmegen project have indicated that screening every 2 years is satisfactory among women over the age of 50 years but that annual screening would be required if programs were to be introduced among younger women.[7,8]

All of the studies had a similar order of effectiveness: a reduction in death from breast cancer by approximately 40% among women aged 50 years or more 5 (HIP trial) to 7 (Swedish trial) years after screening was started (calculated on the basis of participation rates of 65% to 90% of eligible women respectively). A similar reduction was found among women in the same age group in the Malmo trial,[9] the results of which were reported after the workshop. (If similar proportions of Canadian women aged 50 to 69 years could be persuaded to undergo screening from 1989, the annual number of deaths from breast cancer from 1996 could be decreased by 900 or more.) In some of the European studies this order of effectiveness was achieved through mammography alone. The extent to which mammography adds to the effectiveness of physical examination and breast self-examination is under investigation in the Canadian National Breast Screening Study.[1] The role of breast self-examination alone in reducing the mortality rate is unknown and is the subject of a study being done in the Soviet Union.*

Finally, screening is not generally recommended for women under the age of 40 for the following reasons. The prevalence of breast cancer among women in this age group is low, and a decrease in prevalence is associated with an increase in the proportion of false-positive results. With respect to mammography the hazards of radiation increase with decreasing age, there is an increased possibility of unsuspected pregnancy, and mammograms are more difficult to interpret in younger women. In contrast, radiation hazards from mammography are negligible for older women.

Essential components of dedicated screening centres

A program of dedicated screening centres

**Details of the study protocol are available from Dr. Valentin Koroltchouk, Cancer Unit, World Health Organization, 1211 Geneva 27, Switzerland.*

could be instituted on a pilot or a province-wide basis. In any case, a province-wide program should be developed as soon as possible.

The workshop participants agreed that the following components are essential in a dedicated screening centre.

Identification of the target group

Identification by name and age should be made from population registers, such as enumeration lists and lists of members of health insurance programs.

Recruitment of the target group

Recruitment is a vital component of the program. It demands intensive effort to notify every eligible woman and to gain her cooperation. This will require the support of family physicians in the region. The participation of the Canadian Cancer Society, the provincial cancer agencies, public health units and the media would be extremely valuable. Operational research into the best methods for recruiting women will be required in each region.

Facilities

Fixed screening centres in urban areas should be self-contained and linked to appropriate diagnostic facilities. Mobile vans should be considered for rural areas and may also be useful in urban settings.

Program components

Screening procedures: Film-screen mammography with two views (craniocaudal and mediolateral oblique) is recommended. Protocols should be developed for physical examination and instruction for breast self-examination.

Assessment of suspected abnormal findings: The screening centre should establish a mechanism, including specialized radiologic and aspiration techniques, for prompt review of suspected abnormal findings to determine whether biopsy is required.

Referral system: A clear and effective referral system must be established for women who require biopsy.

Staffing

The following complement may be appropriate for a centre that will screen 10 000 women per year: a part-time director, secretary, data manager and radiologist, a full-time receptionist, two and a half full-time-equivalent nurses and two full-time-equivalent radiology technicians. Fewer nurses may be required if physical examination and breast self-examination are not included in the program.

Quality control

Quality control mechanisms are required to monitor the technical quality and interpretation of mammograms, physical examination and instruction in breast self-examination. Quality control is also required for the interpretation of biopsy findings. Mammography units should be regularly assessed by a radiation physicist.

Evaluation and monitoring of the program

Data must be collected to determine subject compliance, to estimate quality control, to document the screening findings, referrals and biopsies (including delays) and to identify the cancers detected through screening, the interval cancers, the cancers in nonrespondents, the extent of disease in all cases and the number of deaths from breast cancer in the province. In these tasks the participation of the provincial cancer registry, including the services of an epidemiologist, is mandatory.

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