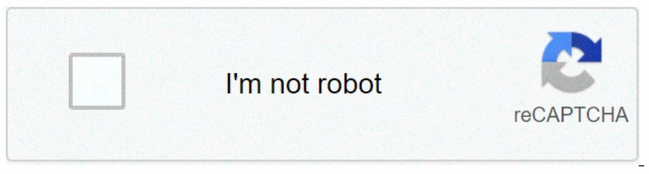

Continue

Mammogram guidelines 2018 acog

Forfatter Erin V Newton, MD adjunkt i klinisk medicin, Division of Hematology / Oncology, IU Simon Cancer Center, Indiana University School of Medicine; Personale Læge i Palliativ Pleje, VA Medical Center Erin V Newton, MD er medlem af følgende medicinske samfund: American Society of Clinical Oncology, Multinational Association of Supportive Care i CancerDisclosure: Intet at afsløre. Medforfatter (e) Sara J Grethlein, MD Associate Dean for Undergraduate Medical Education, Indiana University School of Medicine Sara J Grethlein, MD er medlem af følgende medicinske selskaber: Alpha Omega Alpha, American College of Physicians, American Society of Hematology, American Society of Clinical OncologyDisclosure: Intet at afsløre. Specialeditor bestyrelsen Francisco Talavera, ph.d., ph.d.-adjungeret adjunkt, University of Nebraska Medical Center College of Pharmacy; Chefredaktør, Medscape Drug ReferenceDisclosure: Modtaget løn fra Medscape for beskæftigelse. for: Medscape. Chefredaktør Marie Catherine Lee, MD, lektor ved Institut for Onkologi, Institut for Kirurgi (fælles aftale), University of South Florida Morsani College of Medicine; Associate medlem, Omfattende Breast Program, Moffitt McKinley Ambulante Center Marie Catherine Lee, MD, FACS er medlem af følgende medicinske samfund: American College of Surgeons, American Society of Clinical Oncology, Association for Academic Surgery, Association of Women Surgeons, Florida Society of Clinical Oncology, Society of Surgical Oncology, Society of University SurgeonsDisclosure: Modtaget forskningstilskud fra: National Cancer Institute / National Institutes of Health; Forsvarsministeriet. Yderligere bidragydere Robert C Shepard, MD, FACP lektor i medicin i hæmatologi og onkologi ved University of North Carolina i Chapel Hill; Vice President of Scientific Affairs, Therapeutic Expertise, Oncology, hos PRA International Robert C Shepard, MD, FACP er medlem af følgende medicinske selskaber: American Association for Cancer Research, American Association for Physician Leadership, European Society for Medical Oncology, Association of Clinical Research Professionals, American Federation for Clinical Research, Eastern Cooperative Oncology Group, Society for Immunotherapy of Cancer, American Medical Informatics Association, American College of Physicians, American Federation for Medical Research, American Medical Association, American Society of Hematology, Massachusetts Medical SocietyclosDisure: Nothing to disclose. Anerkendelser Leona Downey, MD adjunkt i intern medicin, sektion for onkologi og hematologi, University of Arizona, Arizona Cancer Center Leona Downey, MD er medlem af følgende medicinske samfund: American Geriatrics Society, American Society of Clinical Oncology, og Southwest Oncology Group Disclosure: Intet at afsløre. Julie Lang, MD lektor i kirurgi, Norris Omfattende Center, Keck School of Medicine at the University of Southern California Julie Lang, MD is a member of the following medical community: American College of Surgeons, American Society of Breast Surgeons, American Society of Clinical Oncology, Association for Academic Surgery, and Society of Surgical Oncology Disclosure: Genomic Health, Grant/Research Funds, Speech and Teaching; Agendia, Grant/research funding, speech and teaching; Surgical Tools, Grants/Research Funds, Research; Sysmex, Grant/Research Funds, Research Robert B Livingston, MD Professor of Clinical Medicine and Director, Clinical Research Shared Services, Arizona Cancer Center Robert B Livingston, MD is a member of the following medical community: American Association for Cancer Research, American Federation for Clinical Research, and American Society of Clinical Oncology Disclosure: Nothing to Disclose. Alison T Stopeck, MD Professor of Medicine, Arizona Cancer Center, University of Arizona Health Sciences Center; Director of Clinical Breast Cancer Program, Arizona Cancer Center; Medical Director of the Coagulation Laboratory, University Medical Center; Director of the Arizona Hemophilia and Thrombosis Center Alison T Stopeck, MD is a member of the following medical community: American Association for Cancer Research, American College of Physicians, American Society of Clinical Oncology, American Society of Hematology, Hemophilia and Thrombosis Research Society, and Southwest Oncology Group Disclosure: Genentech Honoraria Speech and Education; AstraZeneca Honoria Speech and Teaching; AstraZeneca Grant/research foundation Andre Rachel Swart, MD, PhD Assistant Professor of Medicine, Department of Hematology and Oncology, Arizona Cancer Center, University of Arizona Rachel Swart, MD, PhD is a member of the following medical community: American Association for Cancer Research, American Society of Clinical Oncology, Arizona Medical Association, and Southwest Oncology Group Disclosure: Roche Grant/research funds Andre Patricia A Thompson, PhD assistant professor, Department of Pathology, University of Arizona College of Medicine Disclosure: Nothing to disclose. ABSTRACT: Breast cancer is the most commonly diagnosed cancer in women in the United States and the second leading cause of cancer death in U.S. women 1. Regular screening mammograms starting at age 40 years reduce breast cancer mortality in average-risk women 2. Screening, however, also exposes women to harm through false-positive test results and overdiagnosis of biological indolent lesions. Differences in balancing benefits and injuries have led to differences between the main guidelines on which age to start, which age to stop, and how often to recommend mammogram screening in average-risk women 2 4. Risk assessment of breast cancer is very important for identifying women who may benefit from more intensive breast cancer monitoring; however, there is no standardised approach to office-based breast cancer risk assessment in States. This can lead to missed opportunities to identify women at high risk of breast cancer and may result in the use of recommendations for screening average risk to high-risk women. Risk assessment and identification of women at high risk allows referral to healthcare professionals with expertise in cancer