

REPORT 6 OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH (A-12)  
Screening Mammography (Resolution 509-A-10, Resolve 1)  
(Reference Committee E)

EXECUTIVE SUMMARY

Objectives. In November 2009, the United States Preventive Services Task Force (USPSTF) updated its guidelines on routine screening for breast cancer. The updated recommendations are different from those of several other guideline-making groups and have contributed to the continuing debate about when routine screening mammography should begin and what its frequency should be. This report will highlight current screening mammography guidelines, explore the established benefits and harms of mammography, review the process by which the USPSTF developed its updated recommendations on screening mammography, and update the AMA's current policy recommendations.

Data Sources. Literature searches were conducted in the PubMed database for English-language articles published between 2000 and 2012 using the search terms "screening mammography," and "mammography AND USPSTF," and "mammography AND 40." To capture reports that may not have been indexed on PubMed, as well as news articles and press releases, periodic Google searches were conducted using the search terms "mammography," "mammography AND USPSTF," and "mammography AND 40." Additional articles were identified by review of the literature citations in articles found in the PubMed and Google searches. Specific information on the USPSTF was obtained from its website.

Results. Screening mammography reduces mortality from breast cancer, including in women younger than age 50 years. However, screening mammography carries harms such as false-positive results that can lead to additional imaging and invasive biopsy procedures, and overdiagnosis that could lead to treatment in patients who may not benefit from it. The USPSTF considered the balance of benefits and harms using a commissioned targeted systematic evidence review of randomized clinical trials and a decision analysis that compared the expected health outcomes of starting and ending mammography at different ages and using annual and biennial screening strategies; it concluded (in part) that routine screening should begin at age 50 years and continue biennially until age 74 years. Several medical specialty societies, patient advocacy groups, and individuals offered either support for or opposition to the recommendations. Some groups have concurrently called for reform in the guideline development process.

Conclusions. Mammography is a proven method for detecting breast tumors, with demonstrated reductions in mortality for women who undergo regular screening. Associated harms exist, which underlie differences in recommendations regarding the frequency and age at which to begin and end screening. Groups developing guidelines have placed different emphasis on these harms, resulting in varied conclusions about whether benefits outweigh harms, and whether that balance changes in different age groups. Mammography screening guidelines themselves regularly undergo review and update processes; the Council believes that it is appropriate for AMA policies referencing such guidelines to be reviewed and updated as well, and offers revisions to AMA policy H-525.993 [Mammography Screening in Asymptomatic Women Forty Years and Older]. The foundation of the Council's recommendation is the notion that every woman age 40 years and older who wants a routine screening mammogram and whose physician believes it is clinically appropriate should receive one, regardless of her insurance coverage status.

REPORT OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH

CSAPH Report 6-A-12

Subject: Screening Mammography  
(Resolution 509, A-10, Resolve 1)

Presented by: Lee R. Morisy, MD, Chair

Referred to: Reference Committee E  
(Frederick R. Ridge, Jr., MD, Chair)

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1 INTRODUCTION

2  
3 Resolution 509-A-10, introduced by the Illinois Delegation, asked that our American Medical  
4 Association (AMA): (1) recommend that physicians and patients continue to follow the guidelines  
5 of the American Cancer Society regarding screening mammography and patient breast self-  
6 examination; and (2) encourage government panels and task forces dealing with specific disease  
7 entities to have representation by physicians with expertise in those diseases. Resolve 1 was  
8 referred for decision; Resolve 2 was adopted.

9  
10 The Board of Trustees considered Resolve 1 and referred it to the Council on Science and Public  
11 Health, asking for a report back on the issue of screening mammography, especially with regard to  
12 screening women ages 40-49 years. Accordingly, this report will highlight current screening  
13 mammography guidelines, explore the established benefits and harms of mammography, review  
14 the process by which the United States Preventive Services Task Force (USPSTF) developed its  
15 updated recommendations on screening mammography, and update the AMA's current policy  
16 recommendations.

17  
18 METHODS

19  
20 Literature searches were conducted in the PubMed database for English-language articles published  
21 between 2000 and 2012 using the search terms "screening mammography," and "mammography  
22 AND USPSTF," and "mammography AND 40." To capture reports that may not have been  
23 indexed on PubMed, as well as news articles and press releases, periodic Google searches were  
24 conducted using the search terms "mammography," "mammography AND USPSTF," and  
25 "mammography AND 40." Additional articles were identified by review of the literature citations  
26 in articles found in the PubMed and Google searches. Specific information on the USPSTF was  
27 obtained from its website.

28  
29 BACKGROUND

30  
31 From 2002-2009, the USPSTF recommendations on breast cancer screening supported routine  
32 screening mammography, with or without a clinical breast exam, every 1-2 years for women age 40  
33 years and older.<sup>1</sup> These recommendations were similar to the recommendations of several other  
34 medical professional societies and cancer advocacy groups, including the American Cancer Society

1 (ACS), American College of Radiology (ACR), American Congress of Obstetricians and  
2 Gynecologists (ACOG), and the National Comprehensive Cancer Network (NCCN).

3  
4 In November 2009, the USPSTF updated its guidelines on screening for breast cancer.<sup>2</sup> These  
5 guidelines recommend against routine screening mammography in women aged 40-49 years, and  
6 recommend biennial screening mammography in women aged 50-74 years.<sup>2</sup> The USPSTF  
7 concluded that the evidence was insufficient to recommend for or against routine screening  
8 mammography in women older than age 74 years.<sup>2</sup> In December 2009, the USPSTF updated the  
9 language of its recommendation regarding women under age 50 years to clarify its original and  
10 continued intent. That recommendation now states: "The decision to start regular, biennial  
11 screening mammography before the age of 50 years should be an individual one and take patient  
12 context into account, including the patient's values regarding specific benefits and harms."<sup>2</sup>

13  
14 The USPSTF also updated recommendations on clinical breast examination (CBE), self-breast  
15 examination (SBE), digital mammography, and magnetic resonance imaging (MRI), however this  
16 report will focus on the recommendations for screening mammography.

#### 17 18 RELEVANT AMA POLICY

19  
20 AMA policy strongly supports mammography screening for the early detection of breast cancer  
21 (see Appendix I). Policy H-55.993 [Early Detection of Breast Cancer, AMA Policy Database]  
22 encourages recognition of mammography as an effective screening technique and additionally  
23 encourages education and awareness about breast self-examination. Policies H-55.984 [Screening  
24 and Treatment for Breast and Cervical Cancer], H-55.985 [Screening and Education Programs for  
25 Breast and Cervical Cancer Risk Reduction], and D-525.998 [Mammography Screening for Breast  
26 Cancer] support funding for screening programs, including for low-income women; H-55.985  
27 additionally encourages educational programs to inform women about screening.

28  
29 With regard to recommendations directly addressing screening mammography in women between  
30 the ages of 40-49 years, AMA policy is the following:

#### 31 32 **H-525.993 Mammography Screening in Asymptomatic Women Forty Years and Older**

33 1. Our AMA strongly endorses the positions of the American College of Obstetrics and  
34 Gynecology, the American Cancer Society, and the American College of Radiology that all  
35 women have screening mammography as per current guidelines. 2. Our AMA favors  
36 participation in and support of the efforts of the professional, voluntary, and government  
37 organizations to educate physicians and the public regarding the value of screening  
38 mammography in reducing breast cancer mortality. 3. Our AMA advocates remaining alert to  
39 new epidemiological findings regarding age-specific breast cancer mortality reduction  
40 following mammography screening. 4. Based on recent summary data our AMA recommends  
41 annual screening mammograms and continuation of clinical breast examinations in  
42 asymptomatic women 40 years and older. 5. Our AMA encourages the periodic  
43 reconsideration of these recommendations as more epidemiological data become available. 6.  
44 Our AMA supports seeking common recommendations with other organizations. 7. Our AMA  
45 reiterates its longstanding position that all medical care decisions should occur only after  
46 thoughtful deliberation between patients and physicians. (CSA Rep. F, A-88; Reaffirmed: Res.  
47 506, A-94; Amended: CSA Rep. 16, A-99; Appended: Res. 120, A-02)

48  
49 The original iteration of this policy was adopted in 1988, based on the recommendations in Council  
50 on Scientific Affairs Report F-A-88.<sup>3</sup> The report recommended supporting annual screening  
51 mammography in women age 50 and older, and mammography screening every 1-2 years in

1 women aged 40-49 years.<sup>3</sup> The policy was updated in 1999 by CSA Report 16-A-99, which  
 2 recommended supporting annual screening mammography in asymptomatic women age 40 years  
 3 and older.<sup>4</sup> In 2002, with the adoption of Resolution 120-A-02, the policy was further amended to  
 4 endorse the screening guidelines of ACOG, ACS, and ACR.

