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To Screen or Not to Screen? Ethical Reflections on the Current Controversy about Mammography Screening

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Mammography screening has become a popular public health intervention. However, the benefit of systematic population screening programs is controversial. This raises a number of ethical issues: How should disadvantages of screening – in particular overdiagnosis – be weighed against its potential benefits? What do women need to know in order to make an informed decision for or against screening? Should scarce public resources be invested in a program with unclear effectiveness? The following brief contribution will discuss these issues, comment on the recent policy debate in Switzerland, and suggest some points for further consideration.

Mammography screening has become a popular public health intervention. According to figures of the International Agency for Research on Cancer (IARC), the specialized cancer agency of the World Health Organization, breast cancer is the most frequently diagnosed cancer among women worldwide. In 2012, 522000 women worldwide died from breast cancer, and 1.7 million women were newly diagnosed that year.¹

So breast cancer is both a serious challenge, sometimes a tragedy for individual patients and their families, and an important public health challenge. There is no doubt that reducing the breast cancer burden is an ethical imperative. It seems that one way to go would be to focus on early diagnosis,

which would lead to more gentle yet effective treatment, which would again save lives or at least some quality of life.

Mammography has been promoted over the past decades as a tool that would help screen large populations of women. However, the benefits of systematic population screening programs have remained controversial. Where population screening is used there seems to be no reduction of overall mortality nor of cancer-specific mortality. Whereas some studies do not find any reduction of breast-cancer-specific mortality either, others claim a 20% reduction of relative risk which is however likely to be lower for women below the age of 45. That means that if you screen 10000 women annually at age 40 for 10 years, about 200 cancers will be detected and about 30 women will die of breast cancer - instead of 35 that would have died without screening.²

Even if we assume that the benefit of about 20% relative risk reduction is real, there are significant risks and burdens that come with screening. One issue concerns false negatives, when a cancer is missed. Another issue is unclear test results that lead to a second mammogram or other imaging tests like ultrasound. The proportion of women called in for a second test maybe as high as 60%, and up to 10% of all women screened will be asked for a biopsy. The additional tests can be expected to cause considerable anxiety, with women and their relatives worrying intensely about the test results.

The major issue from an ethical perspective, however, is overdiagnosis. For each women who may have been saved by screening, about 5 to 8 women will be diagnosed with a cancer that would not have killed and likely never have bothered them. As we cannot yet distinguish the aggressive cancers well from the harmless ones, these women will

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undergo the usual course of treatment, likely including chemotherapy and radiotherapy as well as surgery.³

This raises a number of ethical issues: How should disadvantages of screening – in particular overdiagnosis – be weighed against its potential benefits? What do women need to know in order to make an informed decision for or against screening? Should scarce public resources be invested in a program with unclear effectiveness? The Swiss Medical Board (www.medical-board.ch), an independent Health Technology Assessment institution, has assessed mammography screening and has reached the conclusion that – in the light of the evidence currently available - the introduction of new programs is not warranted, neither from a clinical effectiveness nor from a cost-effectiveness point of view.

Very recently, the American Cancer Society has updated its guidelines on breast cancer screening, reducing the recommended age span (starting at age 45 instead of 40) and frequency of testing (bi-annually instead of annually from age 55 on).⁴ On its website, the society states: “Mammograms are not perfect. They miss some cancers. And sometimes more tests will be needed to find out if something found on a mammogram is or is not cancer. There’s also a small possibility of being diagnosed with a cancer that never would have caused any problems had it not been found during screening. It’s important that women getting mammograms know what to expect and understand the benefits and limitations of screening”.⁵

Although it is very good that the relevant issues are mentioned, there are no numbers that would help patients understand the magnitude of positive and negative effects. This information, however, is crucial to weighing the pros and cons. We know that women usually overestimate the benefits of screening, so they need to be better informed.⁶ Rather than making sure women comply with and adhere to screening programs, we should enable them to make a well-informed choice for or against screening.

Many times, mammography screening is discussed in a highly emotional way. However, we should not simply stick to programs that cannot show a convincing ratio of benefits vs. risks and burden. The money invested there will be missing in other places. Also, insisting on everyone having access to mammography screening does not make much sense in the absence as long as the benefits do not clearly outweigh negative effects.

This is not to say that mammography should not play an important role in individual diagnosis. Also, it is very possible that we will be able to improve the effectiveness of screening programs through better imaging techniques that might allow us to better differentiate harmful cancers from others. Risk

stratification may help us better target the population that will benefit most. Further research will provide the basis for building stronger programs that enable us to reap the benefits of mammography screening while minimizing the waste of precious public resources and, most importantly, harm to women.

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