genetics counseling and testing for breast cancer-related germ cell mutations (e.g. BRCA), patient advice on risk-reduction options, and cascade testing to identify family members who may also be at increased risk. The purpose of this Practice Bulletin is to discuss breast cancer risk assessment, review breast cancer screening guidelines in women with an average risk and outline some of the controversies surrounding breast cancer screening. It will make recommendations for the use of a codecision framework to help women balance their personal values in terms of the benefits and harms of screening at different ages and intervals to make personalised screening choices within a range of reasonable options. Recommendations for women at increased risk and discussion of new technologies, such as tomosynthesis, are outside the scope of this document and are addressed in other publications of the American College of Obstetricians and Gynecologists (ACOG) 5 6 7. Breast cancer accounts for 30% of all new cases of cancer diagnosed in women 8. In the United States, a woman's lifetime risk of developing breast cancer is approximately 12% (one in eight). It is estimated that 252,710 new cases of breast cancer, resulting in 40,610 deaths, will be diagnosed in women in the United States in 2017 8. A further 63,410 new cases of ductal carcinoma in situ will also be diagnosed 8.Breast cancer mortality has decreased significantly over the last 50 years. For example, the current 5-year survival rate is 90% -significantly higher than the 5-year survival rate of 75% in 1975-1. This decrease has been attributed to early detection and improvements in breast cancer treatment 3. There are currently an estimated 3.5 million women living with breast cancer in the United States 9.De main factors for breast cancer are female sex (more than 99% of cases of breast cancer occur in women) and advancing age. Although other characteristics have been associated with an increased risk of breast cancer Box 1 6 10 11 12 13, most women in whom invasive breast cancer is diagnosed do not have identifiable risk factors. Family history of breast cancer, ovarian cancer, or other hereditary breast and ovarian syndrome-associated cancer (e.g. prostate cancer, pancreatic cancer)Known harmful gene mutationPrioritary breast biopsy with specific pathologyAtypical hyperplasia (lobular or ductal)Lobular carcinoma in situEarly menarcheLate menopauseNulliparityExciting interval between menarche and first pregnancyMenopausal hormone therapy with estrogen and progestin (reduced risk with estrogen alone) Not breastfeedingIcreasing ethnicity (e.g., increased risk of BRCA BRCA in Ashkenazi Jewish Women)Higher body mass indexAlcohol consumptionSemen breasts on mammogramprior exposure to high-dose therapeutic breast irradiation in young women (10-30 years) Certain reproductive factors affect the risk of breast cancer, especially the risk of hormone receptor-positive breast cancer Box 1 6 10 11 12 13. A systematic review shows that nulliparity and longer intervals between menarche and age at first birth are associated with an increased risk of hormone receptor-positive breast cancer 14. Other less consistently reported reproductive risk factors for breast cancer include older age at first birth, older age at menopause, and younger age at menarche. In contrast, some reproductive factors seem to reduce the risk of breast cancer. Parity seems to reduce the risk of hormone receptor-positive breast cancer, and breastfeeding is associated with a reduced risk of hormone receptor-positive breast cancer and triple-negative breast cancer (ie, estrogen-receptor negative, progesterone negative, and ERBB2-negative [formerly HER2/Neu-negative]). Breast cancer risk seems to vary between postmenopausal women who use combined hormone therapy and those who use estrogen therapy alone. In the Women's Health Initiative randomized controlled trial, postmenopausal women taking estrogen and progestogen had higher risk of breast cancer during intervention and early postintervention parts of the study. In postmenopausal women who previously had a hysterectomy and were randomized to receive estrogen alone or placebo, breast cancer risk did not appear increased 12.Family history of breast cancer, ovarian cancer (including fallopian tube cancer and primary peritoneum cancer), and other types of germline mutation-associated cancer (eg prostate and pancreas) are associated with an increased risk of breast cancer. For family members with cancer, breast cancer onset at a young age is associated with an increased risk of the presence of a germ line mutation. For more information, see Practice Bulletin No. 103, Hereditary Breast and Ovarian Cancer Syndrome, 5 and ACOG's online Breast Cancer Screening and Treatment Resource Overview.Atypical ductal hyperplasia, atypical lobular hyperplasia, and lobular carcinoma in situ are typically found otherwise on histological evaluation of abnormal mammogram findings or breast divisions 15. Women with these diagnoses have a four-fold risk of subsequent invasive cancer in the affected and contralateral breasts 16, with some studies reporting a cumulative incidence of breast cancer approaching 30% at 25 years of follow-up 17. For more information, see Practice Bulletin No. 164, Diagnosis and Management of Benign Breast Diseases 18, and ACOG's online Breast Cancer Screening and Treatment Resource Overview.Women treated for Hodgkin lymphoma with therapeutic breast radiotherapy between the ages of 10 years and 30 years (and possibly as late as age 45) have an increased risk of cancer 20 21 22. Girls treated between the ages of 10 years and 14 years appear to be at greatest risk of future development of breast cancer. The goal of cancer screening is to detect preclinical diseases in healthy, asymptomatic patients to prevent negative outcomes, improve survival and avoid the need for more intensive treatments. Screening tests have both benefits (e.g. improved health outcomes) and negative consequences (e.g., costs, anxiety, difficulty, false-positive results, and other test-specific injuries such as overdiagnosis and overtreatment). Breast self-examination, breast self-awareness, clinical breast