5  
 6 **CURRENT MAMMOGRAPHY SCREENING GUIDELINES**

7  
 8 Many organizations have developed or endorsed guidelines regarding screening mammography.  
 9 The Table below summarizes the recommendations of several groups in this country, as well as  
 10 those from the Canadian Task Force for Preventive Health Care<sup>5</sup> and Britain’s National Health  
 11 Service.<sup>6</sup>

12  
 13 The USPSTF recommends routine screening mammography beginning at age 50 years and  
 14 continuing biennially through age 74 years; the American Academy of Family Physicians (AAFP)  
 15 endorses the recommendations of the USPSTF.<sup>2,7</sup> For women aged 40-49 years, the USPSTF (with  
 16 AAFP endorsing) and the American College of Physicians (ACP) recommend individual patient  
 17 assessment for breast cancer risk, along with patient education about the benefits and limitations of  
 18 mammography, as the basis for a decision to screen.<sup>2,7,8</sup>

19  
 20 ACOG, ACR, ACS, and NCCN recommend annual routine screening mammography beginning at  
 21 age 40 years.<sup>9-12</sup> ACOG, ACS, and NCCN include in their guidelines a recommendation to discuss  
 22 with women the predictive value of mammography and its limitations.<sup>9,11,12</sup> ACOG states that  
 23 based on individual risk, biennial screening may be appropriate for some women.<sup>9</sup> ACOG, ACR,  
 24 ACS, and NCCN guidelines do not specify an age at which screening should end. While NCCN  
 25 states that the appropriate upper age limit has not yet been determined,<sup>12</sup> ACR recommends  
 26 continuation until life expectancy reaches less than five to seven years,<sup>10</sup> and ACS recommends  
 27 continuation as long as the patient is in good health.<sup>11</sup> ACOG notes that women 75 years or older  
 28 should, in consultation with their physicians, decide whether or not to continue mammographic  
 29 screening.<sup>9</sup>

<b>Organization (year recommendation updated)</b>	<b>Age at which routine screening should begin</b>	<b>Frequency</b>	<b>Age at which routine screening should end</b>
<b>AAFP (2009)<sup>a</sup></b>	50	Biennial	75
<b>ACOG (2011)</b>	40 (with discussion <sup>c</sup> )	Annual (Biennial may be appropriate for some)	Not specified
<b>ACR/SBI<sup>b</sup> (2010)</b>	40	Annual	Life expectancy <5-7 years
<b>ACS (2003)</b>	40 (with discussion <sup>c</sup> )	Annual	As long as patient is in good health
<b>NCCN (2011)</b>	40 (with discussion <sup>c</sup> )	Annual	Not yet established
<b>USPSTF (2009)</b>	50	Biennial	75
<b>CTFPHC (2011)</b>	50	Triennial	75
<b>NHS (2011)</b>	50 (expanding to 47)	Triennial	70 (expanding to 73)

Table: Screening mammography recommendations of several groups. Abbreviations are as follows: AAFP: American Academy of Family Physicians; ACOG: American Congress of Obstetricians and Gynecologists; ACR: American College of Radiology; SBI: Society of Breast Imaging; ACS: American Cancer Society; NCCN: National Comprehensive Cancer Network; USPSTF: United States Preventive Services Task Force; CTFPHC: Canadian Task Force for Preventive Health Care; NHS: National Health Service (Britain)

- a. The AAFP endorses the USPSTF’s recommendations
- b. ACR and SBI have joint recommendations.
- c. Recommendation includes the discussion of the predictive value and limitations of mammography.

1 A survey of the International Breast Cancer Screening Network shows that 5 of 19 member  
2 countries recommend screening beginning at age 40 years, with most screening biennially.<sup>13</sup> The  
3 recommendations of the different countries are, by and large, based on the same data, but reflect a  
4 difference of opinion in data interpretation.<sup>13</sup>

5  
6 It is important to note that the guidelines discussed in this report are for routine screening  
7 mammography, i.e., mammography for women who are at average risk for breast cancer. They are  
8 not appropriate for women at increased risk due to underlying genetic mutations (such as *BRCA1* or  
9 *BRCA2*), family history, previous chest radiation, or other risk factors; guidelines for women at  
10 increased risk are substantially different.<sup>11,12</sup>

## 11 12 BENEFITS AND HARMS OF SCREENING MAMMOGRAPHY

13  
14 Breast cancer is the most common cancer in women in the U.S., with more than 200,000 women  
15 receiving a diagnosis of invasive breast cancer each year and nearly 40,000 dying.<sup>14</sup> The average  
16 woman's lifetime risk of developing breast cancer is 1 in 8, or 12%,<sup>14</sup> however factors such as age,  
17 family or personal history of cancer, dense breasts, and previous exposure to chest radiography can  
18 increase risks.<sup>15</sup> In the U.S., digital mammography has rapidly replaced the older method of film  
19 mammography.<sup>16</sup> Though mammography is the most reliable breast cancer screening tool for the  
20 general population, it carries potential harm along with its benefits. Recommendations regarding  
21 screening frequency and age of initiation are based on the balance of benefits and harms.

### 22 23 *Benefits of screening mammography*

24  
25 Mortality reduction. There is wide agreement that screening mammography leads to a reduction in  
26 breast cancer mortality,<sup>17</sup> although disagreements exist about how to calculate such reductions.  
27 Randomized controlled trials (RCTs) have estimated the reduction in mortality across all age  
28 groups to be approximately 15-30%,<sup>18-22</sup> while observational and modeling studies have estimated  
29 mortality reduction across all age groups to be higher, with a range of 30% to more than 40%.<sup>23-26</sup>  
30 In RCTs, mortality reduction is based on the number of women invited to screen, rather than those  
31 who have actually undergone screening in the trial. This "number invited to screen" includes those  
32 women who are part of the screening arm of the trial but who decline screening. Those who fit into  
33 this category and who also die of breast cancer will be counted in the larger number of women in  
34 the screening arm that died of breast cancer.<sup>26</sup> Based on this method, noncompliance to the  
35 screening protocol potentially underestimates the mortality reduction derived from screening.<sup>26</sup>  
36 Similarly, women who are assigned to the control, non-screening arm sometimes seek  
37 mammography on their own, skewing the potential mortality reduction downward.<sup>26</sup>

38  
39 There have been few RCTs designed to determine mortality reduction from mammography  
40 screening in specific age groups; estimates have been derived from subanalyses of trials designed  
41 for other outcomes. Pooled data from RCT subanalyses show mortality reduction from  
42 mammography screening to be greatest in women aged 60-69 years (approximately 32%).<sup>18</sup> For  
43 women aged 39-49 years and 50-59 years, pooled data show mortality reduction to be 15% and  
44 14%, respectively.<sup>18,21,27-32</sup> Although these values appear to indicate a similar mortality reduction  
45 for both of these age groups, it should be noted that estimated reductions are based on *relative* risk  
46 (risk of breast cancer mortality in women of a particular age group who undergo mammography  
47 versus those in the same age group who do not undergo mammography). Because a woman's risk  
48 for breast cancer increases sharply with age, *absolute* mortality risk reduction (reduction in the  
49 overall risk of breast cancer mortality) from screening is greater for women aged 50-59 years than  
50 that for women aged 40-49 years.<sup>2,18</sup> Mortality reduction estimates for women age 70 years and  
51 older are lacking because of insufficient data.<sup>18</sup>

1 Subanalyses of trials designed to estimate benefit across larger age groups, as well as more recent  
2 retrospective studies, have shown benefits for women aged 40-49 years who undergo screening  
3 mammography.<sup>21,26,30</sup> Between 40-49 years of age, tumors detected by mammography are smaller  
4 with less nodal metastasis (compared to those tumors detected without mammography), and 5-year  
5 and disease-free survival are improved.<sup>33</sup> Additionally, a 2010 study showed that mammography  
6 in women younger than age 50 years with a family history of breast cancer increases cancer  
7 detection, reduces risk of advanced stage disease, and is associated with lower mortality and higher  
8 10-year survival from invasive cancer.<sup>34</sup>

9  
10 Based on analyses of breast cancer mortality reduction before and after the implementation of  
11 screening programs, some argue that the observed reduction is only partially due to screening, with  
12 the rest due to improved therapy and management of breast cancer disease and to changes in  
13 staging techniques.<sup>25,35,36</sup> However, this is refuted by others. In regions without formal screening  
14 but with access to improved treatments, the mortality rate did not decrease until screening was  
15 introduced.<sup>37,38</sup>

16  
17 It is possible that the mortality reduction associated with screening mammography could be  
18 greater. Only approximately 65% of women age 40 years or older report having undergone  
19 screening mammography within the last two years.<sup>39</sup> Increasing adherence to recommendations  
20 could potentially increase the number of women in whom cancer is detected early, leading to  
21 greater mortality reduction.<sup>2,39</sup>

### 22 23 *Harms of screening mammography*

24  
25 Although there is broad agreement that screening mammography reduces mortality from breast  
26 cancer, it is not a perfect tool. Along with the intended early detection of invasive breast cancer,  
27 mammography carries with it potential harms, such as false-positive results, overdiagnosis, and  
28 exposure to radiation.

