NIH Consensus Statement

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Breast Cancer Screening for Women Ages 40–49

NATIONAL INSTITUTES OF HEALTH
Office of the Director

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This statement reflects the panel's assessment of medical knowledge available at the time the statement was written. Thus, it provides a "snapshot in time" of the state of knowledge on the conference topic. When reading the statement, keep in mind that new knowledge is inevitably accumulating through medical research.

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Foreword

The NIH Consensus Development Program, managed by the Office of Medical Applications of Research, is a unique technology assessment process in American medicine and is designed to produce a consensus statement at the end of a 3-day consensus conference. A consensus statement is a thoughtful and thorough data-driven synthesis of the current science based on a comprehensive review of the existing peer-reviewed medical literature, a series of state-of-the-art scientific presentations, and public testimony. The resulting statement helps to advance and clarify the field of science it addresses and provides an important and useful public health message.

The existence of controversy is a major criterion for determining the need to conduct an NIH consensus development conference. In such circumstances, there may be times when a panel cannot reach a consensus, or when the panel's consensus is that there is no consensus. All NIH consensus panels are offered the opportunity to make a minority statement if a consensus cannot be obtained. In the previous 102 consensus conferences held by NIH over the past 20 years, this has happened on only two occasions.

This NIH Consensus Statement on Breast Cancer Screening for Women Ages 40–49 contains a minority report. While a consensus was initially achieved by the entire panel at the end of the consensus conference, 2 of the 12 panel members subsequently differed on specific issues in the draft document in the weeks that followed and, ultimately, did not agree entirely with the majority statement.

The panel members writing the majority report took into consideration the risks versus the benefits of mammography and did not think that the data supported a recommendation for universal mammography screening for all women in their forties. The authors of the minority report believed the risks to be overemphasized by the majority and concluded that the data did support a recommendation for mammography screening for all women in this age group. The entire panel did agree that women and their health care providers should be provided information on these issues upon which to base their decisions. Additionally, all panelists agreed that for

women in their forties who choose to have mammography, the costs of mammograms should be reimbursed by third-party payors or covered by health maintenance organizations.

It is in the spirit of providing all views on this controversial topic that both majority and minority statements are presented.

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Abstract

Objective

To provide health care providers, patients, and the general public with a responsible assessment of currently available data regarding the effectiveness of mammography screening for women ages 40–49.

Participants

A non-Federal, nonadvocate, 12-member panel representing the fields of oncology, radiology, obstetrics and gynecology, geriatrics, public health, and epidemiology and including patient representatives. In addition, 32 experts in oncology, surgical oncology, radiology, public health, and epidemiology presented data to the panel and to a conference audience of 1,100.

Evidence

The literature was searched through Medline and an extensive bibliography of references was provided to the panel and the conference audience. Experts prepared abstracts with relevant citations from the literature. Scientific evidence was given precedence over clinical anecdotal experience.

Consensus Process

The panel, answering predefined questions, developed its conclusions based on the scientific evidence presented in open forum and the scientific literature. The panel composed a draft statement that was read in its entirety and circulated to the experts and the audience for comment. Thereafter, the panel resolved conflicting recommendations and released a revised draft statement at the end of the conference. The final statement with a minority report was completed within several weeks after the conference.

Conclusions

The Panel concludes that the data currently available do not warrant a universal recommendation for mammography for all women in their forties. Each woman should decide for herself whether to undergo mammography. Her decision may be based not only on an objective analysis of the scientific evidence and consideration of her individual medical history, but also on how she perceives and weighs each potential risk and benefit, the values she places on each, and how she deals with uncertainty. However, it is not sufficient just to advise a woman to make her own decision about mammograms. Given both the importance and the complexity of the issues involved in assessing the evidence, a woman should have access to the best possible relevant information regarding both benefits and risks, presented in an understandable and usable form. Information should be developed for women in their forties regarding potential benefits and risks to be provided to enable each woman to make the most appropriate decision. In addition, educational material to accompany this information should be prepared that will lead women step by step through the process of using such information in the best possible way for reaching a decision. For women in their forties who choose to have mammography performed, the costs of the mammograms should be reimbursed by third-party payors or covered by health maintenance organizations so that financial impediments will not influence a woman's decision. Additionally, a woman's health care provider must be equipped with sufficient information to facilitate her decisionmaking process. Therefore, educational material for physicians should be developed to assist them in providing the guidance and support needed by the women in their care who are making difficult decisions regarding mammography. The two panel members writing a minority report believed the risks of mammography to be overemphasized by the majority and concluded that the data did support a recommendation for mammography screening for all women in this age group and that the survival benefit and diagnosis at an earlier stage outweigh the potential risks.