examination, and mammograms have all been used alone or in combination to screen for breast cancer. In general, more intensive screening detects more disease. The screening intensity can be increased by combining multiple screening methods, expanding screening over a wider age group, or repeating the screening test more often. But more frequent use of the same screening test is typically associated with declining returns (i.e. repeating the test twice as often doesn't make it twice as effective) and an increased rate of screening-related injuries. Determining the appropriate combination of screening methods, age to start screening, age to stop screening, and how often repeating screening tests requires finding the right balance between benefits and injuries. Determining this balance can be difficult because some issues, especially the importance of injuries, are subjective and valued differently than patient to patient. This balance may depend on other factors, in particular the characteristics of screening tests in different populations and at different ages. Different assessments of the appropriate balance of benefits and injuries have led to differences between the main recommendations from the main guidelines group recommendations for breast cancer screening Table 1 3 4 23. The American College of Obstetricians and Gynecologists has reviewed these guidelines, their documentation and rationale, and the recommendations for codecision embedded in them. The American College of Obstetricians and Gynecologists recommendations for breast cancer screening presented in this document reflect that screening decisions should incorporate patient values regarding relative benefits and harms. The American College of Obstetricians and Gynecologists' recommendations emphasize codecision in choosing between the various options covered by the U.S. Preventive Services Task Force, the American Cancer Society (ACS), and national comprehensive cancer network guidelines. The next few sections of this Practice Bulletin present data on the overall benefits and harms of mammogram screening. Data for other screening modalities and the differences between the benefits and harms of mammograms at different ages and screening intervals are presented later in clinical considerations and recommendations in this document. To update its recommendations, the U.S. Preventive Services Task Force and ACS recently conducted separate systematic assessments of evidence of breast cancer screening in average-risk women 2 24. It is methodically challenging to study the impact of mammograms on mortality due to the large number of women needed and long follow-up periods. Randomised and observational studies provide important information but have different limitations. Both systematic studies combined randomized and observational studies and agreed that mammograms generally reduce breast cancer mortality. Acs' systematic review noted that the magnitude of mortality reduction varied across study types and duration of follow-up 2. ACS systematic review reported that screening mammograms were associated with a decreased risk of breast cancer mortality in randomized controlled trials (relative risk [RR], 0.80-0.82); cohort studies (RR, 0.75; 95% CI, 0.69-0.81) and in modelling studies (median RR, 0.85; from 0.77 to 0.93) 2. U.S. Preventive Services Task Force evidence review 24 reported results by age Table 2 3. This systematic review also found a reduced risk of advanced breast cancer (stage IIB or above) with screening mammograms in women 50 years and older (RR, 0.62; 95% CI, 0.46-0.83) 24. Although ACS and the U.S. Preventive Services Task Force's systematic assessments do not provide evidence that screening mammograms prevent the need for advanced cancer treatment, it is reasonable to assume that if screening reduces the risk of advanced breast cancer, it may reduce the need for advanced cancer treatment. ACS's systematic review also examined the impact of screening mammograms on life expectancy. Although the study concluded that there was high-quality evidence that mammographic screening increases life expectancy by reducing breast cancer mortality, the authors were unable to estimate the magnitude of the increase 23.False-positive test results from mammograms include callbacks for additional images and follow-up biopsies that turn out to be benign. The U.S. Preventive Services Task Force conducted a systematic review specifically to look at the injuries associated with breast cancer screening in the average risk women 25. The review reported results from the Breast Cancer Surveillance Consortium, which noted a 10-year, cumulative false-positive rate of 61% with annual screening and a rate of 42% with two-year screening, with a need for biopsy in 7% of women screened annually and 5% of women screened every two years 26. ACS's systematic review 2 included a different analysis of the same data 27. In this analysis, certain patient factors such as combination hormone therapy use and dense breasts were associated with an increased likelihood of false-positive test results among women aged 40-49 years. The also showed that callbacks were more likely with a woman's first mammogram (detection of predominant findings) and were minimised by the availability of previous images 2.The U.S. Preventive Services Task Force systematic review of the harms of breast cancer screening found that women who received clear communication of negative test results reported minimal anxiety while being called back for further tests reporting increased anxiety, breast cancer-specific concern, and distress 25. In some women, anxiety and anxiety persisted despite negative test results on follow-up tests. Two studies reported that women with false-positive test results were less likely to return for their next screening mammograms. False-positive test results also have financial costs, which often have to be paid in whole or in part by the patient. The U.S. Preventive Services Task Force systematic review noted that many women reported pain during mammograms; but few found it a deterrent effect on future screening 25. Although not included in the Task Force's systematic review, diagnostic procedures for