29  
30 False-positive results. A false positive is defined as an abnormal screening mammography result  
31 that does not end in a diagnosis of invasive carcinoma or ductal carcinoma *in situ* (DCIS) within  
32 one year of the screening examination.<sup>40</sup> The reported specificity of mammography is 94-97%.<sup>20,41</sup>  
33 In other words, 94-97% of mammograms correctly rule out the presence of disease in disease-free  
34 individuals. Though this specificity appears to be high, it must be considered in the context of the  
35 number of mammograms performed. More than 33 million screening mammograms are performed  
36 in the U.S. each year.<sup>42</sup> Taking into account the annual incidence of breast cancer (approximately  
37 124 cases per 100,000 women),<sup>43</sup> the reported specificity implies that every year, approximately 1-  
38 2 million women receive an abnormal mammography result that will turn out not to be breast  
39 cancer. Many of these women will undergo further imaging and invasive procedures.<sup>44</sup>

40  
41 A 2011 study, designed to address limitations in previous estimates of false-positive rates,<sup>45-48</sup>  
42 found that after 10 years of annual screening, the probability of receiving a recall (recommendation  
43 for immediate follow-up imaging) is 61.3%; this probability drops to 41.6% for 10 years of  
44 biennial screening.<sup>44</sup> These estimates are similar whether screening begins at age 40 or 50 years.  
45 Older studies report that false-positive mammograms occur in 21-49% of all women after 10  
46 mammography examinations, and in up to 56% for women aged 40-49 years.<sup>18</sup> The probability of  
47 a false-positive biopsy recommendation (recommendation for biopsy, fine-needle aspiration, or  
48 surgical consult after imaging work-up) is 7-9% after 10 years of annual screening and 4-6% after  
49 10 years of biennial screening.<sup>44</sup> While biennial screening appears to decrease the probability of a

1 false-positive mammography result, it may be associated with an increase in the probability of a  
2 late-stage cancer diagnosis.<sup>44</sup>

3  
4 Many women who have been recalled for further screening become distressed, and some report  
5 persistent anxiety despite eventual negative results.<sup>18,49</sup> Others report only transient anxiety.<sup>18,37</sup>  
6 False-positive results appear to affect breast cancer-specific distress, anxiety, apprehension, and  
7 perceived risk rather than general depression and anxiety.<sup>18,50</sup>

8  
9 False-positive results can also affect adherence to screening recommendations. In a 2011 study,  
10 women who received a false-positive result were less likely to return for routine screening  
11 compared with women who received negative results.<sup>51</sup> However, reattendance improved with the  
12 number of completed screening participations, suggesting that abnormal results in younger women  
13 (who have completed relatively few screens) are more likely to negatively impact reattendance than  
14 in women who have undergone several routine screens.<sup>51</sup>

15  
16 Variation in screening mammography specificity has been noted among physicians and facilities.  
17 For example, recall rates are lower and specificity rates higher among radiologists who have more  
18 years of experience interpreting mammograms.<sup>52,53</sup> Higher specificity is seen at facilities that offer  
19 screening mammography alone (versus those that offer both screening and diagnostic  
20 mammography), have a breast-imaging specialist interpreting mammograms, and conduct audit  
21 reviews two or more times each year.<sup>54</sup> AMA policy (H-525.985 Safety and Performance  
22 Standards for Mammography; see Appendix I) supports high quality standards of performance for  
23 those administering and interpreting mammograms, including “evidence of appropriate training and  
24 competence for professionals.”

25  
26 Overdiagnosis. Overdiagnosis is the detection of cancer that would not have clinically surfaced in  
27 a person’s lifetime, usually because of lack of progressive potential.<sup>24</sup> Overdiagnosis is easily  
28 confused with false-positive results, i.e., a positive screening result that is subsequently determined  
29 not to be cancer. In contrast, an overdiagnosis represents a case in which the pathological criteria  
30 for cancer has been fulfilled.<sup>55</sup> Stable disease including some DCIS, indolent cancers, and slow-  
31 growing tumors are thought to be most commonly overdiagnosed by mammography.<sup>55,56</sup> Some  
32 reports have concluded that a small percentage of mammography-detected cancers may  
33 spontaneously regress, although others have criticized this assertion.<sup>56-58</sup>

34  
35 Evidence for overdiagnosis comes from RCTs designed to demonstrate the benefit of  
36 mammography. In these trials, women are randomly assigned to screening mammography and  
37 non-screening mammography arms; since the assignments are random, the number of breast  
38 cancers that develop over time should be the same in each group.<sup>59</sup> In the group receiving  
39 screening mammography, the number of women receiving breast cancer diagnoses will initially be  
40 higher than in the non-screening group, since the mammograms will detect tumors too small to be  
41 detected otherwise. With time, as the small tumors in women in the non-screening group grow and  
42 become detectable, the number of breast cancer diagnoses should become similar to those in the  
43 screening group. However, some trials have shown that breast cancer diagnoses in the screening  
44 group are persistently higher, even after many years. This persistent difference represents  
45 overdiagnosis.<sup>59</sup>

46  
47 Quantification of overdiagnosis is difficult; it is not ethically possible to set up prospective clinical  
48 trials to determine which cancers will remain indolent if left untreated.<sup>60</sup> Therefore, the proportion  
49 of mammography-detected breast cancers that are estimated to be overdiagnoses is widely variable,  
50 ranging between 1-30%; estimates are derived from screening programs in several countries that  
51 are statistically difficult to combine.<sup>18</sup> Observational and modeling studies have attempted to

1 narrow the range. For example, a 2012 study used data from different geographic regions in  
2 Norway, where screening mammography began at staggered times over a nine-year period.<sup>61</sup> By  
3 comparing breast cancer incidence in regions with a screening program to incidence in regions that  
4 had yet not implemented screening, the study estimated that 15-25% of mammography-detected  
5 breast cancers were overdiagnoses.<sup>61</sup> Within different age groups, modeling studies have shown  
6 only small differences in the rate of overdiagnosis.<sup>21</sup> In general, the risk for overdiagnosis  
7 increases with age, likely because in older age groups, rates of competing causes of mortality  
8 increase.<sup>24</sup> The difficulty in accurately estimating rates of overdiagnosis has led to arguments that  
9 the estimates are artificially high, and are complicated by follow-up times, lead-time, and changes  
10 in breast cancer incidence over several years.<sup>62</sup>

11  
12 Overdiagnosis is regarded by some as the most serious harm associated with mammography;<sup>59</sup> at  
13 the time of diagnosis, clinicians cannot know who has been overdiagnosed, so all are treated for  
14 potentially lethal cancer.<sup>55,56</sup> These patients will not benefit from treatment and almost certainly  
15 will be harmed.<sup>55</sup>

16  
17 A perceived benefit of mammography screening is that it reduces the need for mastectomies and  
18 increases the potential for breast-conserving treatment.<sup>63</sup> However, a 31% increase in breast  
19 surgery and 20% increase in mastectomy for women exposed to screening has been reported.<sup>19</sup> A  
20 2011 Norwegian study corroborated these findings, and concluded that overdiagnosis is likely to  
21 have contributed to the increases in surgical intervention.<sup>63,64</sup> Other studies have reported no  
22 increase in the rate of mastectomy.<sup>65,66</sup>

23  
24 Radiation exposure. Little evidence exists to suggest that low-dose radiation exposure from  
25 mammography is a significant risk.<sup>18</sup> Widely-ranging cumulative radiation doses of 0.3-43.4 Gy  
26 are thought to significantly increase the risk for breast cancer;<sup>67</sup> the average dose for a bilateral,  
27 two-view mammogram is 7 mGy or less,<sup>68,69</sup> and for women aged 40-49 years, annual  
28 mammography screening for 10 years (with potential additional imaging) exposes the individual to  
29 approximately 60 mGy.<sup>67</sup> The number of radiation-induced breast cancer deaths associated with  
30 biennial screening between the ages of 50-74 years has been modeled at 1.6 per 100,000 women  
31 screened. This model also predicts that extending the biennial screening period to women between  
32 the ages of 40-74 years results in 3.7 radiation-induced breast cancer deaths per 100,000 women.<sup>69</sup>  
33 These rates are considered negligible, with screening benefits far outweighing the risk of radiation  
34 exposure.<sup>18,69</sup> For comparison, the ratio of breast cancer deaths prevented by mammography to the  
35 number of deaths induced by radiation exposure is 684:1 for women aged 50-74 years, and 349:1  
36 for women aged 40-74 years.<sup>69</sup>