Introduction

Breast cancer is the single leading cause of death for women ages 40–49 in the United States. A 40-year-old woman has a 2 percent chance of being diagnosed with invasive breast cancer or ductal carcinoma *in situ* in the next 10 years, and her chance of dying from breast cancer during this decade is 0.3 percent. In addition to morbidity and mortality from breast cancer itself, a toll is taken by the emotional impact of both the disease and its treatment and by the fear engendered from the threat of developing the disease.

To what extent can early detection through mammographic screening reduce the impact of breast cancer in women in their forties, and what risks may be associated with mammography in this age group? Although nonrandomized observational data on women screened with mammography have been reported, the benefits and risks of mammography screening for women in their forties can be validly assessed only by analyzing results obtained from clinical trials in which women are randomly assigned to be screened or not screened. A number of randomized clinical trials in 50- to 69-year-old women have shown clearly that early detection of breast cancer by mammography at regular intervals, with and without clinical breast examination (CBE), reduces breast cancer mortality by about one-third. However, the results have not been as clear for women ages 40–49. Internationally, experts have continued to examine data regarding the use of mammography in this age group. Results of several trials in different countries have been updated recently with longer periods of observation.

To address this issue and to examine newly available data from both observational studies and randomized trials, the National Cancer Institute, together with the Office of Medical Applications of Research of the National Institutes of Health, convened a Consensus Development Conference on Breast Cancer Screening for Women Ages 40–49. The conference was cosponsored by the National Institute on Aging, the Office of Research on Women's Health of the NIH, and the Centers for Disease Control and Prevention. Following a day and a half of presentations by experts in the relevant fields and discussion from the audience, an independent consensus panel

composed of specialists and generalists (including epidemiologists, statisticians, radiologists, oncologists), representatives from the public, and other experts, considered the evidence and formulated a consensus statement in response to the following five predefined questions:

- Is there a reduction in mortality from breast cancer due to screening women ages 40–49 with mammography, with or without physical examination? How large is the benefit? How does this change with age?
- What are the risks associated with screening women ages 40–49 with mammography, and with physical examination? How large are the risks? How do they change with age?
- Are there other benefits? If so, what are they? How do they change with age?
- What is known about how the benefits and risks of breast cancer screening differ based on known risk factors for breast cancer?
- What are the directions for future research?

Is There a Reduction in Mortality From Breast Cancer due to Screening Women Ages 40–49 With Mammography, With or Without Physical Examination? How Large Is the Benefit? How Does This Change With Age?

Information regarding the usefulness of screening procedures is provided by randomized controlled trials (RCTs) in which participants are randomly assigned to receive or not receive screening. Currently available data from eight RCTs in different countries that included women ages 40–49 have been used to examine the effect of screening mammography on breast cancer mortality. Such studies must include long-term follow-up in order to account for the variable course of breast cancer and to examine the ultimate benefit—a reduction in mortality from breast cancer. In fact, the benefit of reduced breast cancer mortality in the summary of these studies is about half that seen in women ages 50–69. About twice as much followup time is needed to see the benefits.

These trials were begun between 1963 and 1982. On the basis of a summary of data from these RCTs, there is no statistically significant difference in breast cancer mortality within 7 years after screening is initiated, between women randomized to receive or not receive screening. Summary data in five of eight RCTs show a trend toward reduced breast cancer mortality only after a followup of 10 or more years, with the decrease estimated at 16 percent (with confidence intervals from 2 percent to 28 percent). In the RCTs, many of the women began mammography while they were in their late forties, and continued to have mammography after age 50. Consequently, one cannot determine if the women who benefited from mammography in these studies showed this benefit because of breast cancer diagnosis following mammographic screening performed after age 50.