false-positive mammogram results can cause additional pain and discomfort. Overdiagnosis occurs when screening detects cancer that would not have developed into symptomatic cancer if left undetected 23. Thus, overdiagnosis is the identification of cancer that remains indolent. Overtreatment is defined as the initiation of treatment for an overdiagnosed cancer. It is difficult to determine the true overdiagnosis because it is not ethically permissible to carry out natural history studies on untreated disease, so a number of indirect methods have been used to estimate the frequency 28 29 30. There is considerable uncertainty about how often breast cancer overdiagnosis occurs. The reported rates of overdiagnosis and overtreatment are partly related to the management of ductal carcinoma in situ. This lesion has a significantly lower risk than breast cancer, although many studies group it with breast cancer and its diagnosis typically leads to treatment. The ACS evidence summary reported large differences in breast cancer overdiagnoses (raw estimates from 0% to 54% and adjusted estimates from 1% to 10%) depending on the modelling assumptions and whether ductal carcinoma in situ was included 2. The U.S. Preventive Services Task Force evidence review reported similar results based on observational trial data, but reached higher estimates (from 10.7% to 22.7%) based on data from randomised controlled trials 25. Using modeling estimates from the Cancer Intervention and Monitoring Modeling Network, the U.S. Preventive Services Task Force reported that 1 in 8 women diagnosed with breast cancer with two-year screening from ages 50 to 75 years will be overdiagnosed. Even with the conservative estimate of 1 in 8 breast cancer cases being overdiagnosed, for every woman who avoids a death from breast cancer through screening, 2 to 3 women will be treated needlessly 3. Modelling data also indicates that the risk of overdiagnosis appears to be lower with older age and with frequent screening 31. Although ACS acknowledged that there is a high likelihood that breast cancer overdiagnosis occurs at a certain level, its authors concluded that regardless of the study's design, almost all estimates [of overdiagnosis] require uncontrollable assumptions or use methods that are biased by inadequate follow-up or failure to properly adjust for trends in incidence and delivery time, leading to inflated estimates 23. Research aimed at developing better prognostic indicators of progressive versus non-progressive ductal carcinoma in situ and other lesions may allow more adapted treatment in the future, thereby reducing overtreatment 3.The U.S. Preventive Services Task Force systematic review found no direct studies of radiation exposure from mammograms, but included a modelling study that estimated that the number of deaths caused by mammogram radiation-induced cancer was 2 per 100,000 among women aged 50-59 years screened every two years , and 11 per 100,000 among women aged 40-49 years screened annually 25. A recent modeling study estimated that the potential mortality benefit of early breast cancer detection through annual screening starting at age 40 far outweighed (at 60-fold) the risk of dying from mammogram radiation-induced cancer 32. In this model, radiation from the annual screening of 100,000 women aged 40-74 years was estimated to induce 125 cases of breast cancer and 16 cases of breast cancer deaths, compared with 968 cases of cancer death prevented by early detection through screening. Codecision is a process in which patients and physicians share information, express treatment preferences and agree on a treatment plan (see Committee Opinion No 587, Effective Patient Physician Notice 33. It combines the expertise of the physician who provides information on the clinical information, including benefits (e.g. reduced risk of dying from breast cancer) and injuries (e.g. callbacks, benign breast biopsies, overdiagnosis), and the values of the patient who shares her experiences, concerns and priorities. The clinical information can be provided in ways that are effective for patients and physicians (e.g. online videos or reliable web pages, informational handouts, or face-to-face conversations). Codecision is particularly important for decisions on breast cancer screening because many choices involve personal preferences related to potential benefits and negative consequences. For more information, see ACOG's online Breast Cancer Screening and Treatment Resource Overview.How should individual breast cancer risk be assessed? Healthcare professionals should regularly assess the risk of breast cancer by reviewing the patient's history. The risk of breast cancer is based on a combination of the various factors that may affect the risk Box 1 6 10 11 12 13. The initial assessment should provide information on reproductive results of previous biopsies, iionising radiation exposure and and cancer. Health care professionals should identify cases of breast, ovarian, colon, prostate, pancreatic, and other types of germline mutation-associated cancer in the first degree, second degree, and possibly third degree relatives as well as age of diagnosis. Women with a potentially increased risk of breast cancer based on the original story should have additional risk assessment. Assessments can be performed with one of the validated assessment tools available online, such as Gail, BRCAPRO, Breast and Ovarian Analysis of Disease Incidence and Carrier Estimation Algorithm, International Breast Cancer Intervention Studies (IBIS, also known as Tyrer-Cuzick), or Claus model 34.Risk assessment is important to determine whether a woman is on average or increased risk of breast cancer to guidance advice on breast cancer monitoring, risk reduction, and genetic testing. Risk assessment should not be used to consider a woman who is not eligible for screening suitable for her age. Rather, risk assessment should be used to identify women who may benefit from genetic counseling, improved screening such as magnetic resonance imaging screening, more frequent clinical breast studies, or risk-reduction strategies. Information on screening and risk reduction for women at high risk is discussed elsewhere 