37  
38 Special consideration of the effects of radiation exposure should be given to women who have  
39 previously undergone diagnostic chest radiographs or had therapeutic radiation for other cancers.  
40 These women are at increased risk for cancer since cumulative radiation exposure is increased.<sup>70</sup>

## 41 42 THE USPSTF AND ITS RECOMMENDATIONS FOR SCREENING MAMMOGRAPHY

### 43 44 *Background*

45  
46 The mission of the USPSTF is to review the scientific evidence for clinical preventive services and  
47 to develop evidence-based recommendations for primary care physicians as well as the broader  
48 health care community.<sup>71</sup> Congress codified the USPSTF as an independent body in 1998. Though  
49 the Agency for Healthcare Research and Quality (AHRQ) is mandated to convene the USPSTF, its  
50 sole role is to support the USPSTF by providing meeting space, organizing conference calls,



1 managing contracts for systematic reviews, and providing staffing.<sup>71</sup> No individual at AHRQ has a  
2 vote in the recommendations, or otherwise influences the priorities or decisions of the USPSTF.<sup>71</sup>  
3

4 The USPSTF comprises 16 members who serve terms of 4-6 years; members are appointed by the  
5 AHRQ director based on recommendations developed by the USPSTF Chair and Vice-Chair  
6 following a public nomination process.<sup>71</sup> Members are experts in primary care and preventive  
7 health-related disciplines, and collectively possess expertise in evidence-based clinical research,  
8 screening, clinical epidemiology, behavioral science, health services research, outcomes and  
9 effectiveness in clinical preventive medicine, and decision modeling.<sup>71</sup> The USPSTF does not  
10 deliberately seek out task force members who are experts on specific topics; experts bring  
11 substantial knowledge regarding guideline development processes but also may retain inherent  
12 biases.<sup>72,73</sup> It is sometimes difficult for experts to fairly assess and critique studies that they or their  
13 colleagues have conducted, contradict beliefs entrenched since training, and recommend against  
14 services that may benefit themselves or their specialties.<sup>72</sup> Also, many experts in specific topic  
15 areas lack training in epidemiology and biostatistics.<sup>72</sup> The USPSTF is considered unique in that it  
16 convenes primary care providers and scientists with skills in objectively critiquing studies without  
17 preconceived views or a stake in the outcome.<sup>72</sup>  
18

19 The USPSTF follows a detailed protocol for guideline development.<sup>74</sup> For each topic under  
20 consideration, an AHRQ evidence-based practice center conducts a systematic review of the  
21 evidence, which enables a subcommittee of the USPSTF to develop estimates of the magnitude and  
22 certainty of benefits and harms. These estimates are extensively reviewed by the full USPSTF in  
23 order to reach consensus and vote on recommendations. Cost and cost-effectiveness are not  
24 considered in the guideline development process.<sup>71</sup> A full explanation of the USPSTF's evidence  
25 grading and subsequent recommendation system is published on the USPSTF website.<sup>74</sup>  
26

27 Subspecialist experts in the disease at hand, as well as partner organizations, are asked to review  
28 and comment on USPSTF work at three points in the recommendation development process: 1. the  
29 initial analytic framework and key questions that drive the systematic review; 2. the systematic  
30 review itself; and 3. the draft recommendation statement. USPSTF partner organizations that are  
31 also members of the AMA Federation of Medicine are AAFP, ACOG, ACP, the American College  
32 of Preventive Medicine (ACPM), the American Academy of Pediatrics, and the American  
33 Osteopathic Association.  
34

### 35 *Recommendations for screening mammography*

36

37 Plans for the update of the 2002 USPSTF recommendations on screening mammography began in  
38 late 2006. In 2007, the USPSTF commissioned two reviews: a targeted systematic evidence review  
39 of the benefits and harms of screening<sup>75</sup> and a decision analysis based on modeling techniques that  
40 compared the expected health outcomes of starting and ending mammography at different ages and  
41 using annual and biennial screening strategies.<sup>24</sup> The systematic review excluded studies other than  
42 RCTs and systematic reviews or those without breast cancer mortality as an outcome.<sup>18,75</sup> The  
43 systematic review included analyses of evidence regarding CBE, SBE, digital mammography, and  
44 MRI, but this section will focus on the evidence analyzed to develop recommendations on  
45 screening mammography.  
46

47 In its 2009 update, the USPSTF recommended against routine screening mammography for women  
48 aged 40-49 years, and instead recommended an individualized decision to screen during this time  
49 period. This recommendation is partially based on findings in the commissioned systematic  
50 review.<sup>18</sup> The systematic review was carried out by the Oregon Evidence-based Practice Center,  
51 funded by AHRQ. Prior to its finalization, the draft report was reviewed by 15 experts not

1 affiliated with the USPSTF. These reviewers included one oncologist, an expert in modeling, two  
2 radiologists, one breast surgeon, and three physician/epidemiologists.<sup>76</sup> The names of the  
3 reviewers are included in the full systematic review available on the National Library of Medicine  
4 website.<sup>75</sup>

5  
6 Mortality reduction was considered an important outcome in the formation of the  
7 recommendations.<sup>2</sup> The systematic review estimated the mortality reduction for women aged 39-  
8 49 years, 50-59 years, and 60-69 years to be 15%, 14%, and 32% respectively.<sup>18</sup> These estimates  
9 are similar to those established in the USPSTF's 2002 systematic review, but include new data  
10 from an update of a previously completed trial,<sup>30</sup> and another clinical trial completed after  
11 2002.<sup>2,20,31</sup> Since these mortality reduction estimates are based on relative risk, the USPSTF  
12 considered calculations of the number needed to invite for screening to prevent one death from  
13 breast cancer, which more clearly explains mortality reduction.<sup>2</sup> The "number needed to screen"  
14 calculation is based on absolute risk, so it takes into account the background risk for breast  
15 cancer.<sup>77,78</sup> This number can more clearly reflect the benefit of mammography in each age group  
16 since it includes the increasing absolute risk of breast cancer with advancing age. The number  
17 needed to invite for screening (to prevent one death) is 1904 for women aged 40-49 years, 1339 for  
18 women aged 50-59 years, and 377 for women aged 60-69 years.<sup>2</sup>

19  
20 In addition to the mortality reduction benefit associated with mammography, the USPSTF  
21 considered harms. In some studies, the probability of receiving a false-positive mammography  
22 result is slightly higher in women aged 40-49 years.<sup>18</sup> A false-positive mammography result often  
23 leads to additional imaging, and after several years participating in a screening program, nearly  
24 10% of women receive a false-positive biopsy recommendation.<sup>44</sup> Though the range of reported  
25 overdiagnosis is large, between 1-30%, and therefore difficult to estimate precisely, it is a risk that  
26 many agree is serious, since it leads to treatment that may not be necessary.<sup>18</sup> Radiation exposure  
27 was not considered to be a serious risk of screening mammography, except for the small percentage  
28 of the population previously exposed to chest radiography and therapeutic radiation.<sup>70</sup>

29  
30 The USPSTF-commissioned decision analysis compared the expected health outcomes of starting  
31 and ending mammography at different ages and using annual and biennial screening strategies.<sup>24</sup>  
32 For the screening models compared, biennial screening retains 70-99% of the reduction in  
33 mortality that occurs with annual screening, depending on the age range for screening.<sup>24</sup> The  
34 models predict that beginning screening at age 40 years yields an additional 3% mortality benefit  
35 compared with beginning screening at age 50 years.<sup>24</sup> This additional mortality benefit is the same  
36 with either annual or biennial screening beginning at age 40 years.<sup>24</sup> Extending screening to age 79  
37 years yields an additional 8% or 7% mortality benefit compared with screening programs ending at  
38 age 69 years, for annual and biennial screening, respectively.<sup>24</sup> If the two strategies are compared,  
39 these data indicate that greater mortality reduction could be achieved by continuing screening past  
40 age 69 years rather than by initiating it at age 40 years. However, if life-years gained is considered,  
41 models show that initiating screening in younger women rather than extending screening in older  
42 women results in more benefit; this is not surprising since younger women have longer life  
43 expectancies than older women. Annual screening between the 29 year period comprising ages 40-  
44 69 years yields a median of 33 life-years gained per 1000 women screened, whereas annual  
45 screening between the 29 year period comprising ages 50-79 years yields a median of 24 life-years  
46 gained per 1000 women screened.<sup>24</sup> Biennial screening with these parameters yielded 25 and 23.5  
47 life-years gained in the two groups, respectively.