Based on meta-analyses of the RCTs, regular screening of 10,000 women ages 40–49 would result in extension of the lives of 0–10 women. About 2,500 women would have to be screened regularly in order to extend 1 life. For those women whose survival is extended, the length of life extension is not known.

The magnitude of the benefit seen in the RCTs may be underestimated for several reasons. None of these trials except one was specifically designed to study women in their forties. In all the trials, some women assigned to screening were not screened, and some assigned to the control group obtained screening outside the trial. Trials varied in the length of the screening interval used, ranging from 1 to 2 years, which may be too long to detect fast-growing cancers before they become clinically evident. Finally, current mammographic technology has improved in the past 15 years from that used in the RCTs initiated between 1963 and 1982. Many of the same factors operate in RCTs of women ages 50–69 years, so that the benefits could also have been underestimated in older women.

The incidence of breast cancer approximately doubles from ages 40–44 to 45–49. This increased incidence suggests that any benefit of mammography in women ages 40–49 may be greater for women in their late forties. Because a disproportionate number of women in the screening phase of these trials were in their late forties, it is difficult to assess the relative benefits of mammography for the younger women within the 40- to 49-year-old group compared with the older women.

In addition to RCTs, uncontrolled case series comparing women with mammographically detected breast cancer with women with clinically detected cancers show that mammography finds breast cancers at an earlier stage. Earlier stage cancers generally have better prognoses. However, it is not necessarily valid to conclude that screening mammography results in fewer breast cancer deaths, because screening selectively identifies women with slow-growing cancers whose prognosis is better, regardless of treatment. Detection at an earlier stage is relevant only if it can be shown in a randomized study that fewer deaths occur in a screened population than in a comparable unscreened control population.

What Are the Risks Associated With Screening Women Ages 40–49 With Mammography, and With Physical Examination? How Large Are the Risks? How Do They Change With Age?

Understanding the nature and magnitude of risks is important to both primary care providers and women making informed decisions about breast cancer screening. Critical issues include the following: risks associated with false-negative examinations, additional diagnostic testing induced by false-positive examinations, psychosocial consequences of abnormal examinations, potential risk of overtreatment of low-risk or *in situ* cancers, and potential risk from radiation exposure.

False-Negative Mammograms

Up to one-fourth of all invasive breast cancers are not detected by mammography in 40- to 49-year-olds, compared with one-tenth of cancers in 50- to 69-year-olds. Women with these cancers may be harmed if their diagnosis or treatment is delayed because of a normal, or false-negative, mammogram. Professional and public education as well as disclaimers on mammography reports have increased the awareness of this problem in women with clinical symptoms, but more attention should be given to the issue in screened women.

False-Positive Mammograms

Many mammographic abnormalities may not be cancer, but will prompt additional testing and anxiety. Approximately 10 percent of all screening mammograms are read as abnormal, each of which will prompt the performance of an average of two additional diagnostic tests such as diagnostic mammography, ultrasound, needle aspiration, core biopsy, or surgical biopsy. Given the lower incidence of breast cancer in 40- to 49-year-old women compared with that in older women, false-positive examinations are more common in younger women and the proportion of true-positive examinations increases with increasing age. As many as 3 out of 10 women who begin annual screening at age 40 will have an abnormal mammogram during the next decade. For women ages 40–49 undergoing

breast biopsy for mammographic findings, only half as many cancers are diagnosed compared with women ages 50–69. For every eight biopsies performed in the younger age group, one invasive and one *in situ* breast cancer are found.

Psychosocial Consequences

There is concern that women having abnormal mammograms—both true-positive and false-positive—experience psychosocial sequelae, including anxiety, fear, and inconvenience. Additional information is needed on whether experiencing a false-positive mammogram may affect subsequent willingness to undergo future screening mammography at ages when it is of greatest benefit.