4 5 35 36.A number of validated tools for risk assessment of breast cancer are readily available online and can be implemented quickly in office. Some tools are better for certain risk factors and populations than others. The Gail model www.cancer.gov/bcrisktool has been validated and is widely used. It is of limited use in some women, including those younger than 35 years of age, those with a family history of breast cancer in paternal family members or otherwise or more distantly related family members, those with family histories of nonbreast cancer (eg, ovaries and prostate) known to be associated with genetic mutations, and high-risk lesions on biopsy other than atypical hyperplasia (e.g. lobular carcinoma insitu). Women who cannot be properly assessed with the Gail model can be assessed with other validated tools incorporating these other elements into the risk assessment, including BRCAPRO, Breast and Ovarian Analysis of Disease Incidence and Carrier Estimation Algorithm, IBIS or Claus model 34. One study showed that the IBIS model was more accurate for assessing the risk of breast cancer based on family history than Claus or Gail model 37. If a patient's risk level is unclear after the first assessment, it is appropriate to refer to a more in-depth risk assessment of hereditary cancer. An inherited cancer risk assessment is performed by a genetic counselor or other health care provider with expertise in cancer genetics and includes the collection of family history information, risk assessment, training, and counseling 38. This assessment may include genetic testing, if desired, following appropriate advice and consent has been obtained. Er Er breast self-examination is recommended in women at average risk of breast cancer, and what should women do if they notice a change in one of their breasts? Breast self-examination is not recommended in average-risk women because there is a risk of injury from false-positive test results and a lack of evidence of benefit. Average risk women should be advised about breast self-awareness and encouraged to notify their health care provider if they experience a change. Breast self-awareness is defined as a woman's awareness of the normal appearance and sensation of her breasts. Breast self-examination is the inspection of a woman's breasts on a regular, repetitive basis in order to detect breast cancer. Unlike breast self-examination, breast self-awareness does not include a recommendation for women to examine their breasts in a systematic manner or on a routine basis. Rather, this means that a woman should be attuned to noticing a change or potential problems with her breasts. Women should be educated about the signs and symptoms of breast cancer and are advised to notify their health care provider if they notice a change such as pain, a mass, new onset of nipple discharge, or redness in their breasts. In its 2009 breast cancer screening guidelines, the U.S. Preventive Services Task Force recommended against teaching breast self-examination (grade D recommendation) based on lack of evidence regarding benefits and due to potential harms from false-positive results 39. The U.S. Preventive Services Task Force did not change this recommendation in the 2016 update of its breast cancer screening guidelines 3. ACS also no longer recommends self-examination of breasts for women with average risk of breast cancer due to lack of evidence regarding improved outcomes 23.Although breast self-examination is no longer recommended, evidence of the frequency of self-detection of breast cancer provides a strong justification for breast self-awareness in the detection of breast cancer. Approximately 50% of cases of breast cancer in women 50 years and older and 71% of cases of breast cancer in women under 50 are detected by women even 40 41. For example, 43% of the 361 breast cancer survivors who participated in the 2003 National Health Interview Survey reported revealing their cancer even 42. Additional evidence for the important role of breast cancer self-detection comes from a study of low-income women who received breast cancer care through California's Breast and Cervical Cancer Treatment Program. Of the 921 women in the cohort, 64% self-clarified their breast cancer 43.Although there are no studies in the United States that have directly examined the effectiveness of breast self-awareness, based on the frequent incidence of self-clarified breast cancer, patients should be advised on breast self-awareness. The U.S. Preventive Services Task Force supports all patients to be aware of changes in their body and discuss these clinicians 3. ACS states clinicians should advise women on the importance of paying attention to breast changes 23.Should practitioners perform routine screening clinical breast examinations in average-risk women? Screening clinical breast examination can be offered asymptomatic, average risk women in conjunction with an informed, shared decision-making approach that recognizes the uncertainty of additional benefits and the possibility of negative consequences of clinical breast examination in addition to screening mammograms. If performed for screening, intervals of every 1-3 years for women aged 25-39 years and annually for women 40 years and older are reasonable. The clinical breast examination continues to be a recommended part of the evaluation of high-risk women and women with symptoms. There are conflicting guidelines from the National Comprehensive Cancer Network, ACS, and the U.S. Preventive Services Task Force on whether to perform screening clinical breast examination in women at average risk of breast cancer Table 1 3 4 23. The most recent systematic ACS review found no studies that directly estimated the link between clinical breast examination and mortality 2. However, three studies in the systematic review looked at false-positive test results in combination with mammograms, and two noted there are approximately 55 false-positive test results for each case of cancer detected. A complementary systematic review of clinical breast examination performance properties performed for the ACS recommendation report estimated that clinical breast examination will detect approximately 