48  
49 The decision analysis also compared the harms associated with different screening models. Annual  
50 screening between ages 40-69 years yields 2,250 false positive results for every 1000 women  
51 screened over the 29 year period, almost twice as many as that of a biennial screening period.<sup>24</sup>

1 Consequently, many more women who are screened annually will undergo biopsy compared with  
2 those who are screened biennially.<sup>24</sup> The models also predict an increase in the risk of  
3 overdiagnosis as age increases. Overall, initiating screening at age 40 years (compared to age 50  
4 years) had a smaller effect on overdiagnosis than extending screening beyond age 69 years.<sup>24</sup>  
5 Overdiagnosis risk was smaller with biennial screening, but by less than half.<sup>24</sup>  
6

7 The USPSTF studied the balance of benefits and harms of mammography, as well as the results of  
8 the systematic review and the decision analysis study, to develop its final recommendations. It  
9 concluded that compared with initiating screening at age 50 years, screening mammography  
10 provides a small benefit when performed annually in women aged 40-49 years, but is more likely  
11 to be accompanied by false-positives and overdiagnosis, resulting in a smaller net benefit.<sup>2,71</sup> The  
12 ages at which the balance of benefits and harms becomes acceptable to individuals and society are  
13 not clearly resolved by available evidence.<sup>19</sup> Because of the small net benefit, the USPSTF  
14 concluded that mammography in women aged 40-49 years should not be automatic, but should  
15 instead be initiated as a result of an individual decision based on the woman's specific clinical  
16 situation, preferences, and values regarding the potential benefits and harms.<sup>2,71</sup>  
17

## 18 REACTION TO USPSTF RECOMMENDATIONS

19

20 The 2009 USPSTF screening mammography recommendations were met with opposition by  
21 several medical specialty societies, public advocacy groups and individuals in the medical  
22 community. ACR stated that the USPSTF recommendations were "ill-advised" and would result in  
23 "countless unnecessary breast cancer deaths each year."<sup>79,80</sup> ACOG, ACS, the Radiological Society  
24 of North America, the Society of Breast Imaging, the American Society of Breast Disease, and  
25 other groups also publicly stated opposition to the recommendations.<sup>80-84</sup> Most reiterated support  
26 of guidelines that recommend routine screening mammography beginning at age 40 years. Several  
27 publications addressing perceived flaws in the interpretation of data by the USPSTF have appeared  
28 in peer-reviewed journals.<sup>23,26,38,85-88</sup>  
29

30 Among the criticisms of the USPSTF process was reliance on only RCTs in the evidence review,  
31 with the exclusion of additional observational studies showing higher mortality benefit and reduced  
32 numbers needed to screen.<sup>79</sup> Several studies, including some RCTs, did not meet the USPSTF's  
33 strict inclusion criteria; others received only a grade of "fair" for their shortcomings.<sup>74,75</sup> Another  
34 criticism was the use of the "number needed to invite for screening" value, rather than the number  
35 actually screened.<sup>26</sup> The USPSTF reported that the level of participation in the trials was high, and  
36 that data from trials with lower participation rates was graded as lower quality.<sup>71,74,75</sup> The USPSTF  
37 also reported that the use of only participating women, rather than those who were merely invited  
38 to screen, yielded only a slightly higher benefit.<sup>71</sup>  
39

40 In contrast to the opposition, several organizations, including those representing primary care  
41 physicians and public health providers, expressed public support for the 2009 USPSTF  
42 recommendations. In a letter to members of Congress, 11 health care organizations, including the  
43 AAFP, ACP, and ACPM defended the recommendations.<sup>89</sup> The AAFP also joined with four of its  
44 affiliate groups to urge the Secretary of the Department of Health and Human Services to reject  
45 calls to remove the USPSTF recommendations from the AHRQ website.<sup>90</sup> Advocacy groups,  
46 including the National Breast Cancer Coalition, Breast Cancer Action, and the National Women's  
47 Health Network also publicly supported the USPSTF recommendations.<sup>91-93</sup>  
48

49 Media coverage of the USPSTF recommendations was often controversy-oriented.<sup>94-97</sup> A recent  
50 study reported that more than half of media reports about the recommendations took an  
51 unsupportive stance; nearly 70% of reports included the belief that "delayed screening leads to

1 more breast cancer and related deaths” or concern over “cost and government rationing of health  
 2 care.”<sup>98</sup> Seventeen percent of the reports took a supportive stance, based on beliefs that “the  
 3 recommendations were based on science” and that there is “potential harm in mammography.”<sup>98</sup>  
 4 Not surprisingly, laywomen who had, or currently have, breast cancer were angered by the  
 5 recommendations, strongly believing that mammography saved their lives.<sup>99</sup> The opinions of  
 6 women who have not experienced breast cancer also were strongly influenced by media coverage,  
 7 with women who had viewed commentary that was critical of the USPSTF guidelines more likely  
 8 to overestimate individual risk for breast cancer and feel uncomfortable about delaying  
 9 mammography until age 50 years, compared to those who viewed commentary that supported the  
 10 USPSTF guidelines.<sup>100</sup>

11  
 12 At the time that the recommendations were released, the country was deeply involved in the debate  
 13 about health care reform. Since the USPSTF is convened by a government agency (AHRQ),  
 14 several media outlets and others expressed serious concern that the recommendations would be  
 15 binding in government health care policy. Several journal publications expressed the opinion that  
 16 USPSTF is an “opponent of screening” and that its recommendations were intended to restrict  
 17 patient access to mammography.<sup>26,38,86</sup> Others joined in suggesting that the recommendations  
 18 would directly affect costs and insurance coverage for breast cancer screening, and calls were made  
 19 for Congress to intervene. In response, in early December 2009, the Senate passed 2 amendments  
 20 to its proposed health care reform legislation: one requiring the federal government to effectively  
 21 ignore the new recommendations, and the other guaranteeing no-cost breast screening for women  
 22 in their 40s. These provisions were signed into law in 2010 as part of the Affordable Care Act.

#### 23 24 INDIVIDUAL AND RISK-BASED SCREENING

25  
 26 The USPSTF is not the first group recommending an individualized, risk-based approach to  
 27 mammography screening in women aged 40-49 years,<sup>8</sup> but the attention paid to the mammography  
 28 recommendation has highlighted consideration of that approach. Individualized screening refers to  
 29 screening mammography at an age and frequency decided upon by both physician and patient,  
 30 based on the physician’s assessment of patient clinical factors that influence breast cancer risk and  
 31 the patient’s values regarding the balance of benefits and harms of screening mammography.

32  
 33 Data suggest that women themselves want to be involved in the decision to initiate screening  
 34 mammography, and often request specific information prior to their first mammogram, including  
 35 information about benefits and harms.<sup>101</sup> Women acknowledge anxiety about false positives, but  
 36 show little awareness of overdiagnosis.<sup>102</sup> Physicians have an ethical obligation to educate women  
 37 with balanced information appropriate to the desire expressed by each patient for such  
 38 information.<sup>102</sup> Model physician-patient dialogue and patient decision aids have been developed as  
 39 resources to support the shared decision-making underlying the individualized screening  
 40 approach.<sup>103-105</sup>

41  
 42 Some argue that the individualized risk-based screening approach will fall short in effectively  
 43 detecting early cancer. A large percentage of cancers are diagnosed in women with no apparent  
 44 risk factors, suggesting that relying on the identification of personal or family risk factors to  
 45 indicate the need for mammography will miss many cancers that could have been detected by  
 46 mammography.<sup>106,107</sup> Also, randomized data are lacking to support a risk-based approach between  
 47 the ages of 40-49 years since no RCTs have stratified participants by risk.<sup>106</sup> However, there are  
 48 hints that a risk based approach may be effective. In a recent single arm (non-controlled) study,  
 49 women ages 40-50 years at intermediate risk for breast cancer (those with at least one first-degree  
 50 relative with breast cancer) who were screened annually had smaller tumors that were less likely to  
 51 be node-positive when compared to control groups from other studies.<sup>34</sup> Additionally, a meta-