Low-Risk Cancer and Ductal Carcinoma *In Situ*

Not all women diagnosed with breast cancer by mammographic screening are helped by early detection. Some have slowly growing cancers that may be successfully treated when discovered later. Some cancers that might be detected in women in their forties are so slow growing that they could be detected by mammograms after age 50 and treated at that time. Earlier detection may cause additional months or years of cancer-related anxiety, affecting personal and workplace relationships, as well as insurance coverage.

Ductal carcinoma *in situ* (DCIS) is frequently diagnosed in mammographically screened women ages 40–49. DCIS is a heterogeneous entity for which the natural history, clinical significance, prognostic factors, and treatment are uncertain. Because some cases of DCIS may not progress to invasive cancer, a risk of overtreatment exists.

Radiation Exposure

The risk of radiation-induced breast cancer has long been a concern to mammographers and has driven the efforts to reduce the radiation dose per examination. Radiation has been shown to cause breast cancer in women, and the risk is proportional to dose. The younger the woman at the time of exposure, the greater her lifetime risk for breast cancer.

Radiation-related breast cancers occur at least 10 years after exposure. However, breast cancer as a result of the radiation dose associated with mammography has not been demonstrated. Radiation from yearly mammograms during ages 40–49 has been estimated as possibly causing 1 additional breast cancer death per 10,000 women. However, this estimate is based on statistical models from epidemiological studies of high-dose exposures, and the actual risk at the lower doses associated with mammography could range from much higher than one, to nonexistent. Women with inherited or acquired defects in DNA repair mechanisms may have a different susceptibility to the effects of radiation.

Are There Other Benefits? If So, What Are They? How Do They Change With Age?

Additional benefits from screening women ages 40–49 may include earlier detection and increased compliance. Data from several studies suggest that the average size of newly diagnosed breast cancer is decreasing and the proportion of stages 0 and I cancers (i.e., DCIS and small invasive breast cancer) is increasing due to mammographic screening in women ages 40–49. The increased detection of DCIS may prove beneficial if it leads to a subsequent decrease in the incidence of invasive cancer. This increased detection and treatment of early-stage cancer or premalignant changes could be consistent with a reduction in breast cancer mortality appearing only after 10 years following the initiation of screening.

The diagnosis of breast cancer at a smaller size or earlier stage will allow a woman more choice in selecting among various treatment options. For example, more women with cancer detected by mammography have the option of lumpectomy, rather than mastectomy, compared with women whose cancers are detected by palpation. Studies also show that the rate of axillary dissection or chemotherapy may be reduced among women who have smaller or earlier stage cancer. This choice in type of treatment allows a woman a measure of control over treatment decisions. The value of this benefit must be individually assessed.

Bringing women into screening programs at a younger age could provide an earlier opportunity for patient education and increase their access to, and utilization of, health care. However, there is no information on whether initiating mammographic screening at age 40 would increase or decrease screening compliance in later years.

Women with true-negative mammogram screening tests may benefit from reassurance that they do not have breast cancer. However, the reassurance value of a true-negative screen has not been studied and is complicated by the fact that it is not possible to distinguish true negatives from false negatives without additional testing.

What Is Known About How the Benefits and Risks of Breast Cancer Screening Differ Based on Known Risk Factors for Breast Cancer?

Although much is known about risk factors for breast cancer incidence and mortality, little is known about the effects of screening in high-risk subgroups. Known risk factors include family history of breast cancer, having no children, and having a first birth after age 30. None of the RCTs of breast cancer screening for women in their forties has examined the effect of screening on the mortality of women in any of the high-risk subgroups. Most of these trials included only white women. Although the incidence of breast cancer is the same for African-American women and white women in their forties, African-American women have a 50 percent higher breast cancer mortality rate than white women in this age group. An outreach screening program enrolling a large number of women from minority groups has reported some ethnic or racial differences in cancer detection rates from false-positive mammograms. In particular, Hispanic and Native-American women have higher false-positive rates than white women in their forties. A practice-based screening program including women ages 40–49 found a higher cancer detection rate and a lower false-positive rate for women with a family history of breast cancer.