2-6% more cases of invasive cancer than mammograms alone; however, there was no evidence that patients' outcomes were improved by the detection of these additional cases of cancer 23. Given the lack of evidence of benefits combined with the increase in false-positive test results, ACS no longer recommends clinical breast examination. In its 2009 breast cancer screening guidelines, the U.S. Preventive Services Task Force also stated that there was insufficient evidence to assess the benefits and harms of the clinical breast examination (Category I recommendation) 39; and it has not changed this recommendation in the 2016 update of the Guidelines 3. The National Comprehensive Cancer Network continues to recommend clinical breast study at intervals of 1-3 years for asymptomatic, average risk women aged 25-39 years and annually for asymptomatic, average risk women aged 40 years and older. When should screening mammograms begin at average risk women? Women with average risk of breast cancer should be offered screening mammograms starting at the age of 40 years. Women at average risk of breast cancer should initiate screening mammograms at age 40 years. If they haven't started screening in their 40s, they should start screening mammograms no later than 50 years. The decision on age to begin screening should be done a joint decision-making process. This discussion should include information on the potential benefits and harms. The use of information sheets or decision-making aids can help healthcare professionals and patients with this discussion. For more information, see ACOG's online Breast Cancer Screening and Treatment Resource Overview.The decision on when to recommend initiating screening is driven by a number of factors that vary with age, including breast cancer risk, risk of death from breast cancer, likelihood of screening mammograms to diagnose cancer, risk of false-positive test results and other injuries, and the balance between benefits and injuries. A measure of the effectiveness of breast cancer screening is the number needed to screen, which is a measure of the overall risk reduction that is useful for comparing the effectiveness of screening between populations. The number needed to screen depends to a large extent on the mortality rate resulting from screening and the incidence of the disease in the screened population. The U.S. Preventive Services Task Force and ACS reviewed these issues at length in preparation for their guideline revisions 2 24, 25.25 The distribution of breast cancer cases and deaths by age on the diagnosis increase with age starting in their 40s and continuing through the 50s. The incidence of breast cancer also increases as women age 23. Mammography appears to provide a better reduction in mortality as women get older. Injuries appear to decrease, with roughly the same number of biopsies performed across age groups, and a higher proportion leading to cancer diagnoses in older women 3. Because breast cancer is less common in women younger than 40 years of age, the rate of injuries associated with screening mammograms is higher compared to the benefits (life saved) in this age group. Thus, the risk-benefit balance improves with age. In its systematic review, ACS calculated the relative risks and calculated the number needed to screen by age group. the results showed the effectiveness of screening for all age groups, but the effectiveness of screening improved with age and assumed mortality reduction with screening 2.The recommended age for initiation of mammograms in average risk women differs among consensus guidelines groups in the United States table 1 3 4 23. ACS and the U.S. Preventive Services Task Force acknowledge that although mammograms start at age 40 years are less effective and more often associated with injuries in older women It does save lives. Benefits and negative consequences vary over a continuum, and the selection of a particular age for initiation of screening is largely a subjective decision that balances benefits and harms according to an individual woman's values and preferences. The U.S. Preventive Services Task Force chose their starting age of 50 years based on an analysis of benefits (measured by fewer and several lifetimes achieved) and various measures of harm throughout the lifetime of women screened screened 40 years compared to those screened every two years from 50 years Of Table 3 3. The task force noted that for women in their 40s, mammograms result in only a small decrease in breast cancer deaths compared with a proportionately larger increase in recall and benign biopsies. It should be noted that the estimated years of life were significantly higher in women who started screening at a younger age, which would be expected because this age group has the greatest potential years of life lost as a result of cancer. The task force summarized as follows 3:For women in their 40s, the number who benefit from starting regular screening mammograms is smaller, and the number experiencing injury is greater compared to older women. For women in their 40s, the benefit still outweighs the damage, but to a lesser extent; this balance may therefore be more subject to individual values and preferences than in older women. Women in their 40s must weigh a very important but rare benefit (reduction in breast cancer deaths) against a group of meaningful and more common injuries (overdiagnosis and overtreatment, unnecessary and sometimes invasive follow-up tests and psychological damage associated with false-positive test results, and false reassurance from false-negative test results). Women who value the possible benefit of screening mammograms more than they appreciate to avoid its injuries can make an informed decision to begin screening. ACS made a qualified recommendation that women should be able to begin screening at age 40, and a strong recommendation that women should undergo regular screening mammograms starting at age 45 based on an analysis of the disease burden at 5-year intervals 23. The analysis noted that the 5-year risk in women aged 45-49 years (0.9%) corresponding to women aged 50-54 years (1.1%) cases of breast cancer (10% and 12% respectively). However, the risk of 5 years and the proportion of breast cancer cases was lower in 40-44 year olds (5-year risk, 0.6%; proportion of cases of breast cancer, 7%). ACS provides a qualified recommendation that women between the ages of 40 and 44 should have the opportunity to initiate screening 23.The National Comprehensive Cancer Network recommends annual screening mammograms starting at age 40 years for all average risk women 4. The American College of Obstetricians and Gynecologists' recommendation to offer mammograms to average risk women beginning at age 40 years and to initiate screening by no later than 50 years is consistent with all three major consensus guidelines Table 1 3 4 23. Given the decrease in mortality and years of life prolonged by screening women beginning at the age of 40, it is appropriate to start offering screening from 40 years of age through codecision,