1 analysis and systematic review examining several risk factors found that breast cancer in a first-  
2 degree relative and extremely dense breasts were associated with increased risk in women ages 40-  
3 49 years.<sup>108</sup> An accompanying modeling study found that for women with either one of those two  
4 risk factors, biennial screening mammography beginning at the age of 40 years has the same  
5 balance of benefits and harms as that for biennial screening mammography beginning at age 50  
6 years in women without those risk factors.<sup>109</sup>

7  
8 The individualized approach relies heavily on the identification of red flags in a patient's family  
9 history, yet many patients do not receive adequate familial cancer risk assessment in the primary  
10 care setting.<sup>110-113</sup> Further, a patient's family history will change over time as family members'  
11 health status changes. Clinically relevant family history changes substantially during early and  
12 middle adulthood (between the ages of 30-50 years), particularly for breast cancer.<sup>110</sup> If a patient's  
13 family history is not updated adequately during those years, risk factors that would indicate a need  
14 for more intensive screening will be missed.<sup>110</sup> Some physicians also do not follow  
15 recommendations for referral of women for high-risk cancer genetic counseling, suggesting that  
16 estimation of breast cancer risk by these physicians is faulty.<sup>114</sup> This behavior may reflect a  
17 misunderstanding of what constitutes "high risk," since definitions are variable.<sup>2,8,115,116</sup>

## 18 19 GUIDELINE REFORM

20  
21 The controversy stemming from the 2009 USPSTF recommendations has brought attention to the  
22 process of guideline development. ARHQ's National Guideline Clearinghouse contains close to  
23 2,700 clinical practice guidelines, and the number of groups issuing guidelines has proliferated,  
24 along with substantially different development methodologies.<sup>117</sup> The Clearinghouse was  
25 originally created by AHRQ in partnership with the AMA and the American Association of Health  
26 Plans (now America's Health Insurance Plans). With the growth in the number of guidelines being  
27 developed, physicians, consumer groups, and other stakeholders have expressed concern about the  
28 quality of the processes used to develop guidelines, and the resulting questionable validity of many  
29 guidelines.<sup>117,118</sup> Concerns stem from limitations in the scientific evidence base, a lack of  
30 transparency in the methodologies used by guideline-developing groups, conflict of interest among  
31 guideline-developing group members and funders, and uncertainty regarding how to reconcile  
32 conflicting guidelines.<sup>117</sup> Additionally, significant variability in the recommendations of guidelines  
33 can lead to confusion and frustration on the part of health care providers and patients.<sup>119</sup>

34  
35 Specific to mammography guidelines, a recent study suggests that guideline development reform is  
36 needed. The study assessed the quality of guidelines that provide recommendations on  
37 mammography screening in asymptomatic women aged 40-49 years, and concluded that both the  
38 evidence reviews underlying the guidelines, as well as the guidelines themselves, were of vastly  
39 different quality.<sup>119</sup> Based on quality assessment instruments, the study assigned an overall  
40 assessment for use in clinical practice to each of the guidelines. Of the 11 guidelines studied, only  
41 three received "strongly recommend" or "recommend" assessments.<sup>119</sup> The remaining guidelines  
42 were found to have deficiencies in their development processes, and were given "unsure" or  
43 "would not recommend" assessments.<sup>119</sup>

44  
45 In response to concerns that the guideline development process is widely variable, thus leading to  
46 guidelines that are variable in quality, the Institute of Medicine (IOM) recently undertook a project  
47 to define standards for guideline development.<sup>117</sup> The standards, released in Spring 2011, promote  
48 the development of unbiased, valid, and trustworthy guidelines that incorporate a grading system  
49 for characterizing the quality of evidence and strength of clinical recommendations.<sup>119</sup> Standards  
50 are focused on establishing transparency, managing conflicts of interest, composition of the  
51 development group, systematic review use, evidence strength, articulation of recommendations,

1 external review, and updating.<sup>117</sup> The ACS recently announced that it plans to change its guideline  
2 development process to more closely follow the standards recommended by the IOM.<sup>120</sup>

### 3 4 CONCLUSIONS

5  
6 Mammography is a proven method for detecting breast tumors, with demonstrated reductions in  
7 mortality for women who undergo regular screening. The potential for harm exists, which  
8 underlies differences in recommendations regarding the frequency and age at which to begin and  
9 end screening. Groups developing guidelines have placed different emphasis on these harms,  
10 resulting in varied conclusions about whether benefits outweigh the harms, and whether that  
11 balance changes in different age groups. The USPSTF carefully considered the balance of harms  
12 and benefits while studying this issue, commissioning a systematic evidence review and a  
13 modeling study to inform its recommendations. It has endured criticism from those who disagree  
14 with its recommendations but has stood by them. The USPSTF and others, some of whom disagree  
15 with the USPSTF recommendations, have stated that this issue is a case in which qualified and  
16 competent physicians and researchers can review and interpret the same evidence but come to  
17 different conclusions.<sup>76,84</sup>

18  
19 The Council is respectful of the time, expertise, and thought that guideline-developing groups,  
20 many of whom are represented in the AMA House of Delegates (HOD), have devoted to the topic  
21 of mammography screening. Importantly, all are working toward one goal, to optimize the health  
22 outcomes for those with breast cancer and to minimize harms to those without. Previous  
23 consideration of this subject in the context of Resolution 509-A-10 revealed deep disagreements  
24 within the HOD, but the Council notes that agreements exist as well: that mammography is the best  
25 existing tool for the routine detection of breast cancer and that it has its shortcomings. The Council  
26 also strongly believes that every woman age 40 years or older who wants a screening mammogram  
27 and whose physician recommends one should receive one, regardless of her insurance coverage  
28 status.

### 29 30 AMA POLICY CONSIDERATIONS

31  
32 The Council has given much thought to the mammography screening policies of the AMA. Most  
33 remain valid and important, even in light of the recent controversy following the USPSTF  
34 recommendations. Mammography screening guidelines themselves regularly undergo review and  
35 update processes, and the Council believes that it is appropriate for AMA policies referencing such  
36 guidelines to be reviewed and updated as well. Indeed the very policy under consideration, Policy  
37 H-525.993 [Mammography Screening in Asymptomatic Women Forty Years and Older],  
38 encourages periodic review of its recommendations. There are several parts to this policy, which  
39 the Council addresses in turn below.

40  
41 Part 1 of H-525.993 states: “Our AMA strongly endorses the positions of the American College of  
42 Obstetrics and Gynecology, the American Cancer Society, and the American College of Radiology  
43 that all women have screening mammography as per current guidelines.” Given the role of the  
44 AMA in representing hundreds of different medical societies, the Council does not believe it is  
45 appropriate to single out support for the guidelines of particular societies. This is not a comment  
46 on the content of such guidelines, rather it reflects the equity of all members of the HOD and  
47 respect for their professional expertise.

48  
49 Part 2 of H-525.993 states: “Our AMA favors participation in and support of the efforts of the  
50 professional, voluntary, and government organizations to educate physicians and the public  
51 regarding the value of screening mammography in reducing breast cancer mortality.” The Council

1 strongly supports educating physicians and the public about mammography, including its value and  
2 its limitations.

3  
4 Part 3 of H-525.993 states: “Our AMA advocates remaining alert to new epidemiological findings  
5 regarding age-specific breast cancer mortality reduction following mammography screening.” The  
6 Council agrees.

7  
8 Part 4 of H-525.993 states: “Based on recent summary data our AMA recommends annual  
9 screening mammograms and continuation of clinical breast examinations in asymptomatic women  
10 40 years and older.” The Council recognizes the difficulty faced by guideline-making groups when  
11 balancing the proven and quantifiable mortality reduction of screening mammography with the  
12 nearly impossible task of quantifying harms, including overdiagnosis and anxiety/mental anguish  
13 associated with false-positives. Not having undergone the rigorous processes of guideline-making  
14 groups (and not equipped to do so), the Council cannot in good faith recommend a frequency and  
15 specific age at which screening mammography should begin, nor does it believe that the AMA,  
16 representing the divergent views of many guideline-making groups who are also members of the  
17 HOD, should do so. However, the Council strongly supports the autonomy of physicians and their  
18 responsibility to care for patients in a manner in which they believe is appropriate; this includes  
19 beginning annual mammography at age 40 years when it is believed to be clinically appropriate.  
20 Support for clinical breast examination is included in a separate policy, H-525.985 [Safety and  
21 Performance Standards for Mammography].

22  
23 Part 5 of H-525.993 states: “Our AMA encourages the periodic reconsideration of these  
24 recommendations as more epidemiological data become available.” The Council agrees.