What Are the Directions for Future Research?

There are insufficient data to address several aspects of screening mammography. Although the focus of this conference has been specifically on women ages 40–49, future research should examine the effects of mammography for all ages at risk. Age is a continuum; although one can use an artificial cutoff of 50 as an approximation of the age of menopause and its associated biologic changes, age should be studied as a continuum. The ongoing UK-AGE and Eurotrials may add valuable information on benefits and risks of screening specifically in this age group.

Most of the following research questions should be answered for women of all ages:

- What is the optimum screening interval for women of various ages?
- How much of the mortality benefit found in the RCTs among women ages 40–49 can be explained by factors other than mammographic screening, for example, by screening at later age or improved treatment?
- How does the mortality reduction for women depend on the age at which screening mammography begins?
- Will women receive more or less radiation therapy or chemotherapy because of early detection of breast cancer? What are the consequences of these treatments?
- What are the psychosocial benefits and risks of mammography?
- Would initiating mammographic screening at age 40 increase screening compliance in later years? Would it provide an opportunity for education regarding prevention services and use of health care?
- Does the benefit or risk of mammography differ by race or ethnicity? If the benefit is less, are there adjunctive measures that could improve the benefit and risk ratio? Given the high mortality from breast cancer in African-American women, specific research attention should be given to the potential benefits and risks for African-American women in their forties. More information is also needed on the effectiveness of mammography in other racial or ethnic groups including Native Americans, Hispanics, and Asians.
- Is there a relationship between known risk factors for breast cancer incidence and the effectiveness of mammography?
- Does the effectiveness of mammography differ between premenopausal and postmenopausal women?
- How does estrogen replacement therapy affect the sensitivity and specificity of mammography?

- Is the risk of radiation-induced breast cancer from mammography increased in women with a genetic susceptibility to breast cancer?
- Are there new modalities or approaches to screening that would result in lower false-positive rates, and increased sensitivity, and thus lead to fewer diagnostic procedures?
- Would increased education and an informed consent process reduce mammogram-related anxiety? Would it improve undesirable consequences of false-negative or false-positive examinations?
- Is there a difference in the biologic behavior of cancers that cannot be detected mammographically? Does this affect clinical prognosis? Does this affect response to treatment?
- Is there any evidence that radiation-induced breast cancers have different characteristics including biologic behavior?
- Does low-dose radiation affect the biologic behavior of existing cancers?
- Can a registry be established to combine raw data from all RCTs to facilitate quantifying the benefit of mammography and relating it to age and other relevant characteristics? Can such a registry be established in a way that it could rapidly incorporate newly available data and facilitate ongoing analyses?
- Can practical and clear patient education materials be developed which can be used to facilitate a woman's decisionmaking process regarding mammography?

Conclusions

Mammography has been shown to be effective in reducing breast cancer mortality in women ages 50–69. Currently available evidence from RCTs indicates that for women ages 40–49, during the first 7–10 years following initiation of screening, breast cancer mortality is no lower in women who were assigned to screening than in controls. Summary data indicate a reduction of 16 percent in breast cancer mortality after about 10 years, with confidence intervals of 2–28 percent. However, although some studies find lower mortality from breast cancer in screened women after 10 years, others do not. A lower mortality could be a result of the original screening but could also be due to other factors such as CBE or mammography offered to the women after age 50.

Further complicating this issue is that the charge to the panel focused on a broad age range, 40–49 years. The rationale for the charge was that evidence for recommending mammography is strong for women ages 50 and above, but not as clear for 40- to 49-year-old women. It should be pointed out that of all the studies reviewed, only one was specifically designed originally to evaluate mammography in the 40- to 49-year-old age group. However, age is a continuum, and biologically there is no abrupt change at age 50. Indeed, a 49-year-old woman is probably more similar to a 50-year-old woman than she is to a 40-year-old. Unfortunately, the data needed upon which to base recommendations for narrower age ranges are not available. The panel concludes that presently available evidence does not warrant a universal recommendation for mammography screening of women ages 40–49. This conclusion does not preclude the possibility that older women in this age group might have a different balance of benefit and risk than do younger women. Data to support this possibility are not presently available. The effects of different ages at menopause also remain to be explored.

