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Letters to the Editor

Mammography in Mass Screening

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IN HIS article on mammography in mass screening [1] Dr. van Bekkum essentially misses the main point over the application of guidelines in the United States concerning the use of mammography in screening women under the age of 50 yr. Irrespective of the radiation dosage applied in mammography, which should be reduced to the absolute minimum conversant with good image quality at all ages, it is inappropriate to advocate a screening programme in age groups where there is no demonstrated benefit. The major error perpetrated by the authorities in the United States in initiating the 27 breast cancer detection demonstration projects was the fact that they chose to ignore the lack of any indication of benefit in reduction in mortality from screening by mammography and physical examination in women under the age of 50 yr in the study of the Health Insurance Plan of New York [2]. It is singularly inappropriate for ethical, practical and financial reasons to advocate mammographic screening programmes in women under the age of 50 yr on the basis of present evidence in the hope that screening using mammography and clinical examination in younger women may eventually be shown to be of benefit. The working group for the review of breast cancer detection and demonstration projects confirmed this [3] as did an international group assembled under the auspices of the International Union Against Cancer in Toronto in April 1978 to assess screening for cancer in general with specific attention to a number of sites including cancer of the breast [4]. The conclusions on breast cancer screening of the latter group were:

"1. Screening with physical examination and mammography has a sizeable effect in decreasing mortality when applied to women between the ages of 50–59 yr, with a lesser effect in women aged 60–64 yr at time of entry into a programme.
2. There is no proven effect in other age groups.
3. The magnitude of the independent effects of mammography, physical examination and breast self-examination are not known.
4. Technical improvements have enhanced the ability of mammography to diagnose breast cancer, but it is not yet known if this is reflected in a corresponding decrease in mortality.
5. The hazards of the somatic effects of radiation from modern mammography seem acceptably small in high incidence populations providing: (a) the dosage delivered is carefully monitored, (b) screening is restricted to women of ages where benefit is known to exist, (c) (mammography) is given at an appropriate frequency (annually or less frequent)."

The international group also commented on the applicability of breast cancer screening as follows:

"1. At this time, the unresolved issues related to breast cancer screening preclude the advocacy of the introduction of screening by mammography plus physical examination as a universal public health programme.
2. For women aged 50–64 yr it is acceptable, however, to include mammography plus physical examination as a screening routine in special programmes where screening is already part of the approach to health care, including demonstration projects, preferably where evaluation of its impact can be made."

Finally they recommended that the following research was needed:

"1. Projects to determine the incremental effect of mammography over and above the benefit from physical examination alone.
2. The benefit to younger women especially of ages 40–49 yr of the newer technology of mammography when combined with physical examination.
3. The benefit to all age groups of any new technology other than mammography.
4. The optimum screening frequency using mammography plus physical examination.
5. The effect of breast self-examination as a public health procedure in its own right.
6. The natural history of pre-cancerous lesions, non-invasive breast cancer and early small (less than 1 cm) infiltrating lesion(s).
7. The appropriate place for risk factors, including parenchymal patterns identified on mammography, as a means to focus on a high risk group for screening."

The guidelines of the National Cancer

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Institute restricting the mass application of screening by mammography to women above 50 yr of age should, therefore, be adopted in all countries until such time as programmes of research which provide evidence on the efficacy of screening in women under the age of 50 yr have been brought to fruition. It is not clear whether the non-randomized studies currently in progress in Europe will provide the necessary evidence. There is no question that randomized studies do have the ability to provide the data required with precision and such a study will shortly be initiated in Canada [5] with, it is hoped, some additional input from some of the detection demonstration centres in the United States.

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The above letter was communicated to Dr. D. W. van Bekkum,
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who offers the following reply:

DR. MILLER and the UICC International Workshop on Screening in Cancer are basing their recommendations on data derived from the HIP study which was initiated 16 yr ago. In the meantime, diagnostic procedures, treatment and patient evaluation at follow-up have undergone certain refinements which may be expected to result in some improvements in detection and survival rates, including the group below age 50. Support for this statement can be found in the recent literature [1]. Furthermore, it is based on our current understanding of the biology of cancer, which is that the earlier stages of a tumor are more curable than later stages [2].

If mass screening for cervical cancer had been postponed until unequivocal proof of its benefits had been established—which is even at present not yet the case according to some authors—many lives would have been lost unnecessarily.

In health protection practice it is not "singularly inappropriate" to start a program before proof of its benefits is available. This is demonstrated by the fact that many countries have passed laws to make the use of safety belts in passenger cars obligatory, before evidence was available that such population-wide measures indeed result in life and health savings [3, 4]. Even now this particular issue has not been settled in terms of convincing proof derived from studies employing proper control groups such as are generally required in our field.

Furthermore, mass screening programs always develop in a step-wise fashion, starting with segments of the population and extending in the course of many years. During this period adjustments can and will be made.

In my opinion, it is inappropriate for reasons of medical responsibility to withhold even possible benefits of a procedure—such as screening for mammary cancer—to a certain segment of the population, in particular, because the final decision whether or not to participate in the program rests, at least in our countries, with the individual woman.