25  
26 Part 6 of H-525.993 states “Our AMA supports seeking common recommendations with other  
27 organizations.” The Council is aware that differing recommendations can cause confusion and  
28 frustration for physicians and patients, and therefore believes that common recommendations are in  
29 the best interest of the clinical practice and patients. The Council cites as a best practice the  
30 “Consensus Points on Screening Mammography,” (see Appendix II) jointly developed by the ACP  
31 and ACR to assist physicians and patients in their discussions of mammography.<sup>121</sup> For common  
32 recommendations to retain value, it is important that they be based on an approach that is unbiased,  
33 valid, and trustworthy.

34  
35 Part 7 of H-525.993 states: “Our AMA reiterates its longstanding position that all medical care  
36 decisions should occur only after thoughtful deliberation between patients and physicians.” The  
37 Council strongly agrees and notes that this is the foundation of recommendations that advocate an  
38 individualized approach to screening mammography between the ages of 40-49. Specific to the  
39 USPSTF, AMA policy H-410.967 [Guide to Clinical Preventive Services] states that the USPSTF  
40 guidelines “...should not take the place of clinical judgment and the need for individualizing care  
41 with patients; physicians should weigh the utility of individual recommendations within the context  
42 of their scope of practice and the situation presented by each clinical encounter.”

#### 43 44 RECOMMENDATIONS

45  
46 The Council on Science and Public Health recommends that the following statement be adopted in  
47 lieu of Resolve 1, Resolution 509-A-10, and the remainder of the report be filed:

48  
49 That Policy H-525.993 “Mammography Screening in Asymptomatic Women Forty Years and  
50 Older” be amended by insertion and deletion as follows:

1 Screening Mammography Screening in Asymptomatic Women Forty Years and Older

2  
3 Our AMA:

4  
5 ~~1. Our AMA a. recognizes the mortality reduction benefit of screening mammography and~~  
6 ~~supports its use as a tool to detect breast cancer. while also recognizing that there are small, but~~  
7 ~~not inconsequential, harms risks associated with it, including false positive results and~~  
8 ~~overdiagnosis.~~

9  
10 b. Recognizes that as with all medical screening procedures, there are small, but not  
11 inconsequential associated risks including false positive and false negative results and  
12 overdiagnosis. strongly endorses the positions of the American College of Obstetrics and  
13 Gynecology, the American Cancer Society, and the American College of Radiology that all  
14 women have screening mammography as per current guidelines.

15  
16 ~~2. Our AMA c. favors participation in and support of the efforts of the professional, voluntary,~~  
17 ~~and government organizations to educate physicians and the public regarding the value of~~  
18 ~~screening mammography in reducing breast cancer mortality, as well as its limitations.~~

19  
20 ~~3. Our AMA d. advocates remaining alert to new epidemiological findings regarding screening~~  
21 ~~mammography age specific breast cancer mortality reduction following mammography~~  
22 ~~screening as well as associated harms. 4. Based on recent summary data our AMA~~  
23 ~~recommends annual screening mammograms and continuation of clinical breast examinations~~  
24 ~~in asymptomatic women 40 years and older. 5. Our AMA and encourages the periodic~~  
25 ~~reconsideration of these recommendations as more epidemiological data become available.~~

26  
27 ~~e. believes that beginning at the age of 40 years, all women should be eligible for screening~~  
28 ~~mammography. Physicians should regularly discuss with their individual patients whether~~  
29 ~~screening mammography is appropriate for them. This discussion should include reminders~~  
30 ~~about the benefits and harms of mammography, an update of the patient's family history,~~  
31 ~~consideration of other breast cancer risk factors, and the mammography recommendations of~~  
32 ~~various medical organizations, in particular where those recommendations differ between~~  
33 ~~organizations.~~

34  
35 ~~f. encourages physicians to regularly discuss with their individual patients the benefits and~~  
36 ~~risks of screening mammography, and whether screening is appropriate for each clinical~~  
37 ~~situation given that the balance of benefits and risks will be viewed differently by each patient.~~

38  
39 ~~e.g. encourages physicians to inquire about and update each patient's family history to detect~~  
40 ~~red flags for hereditary cancer, and to consider other education on the identification of risk~~  
41 ~~factors for breast cancer, including the value of taking a thorough family history to detect red~~  
42 ~~flags for hereditary cancer, so that recommendations for screening will be appropriate.~~

43  
44 ~~f h. supports insurance coverage for screening mammography.~~

45  
46 ~~6. Our AMA g. i supports seeking common recommendations with other organizations,~~  
47 ~~informed and respectful dialogue as guideline-making groups address the similarities and~~  
48 ~~differences among their respective recommendations, and adherence to standards that ensure~~  
49 ~~guidelines are unbiased, valid, and trustworthy.~~



- 1 ~~7. Our AMA is~~ reiterates its longstanding position that all medical care decisions should
- 2 occur only after thoughtful deliberation between patients and physicians. (Modify HOD Policy)

Fiscal note: Less than \$500

## REFERENCES

1. United States Preventive Services Task Force. (2002) Screening for breast cancer: recommendations and rationale. *Ann Intern Med* 137:344-346.
2. United States Preventive Services Task Force. (2009) Screening for Breast Cancer: U.S. Preventive Services Task Force Recommendation Statement. *Ann Intern Med* 151:716-723.
3. American Medical Association Council on Scientific Affairs. (1988) Report F: Mammography screening in asymptomatic women forty years and older. (A-88) Available in AMA Meeting Archives.
4. American Medical Association Council on Scientific Affairs. (1999) Report 16: Mammographic screening for symptomatic women (A-99). Available in AMA Meeting Archives.
5. Tonelli M, Gorber SC, Joffres M, Dickinson J, Singh H, Lewin G, Birtwhistle R, Fitzpatrick-Lewis D, Hodgson N, Ciliska D, Gauld M, Liu YY. For the Canadian Task Force on Preventive Health Care. (2011) Recommendations on screening for breast cancer in average-risk women aged 40-74 years. *CMAJ* 183:1991-2001.
6. National Health Service. (2011) NHS Breast Screening Programme: Annual Review. Available at <http://www.cancerscreening.nhs.uk/breastscreen/publications/nhsbsp-annualreview2011.pdf>. Accessed 01-27-12.
7. American Academy of Family Physicians. (2009) Recommendations for Clinical Preventive Services. Available at <http://www.aafp.org/online/en/home/clinical/exam/a-e.html>. Accessed 01-27-12.
8. Qaseem A, Snow V, Sherif K, Aronson M, Weiss KB, Owens DK. (2007) Screening mammography for women 40 to 49 years of age: a clinical practice guideline from the American College of Physicians. *Ann Intern Med* 146:511-5.
9. American College of Obstetricians and Gynecologists. (2011) Practice Bulletin: Breast Cancer Screening. *Obstet Gynecol* 118:372-382.
10. Lee CH, Dershaw DD, Kopans D, Evans P, Monsees B, Monticciolo D, Brenner RJ, Bassett L, Berg W, Feig S, Hendrick E, Mendelson E, D'Orsi C, Sickles E, Burhenne LW. (2010) Breast cancer screening with imaging: recommendations from the Society of Breast Imaging and the ACR on the use of mammography, breast MRI, breast ultrasound, and other technologies for the detection of clinically occult breast cancer. *J Am Coll Radiol* 7:18-27.
11. Smith RA, Cokkinides V, Brooks D, Saslow D, Shah M, Brawley OW. (2011) Cancer screening in the United States, 2011: A review of current American Cancer Society guidelines and issues in cancer screening. *CA Cancer J Clin* 61:8-30.
12. National Comprehensive Cancer Network. (2011) Breast Cancer Screening and Diagnosis. Available at [http://www.nccn.org/professionals/physician\\_gls/f\\_guidelines.asp](http://www.nccn.org/professionals/physician_gls/f_guidelines.asp) (requires login). Accessed 01-27-12.