The potential benefits of mammography for women in their forties include earlier diagnosis and the option to choose breast-conserving therapy. These benefits must be weighed against the risks or potential risks, including those associated with false-positive tests: further diagnostic tests that may be

invasive, anxiety and inconvenience, and potential risk from mammographic radiation. In addition, the impact of false reassurance given to women with false-negative screens must be considered, given the lower sensitivity of mammography in women in their forties compared with women in their fifties. Professional and public education as well as disclaimers on mammography reports have increased awareness of false negatives in women with clinical symptoms such as a palpable lump. Similarly, those recommending mammographic screening of asymptomatic women in this age group must also remind women and their physicians to perform regular CBEs and to evaluate new symptoms promptly.

Every decision to utilize or not utilize a health-related service involves weighing available scientific evidence regarding benefits and risks against personal values and prior experiences. Such decisionmaking occurs at multiple levels, and the decisionmaking process will differ at each level. One level is characterized by the question, "Would you have this done for yourself or for someone in your immediate family?" When the available scientific evidence is equivocal and incomplete, a person's decision to act or not act will be significantly influenced by personal or family experience with the disease and by one's capacity to deal with risk and uncertainty. Another level of decisionmaking is when a physician makes recommendations to his or her patients. Such a decision is generally based more on the strength of the scientific evidence, but the physician's recommendations may also be colored by prior experience, both personally and with other patients, as well as by his or her assessment of the patient for whom the recommendation will be made. Finally, there is the level of deciding to make across-the-board recommendations to a population, a decision that has far-reaching implications and that must be based to a much greater extent on a rigorous examination of the available scientific evidence. Of all decision levels, this level requires the strongest evidence of high benefit and low risk, particularly in the case of screening mammography, where such recommendations would be made to a healthy population. Thus, in some cases, a physician might recommend mammography for a patient in her forties and might do so despite a belief that the evidence is not sufficiently strong to warrant across-the-board recommendations.

The panel concludes that the data currently available do not warrant a universal recommendation for mammography for all women in their forties. Each woman should decide for herself whether to undergo mammography. Her decision may be based not only on an objective analysis of the scientific evidence and consideration of her individual medical history, but also on how she perceives and weighs each potential risk and benefit, the values she places on each, and how she deals with uncertainty. However, it is not sufficient just to advise a woman to make her own decision about mammograms. Given both the importance and the complexity of the issues involved in assessing the evidence, a woman should have access to the best possible relevant information regarding both benefits and risks, presented in an understandable and usable form. Information should be developed for women in their forties regarding potential benefits and risks to be provided to enable each woman to make the most appropriate decision. In addition, educational material to accompany this information should be prepared that will lead women step by step through the process of using such information in the best possible way for reaching a decision. For women in their forties who choose to have mammography performed, the costs of the mammograms should be reimbursed by third-party payors or covered by health maintenance organizations so that financial impediments will not influence a woman's decision.

Many women will seek guidance from their physicians who may be primary care physicians or physicians in different specialties. A woman's health care provider must be equipped with sufficient information to facilitate her decisionmaking process. Therefore, educational material for physicians should be developed to assist them in providing the guidance and support needed by the women in their care who are making difficult decisions regarding mammography.

A system should be established for ongoing monitoring and review of newly available information from research studies regarding benefits and risks of mammography for women in their forties. This will ensure timely formulation and implementation of any new policy recommendations that may become appropriate in the future.

Minority Report

We, the undersigned members of the panel, have different interpretations of and derive different conclusions from the available data. We state those differences below.

1. Is there a reduction in mortality from breast cancer due to screening women ages 40–49 with mammography, with or without physical examination? How large is the benefit? How does this change with age?

Results from the eight randomized controlled trials indicate a statistically significant 17 percent mortality reduction (p=0.05) for women ages 40–49 at time of entry into the trials. Although this survival benefit is less, on a population basis, than the benefit for women in older decades, it is nevertheless substantial. Furthermore, the potential biases in the RCTs would act to underestimate this benefit.