which includes a discussion of the expected benefits and negative consequences. In view of the fact that the relationship between benefits and with age, women who have not chosen to initiate mammograms in their 40s should begin screening by no later than 50 years. How often should screening mammograms be performed at average risk women? Women at average risk of breast cancer should have screening mammograms every 1 or 2 years based on an informed, shared decision-making process that includes a discussion of the benefits and harms of annual and two-year screening and includes patient values and preferences. Two-year screening mammograms, especially after age 55 years, is a reasonable option to reduce the frequency of injuries as long as patient counseling includes a discussion that with reduced screening comes some reduction in benefits. Neither ACS nor the U.S. Preventive Services Task Force systematic review identified any randomized trials directly comparing annually to biennial screening. However, both groups reviewed indirect evidence from meta-analyses and observational studies. Table 4 provides a summary of data from the ACS review, which was supplemented by further work commissioned for the final recommendation documents 2, 23, 26, 32, 44 and 45. These data suggest that shorter screening intervals are associated with improved outcomes (most obviously for women under the age of 50) and an increase in callbacks and biopsies. However, the nature of the retrospective data makes it difficult to assess the extent of the benefits and the trade-off with damage. The U.S. Preventive Services Task Force and ACS used modeling studies from the Cancer Intervention and Surveillance Modeling Network to make their recommendations. The U.S. Preventive Services Task Force ordered updated modeling studies from the Cancer Intervention and Surveillance Modeling Network that were not available at the time of ACS Review Table 5 3 31. The updated model predicted that annual screening would result in two additional lives saved against 82 additional biopsies and six overdiagnosed breast tumors for every 1,000 women screened aged 50 years and 74 years 3 31.Annual screening intervals appear to result in the least number of breast cancer deaths, especially in younger women, but at the expense of additional callbacks and biopsies. In light of this, the National Comprehensive Cancer Network continues to recommend annual screening 4. ACS recommends that women be given the opportunity to commence annual screening at age 40 years and that women aged 55 and over should move to two-year screening or have the opportunity to continue screening annually. The rationale for managing age groups differently is that screening annually seems to provide additional benefits compared to two-year screening, especially in younger women 23. The U.S. Preventive Services Task Force continues to recommend two-year screening at all ages based on the reason why mortality benefits are extended to approximately 80% of the two-year population and that there are significantly fewer injuries (e.g. callbacks and benign breast biopsies) 3.Clinicians should initiate a discussion about the frequency of screening when a woman has decided to initiate screening. Clinicians and patients should participate in codecision that includes a discussion of trade-offs between benefits and injuries and supports the woman's decision to choose the screening frequency that achieves balancing in accordance with her values and concerns. A woman who opts for annual screening may place greater emphasis on the potential to ward off breast cancer death and less value on the possible harms. A woman who opts for two-year screening may be more concerned about experiencing the potential harms of screening than she is about the incremental chance of a breast cancer death that could have been averted. Since the benefit of more frequent screening decreases in older women, a hybrid approach to screening where a woman initially opts for annual screening and then drops to two-year-olds after age 55 is also a reasonable option. When should screening mammograms cease? Women at average risk of breast cancer should continue screening mammograms until at least 75 years of age. Age alone should not be the basis for continuing or interrupting screening. In addition to 75 years, the decision to discontinue screening mammograms should be based on a joint decision-making process informed of the woman's health status and longevity. More than a quarter of cases of breast cancer are diagnosed in women 75 years and older 23, but there is limited data on screening mammograms in this population. The systematic assessments conducted for ACS and the U.S. Preventive Services Task Force did not identify any randomized clinical trials of screening mammograms conducted in women 75 years and older. Moreover, none of the reviews specifically mentioned observational data from studies in women over 74 years of age. Even for women aged 70-74 years, both reviews presented only limited data on screening mammograms 2 24. ACS guidelines paper 23 cites the results of two observational trials 46 47 that showed a reduction in breast cancer mortality associated with mammographic detection of breast cancer in women 75 years and older. To address the lack of clinical evidence on screening mammograms in