2. What are the risks associated with screening women ages 40–49 with mammography, with or without physical examination? How large are the risks? How do they change with age?

Although there is a theoretical risk from radiation exposure, if it exists at all, it is very low. There is no measurable harm from the diagnostic radiation doses used for screening mammography.

The majority statement discusses potential harm from false-negative mammograms, and the potential for adverse psychosocial consequences from abnormal mammograms, but there are no data to support or quantify these possibilities.

The majority statement suggests that detection of DCIS is a potential harm. However, it is important to remember that all breast epithelium is within the ductal system. Therefore, biologically all invasive ductal and lobular cancers must begin as *in situ* lesions. We do not know which DCIS will become invasive cancer and which will not. All DCIS is classified as cancer and must be taken seriously. Hence, detecting *in situ* cancer is a goal of and therefore a benefit of screening mammography rather than a harm.

An important risk for consideration is false-positive mammograms. These occur at all ages, lead to additional studies, and may cause anxiety and inconvenience. They constitute a measurable risk about which all women should be informed. Reported false-positive rates in mammography vary widely. Many of the studies reporting such data do not include sufficient detail to determine whether these rates vary significantly with decade of age. However, from the available data, it is reasonable to conclude that the false-positive rates for women in the 40–49 age range are higher than for older women, but only slightly higher than for women ages 50–59. False-positive mammograms that lead to additional views or breast ultrasound are generally considered to be of little consequence. The more important group of false positives are those that lead to biopsies for benign disease. The estimate of 25 percent (two cancers per eight biopsies) given in the majority statement is reasonable to expect for women in the 40–49 age group.

3. Are there other benefits? If so, what are they? How do they change with age?

The majority statement states, "Additional benefits *may* include earlier detection" (italics added). There are unequivocal data indicating that screening mammography in women ages 40–49 does result in earlier detection. This earlier detection is an important benefit apart from any survival benefit. Detection at an earlier stage allows women more choice in treatment options.

The majority statement states, "increased detection of DCIS *may* prove beneficial if it leads to a subsequent decrease in the incidence of invasive cancer" (italics added). We believe the data do indicate that increased detection of DCIS leads to a subsequent decrease in the incidence of invasive cancer, and this is a highly desirable goal.

There are not sufficient reported data to quantitate the difference in these benefits by age within the 40–49 age group. However, the incidence of DCIS is similar across age groups.

Conclusions

We believe that the majority statement understates the benefits of mammography for women ages 40–49, and overstates the potential risks. We believe the data show a statistically significant mortality reduction for women in their forties. We further believe the survival benefit and diagnosis at an earlier stage outweigh the potential risks.

There are no data to suggest that women are significantly harmed by having extra mammographic views or breast ultrasound. Furthermore, the false-positive biopsy rate for mammography is not different from the false-positive biopsy rate for clinical breast examination. Moreover, the false-positive biopsy rate for women ages 40–49 is only slightly higher than for women ages 50–59, an age range for which mammographic screening is widely recommended.

Given our current understanding of breast cancer, it is potentially dangerous to suggest that DCIS may not be clinically important in women ages 40–49 and could safely be left undetected until women are in their fifties. Questioning the benefits of mammography for women ages 40–49 may cause significant harm from delayed diagnosis.

A majority of the panel did not accept that a statistically significant mortality reduction exists for women in their forties, and so were unable to make a universal recommendation for screening in this age group. We believe there is a statistically significant mortality reduction. Based on this, we make the same recommendation for screening all healthy women in their forties. If we believe a certain recommendation is right for a 45-year-old family member, we would (and do) make the same recommendation to 45-year-old patients who come for advice, and for 45-year-old women in general. We would alter that recommendation only if there were characteristics of the individual that were relevant. We agree that women should know what data and value judgments we use to form our recommendations, and we support their right to disagree with or reject our advice.

In summary, after evaluating and considering the evidence, we believe that we should actively encourage routine screening mammography for women in their forties. We also believe that providing accurate information to women and their health care providers is essential to assist women in deciding whether to accept or reject that advice.

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