older women, both ACS and the U.S. Preventive Services Task Force used data from modeling studies to help inform their guidelines. The latest simulation study, which did not include women over the age of 74, suggested that women aged 70-74 years may have a reduction in mortality with screening mammograms if they remain in good health, but not if they have significant comorbidities 48. The previous Cancer Intervention and Surveillance Modeling Network modeling study included women up to age 84, and showed benefit 49.The U.S. Preventive Services Task Force concluded that the current evidence is to assess the balance of the and damage of screening mammograms in women 75 years and older 3. ACS gave a qualified recommendation that women should continue screening mammograms as long as their overall health is good and they have a life expectancy of 10 years or longer 23. This recommendation is based on the reason why as women get older, competing causes of death are lower benefit for screening mammograms, especially if women have significant comorbidities. Many women aged 75 and over are in good health and are likely to live significantly longer than 10 years, and more than half of women over the age of 80 are expected to live more than 10 years and 51 years. Women with a life expectancy of less than 10 years are unlikely to have a noticeable mortality reduction from mammographic detection of an early breast cancer and have a significant risk of discomfort, anxiety, and decreased quality of life from adverse effects of treatment that are unlikely to prolong their lives. Despite the general consensus that women with less than 10 years of life expectancy should not routinely receive screening mammograms 3 4 23 52, women who are unlikely to benefit due to severe comorbidities still get screening mammograms 53 54. Even in women under the age of 75, it is important to conduct a health assessment to determine whether screening mammograms are appropriate because women of all ages with severe comorbidities are unlikely to benefit from screening. In addition, screening mammograms should not be performed on women who would not opt for further evaluation or treatment based on abnormal screening results. Clinical judgment and predictive models that combine age, comorbidities, and functional status can be used to identify women who can continue to benefit from screening mammograms (generally defined as having greater than a 50% probability of surviving 10 years) 55.There are also simplified online tools that use pictograms and list possible benefits and harms that can help with the decision-making process for older women screening considering mammography. For more information, see ACOG's online Breast Cancer Screening and Treatment Resource Overview. Consultation with the patient's other healthcare professionals also can be helpful. Recommendations based on good and consistent scientific evidence (level A)Women at average risk of breast cancer should be offered screening mammograms starting at the age of 40 years. Women at average risk of breast cancer should initiate screening mammograms at age 40 years. If they haven't started screening in their 40s, they should start screening mammograms no later than 50 years. The decision on age to begin mammogram screening should be made through a joint decision-making process. This discussion should include information on the potential with average risk of breast cancer should have screening mammograms every 1 or 2 years based on an informed, shared decision-making process that includes a discussion of the benefits and harms of annual and biennial screening and includes patient values and preferences. Two-year screening mammograms, especially after age 55 years, is a reasonable option to reduce the frequency of injuries as long as patient counseling includes a discussion that with reduced screening comes some reduction in benefits. Women at average risk of breast cancer should continue screening mammograms until at least 75 years of age. Recommendations based on limited or inconsistent scientific evidence (level B)Healthcare professionals should regularly assess the risk of breast cancer by reviewing the patient's history. Women with a potentially increased risk of breast cancer based on the original story should have additional risk assessment. Breast self-examination is not recommended in average-risk women because there is a risk of injury from false-positive test results and a lack of evidence of benefit. Recommendations based primarily on consensus and expert opinion (level C)Screening of clinical breast examination may be offered to asymptomatic, average risk women in the context of an informed, codecision approach that recognizes the uncertainty of additional benefits and the possibility of negative consequences of clinical breast examination in addition to screening mammograms. If performed for screening, intervals of every 1-3 years for women aged 25-39 years and annually for women aged 40 years and older are reasonable. The clinical breast examination continues to be a recommended part of the evaluation of high-risk women and women with symptoms. Average risk women should be advised about breast self-awareness and encouraged to notify their health care provider if they experience a change. Breast self-awareness is defined as a woman's awareness of the normal appearance and sensation of her breasts. Age alone should not be the basis for continuing or interrupting screening. In addition to 75 years, the decision to discontinue screening mammograms should be based on a joint decision-making process informed of the woman's health status and longevity. The American College of Obstetricians and Gynecologists have identified additional resources on topics related to this document that may be useful to ob-gyns, other healthcare providers, and patients. You can view these resources resources are for informational purposes only and are not intended to be comprehensive. Reference to these resources does not imply the American College of Obstetricians and Gynecologists' approval of the organization, organization's website, or the content of the resource. These resources are subject to change without notice. Message.