13. Berlin L and Hall FM. (2010) More mammography muddle: emotions, politics, science, costs, and polarization. *Radiology* 255:311-6.
14. Jemal, A., Siegel, R., Xu, J. and Ward, E. (2010) Cancer Statistics, 2010. *CA: A Cancer J Clin* 60:277-300.
15. American Cancer Society. (2012). Breast Cancer. Available at <http://www.cancer.org/acs/groups/cid/documents/webcontent/003090-pdf.pdf>. Accessed 01-29-12.
16. U.S. Food and Drug Administration. (2012). Mammography Quality Standards Act National Statistics. Available at <http://www.fda.gov/Radiation-EmittingProducts/MammographyQualityStandardsActandProgram/FacilityScorecard/ucm113858.htm>. Accessed 04-27-12.
17. Partridge AH, Winer EP. (2009) On mammography--more agreement than disagreement. *N Engl J Med* 361:2499-501.
18. Nelson HD, Tyne K, Naik A, Bougatsos C, Chan BK, Humphrey L. (2009) Screening for breast cancer: an update for the U.S. Preventive Services Task Force. *Ann Intern Med* 151:727-37.
19. Gotzsche PC, Nielsen M. (2011) Screening for breast cancer with mammography. *Cochrane Database Syst Rev* 2011 1:CD001877.
20. Humphrey LL, Helfand M, Chan BK, Woolf SH. (2002) Breast cancer screening: a summary of the evidence for the U.S. Preventive Services Task Force. *Ann Intern Med* 137(5 Part 1):347-60.
21. Nyström L, Andersson I, Bjurstam N, Frisell J, Nordenskjöld B, Rutqvist LE. (2002). Long-term effects of mammography screening: updated overview of the Swedish randomised trials. *Lancet* 359:909-19.
22. Tabár L, Vitak B, Chen HH, Duffy SW, Yen MF, Chiang CF, Krusemo UB, Tot T, Smith RA. (2000) The Swedish Two-County Trial twenty years later. Updated mortality results and new insights from long-term follow-up. *Radiol Clin North Am* 38:625-51.
23. Hendrick RE, Helvie MA. (2011) United States Preventive Services Task Force screening mammography recommendations: science ignored. *Am J Roentgenol* 196:W112-6.
24. Mandelblatt JS, Cronin KA, Bailey S, Berry DA, de Koning HJ, Draisma G, Huang H, Lee SJ, Munsell M, Plevritis SK, Ravdin P, Schechter CB, Sigal B, Stoto MA, Stout NK, van Ravesteyn NT, Venier J, Zelen M, Feuer EJ; Breast Cancer Working Group of the Cancer Intervention and Surveillance Modeling Network. (2009) Effects of mammography screening under different screening schedules: model estimates of potential benefits and harms. *Ann Intern Med* 151:738-47.
25. Berry DA, Cronin KA, Plevritis SK, Fryback DG, Clarke L, Zelen M, Mandelblatt JS, Yakovlev AY, Habbema JD, Feuer EJ. (2005) Effect of screening and adjuvant therapy on mortality from breast cancer. *N Engl J Med* 353:1784-92.

26. Kopans DB. (2010) The 2009 US Preventive Services Task Force (USPSTF) guidelines are not supported by science: the scientific support for mammography screening. *Radiol Clin North Am* 48:843-57.
27. Habbema JD, van Oortmarsen GJ, van Putten DJ, Lubbe JT, van der Maas PJ. (1986). Age-specific reduction in breast cancer mortality by screening: an analysis of the results of the Health Insurance Plan of Greater New York study. *J Natl Cancer Inst* 77:317-20.
28. Tabar L, Fagerberg G, Chen HH, Duffy SW, Smart CR, Gad A, Smith RA. (1995) Efficacy of breast cancer screening by age. New results from the Swedish Two-County Trial. *Cancer* 75:2507-17.
29. Miller AB, To T, Baines CJ, Wall C. (2002). The Canadian National Breast Screening Study-1: breast cancer mortality after 11 to 16 years of follow-up. A randomized screening trial of mammography in women age 40 to 49 years. *Ann Intern Med* 137(5 Part 1):305-12.
30. Bjurstram N, Bjorneld L, Warwick J, Sala E, Duffy SW, Nystrom L, Walker N, Cahlin E, Eriksson O, Hafstrom LO, Lingaas H, Mattsson J, Persson S, Rudenstam CM, Salander H, Save-Soderbergh J, Wahlin T. (2003) The Gothenburg Breast Screening Trial. *Cancer* 97:2387-2396.
31. Moss SM, Cuckle H, Evans A, Johns L, Waller M, Bobrow L. (2006) Effect of mammographic screening from age 40 years on breast cancer mortality at 10 years' follow-up: a randomised controlled trial. *Lancet* 368:2053-60.
32. Tabár L, Vitak B, Chen TH, Yen AM, Cohen A, Tot T, Chiu SY, Chen SL, Fann JC, Rosell J, Fohlin H, Smith RA, Duffy SW. (2011) Swedish two-county trial: impact of mammographic screening on breast cancer mortality during 3 decades. *Radiology* 260:658-63.
33. Shen N, Hammonds LS, Madsen D, Dale P. (2011) Mammography in 40-year-old women: what difference does it make? The potential impact of the U.S. Preventative Services Task Force (USPSTF) mammography guidelines. *Ann Surg Oncol* 18:3066-71.
34. FH01 collaborative teams. (2010) Mammographic surveillance in women younger than 50 years who have a family history of breast cancer: tumour characteristics and projected effect on mortality in the prospective, single-arm, FH01 study. *Lancet Oncol* 11:1127-1134.
35. Kalager M, Zelen M, Langmark F, Adami HO. (2010) Effect of screening mammography on breast-cancer mortality in Norway. *N Engl J Med* 363:1203-10.
36. Blanks RG, Moss SM, McGahan CE, Quinn MJ, Babb PJ. (2000) Effect of NHS breast screening programme on mortality from breast cancer in England and Wales, 1990-8: comparison of observed with predicted mortality. *BMJ* 321:665-9.
37. Otto SJ, Fracheboud J, Looman CW, Broeders MJ, Boer R, Hendriks JH, Verbeek AL, de Koning HJ. (2003) Initiation of population-based mammography screening in Dutch municipalities and effect on breast-cancer mortality: a systematic review. *Lancet* 361:1411-7.
38. Kopans DB. (2010) The 2009 U.S. Preventive Services Task Force guidelines ignore important scientific evidence and should be revised or withdrawn. *Radiology* 256:15-20.

39. National Center for Health Statistics. Breast Cancer Screening Rates. Available at <http://www.cdc.gov/cancer/breast/statistics/screening.htm>. Accessed 01-23-12.
40. Kerlikowske K. (2012) Screening mammography in women less than age 50 years. *Curr Opin Obstet Gynecol* 24:38-43.
41. Hirsch BR, Lyman GH. (2011) Breast cancer screening with mammography. *Curr Oncol Rep* 13:63-70.
42. United States Government Accountability Office. (2006) Mammography: Current Nationwide Capacity is Adequate, but Access Problems May Exist in Certain Locations. Available at <http://www.gao.gov/new.items/d06724.pdf>. Accessed 03-28-12.
43. Howlader N, Noone AM, Krapcho M, Neyman N, Aminou R, Waldron W, Altekruse SF, Kosary CL, Ruhl J, Tatalovich Z, Cho H, Mariotto A, Eisner MP, Lewis DR, Chen HS, Feuer EJ, Cronin KA, Edwards BK (eds). (2011) SEER Cancer Statistics Review, 1975-2008. Available at [http://seer.cancer.gov/csr/1975\\_2008/results\\_single/sect\\_01\\_table.04\\_2pgs.pdf](http://seer.cancer.gov/csr/1975_2008/results_single/sect_01_table.04_2pgs.pdf). Accessed 03-28-12.
44. Hubbard RA, Kerlikowske K, Flowers CI, Yankaskas BC, Zhu W, Miglioretti DL. (2011) Cumulative probability of false-positive recall or biopsy recommendation after 10 years of screening mammography: a cohort study. *Ann Intern Med* 155:481-92.
45. Elmore JG, Barton MB, Mocerri VM, Polk S, Arena PJ, Fletcher SW. (1998) Ten-year risk of false positive screening mammograms and clinical breast examinations. *N Engl J Med* 338:1089-96.
46. Xu JL, Fagerstrom RM, Prorok PC, Kramer BS. (2004) Estimating the cumulative risk of a false-positive test in a repeated screening program. *Biometrics* 60:651-60.
47. Blanchard K, Colbert JA, Kopans DB, Moore R, Halpern EF, Hughes KS, Smith BL, Tanabe KK, Michaelson JS. (2006) Long-term risk of false-positive screening results and subsequent biopsy as a function of mammography use. *Radiology* 240(2):335-42.
48. Baker SG, Erwin D, Kramer BS. (2003) Estimating the cumulative risk of false positive cancer screenings. *BMC Med Res Methodol* 3:11.
49. Brett J, Bankhead C, Henderson B, Watson E, Austoker J. (2005) The psychological impact of mammographic screening. A systematic review. *Psychooncology* 14:917-38.
50. Brewer NT, Salz T, Lillie SE. (2007) Systematic review: the long-term effects of false-positive mammograms. *Ann Intern Med* 146:502-10.
51. Roman R, Sala M, De La Vega M, Natal C, Galceran J, Gonzalez-Roman I, Baroja A, Zubizarreta R, Ascunce N, Salas D, Castells X. (2011) Effect of false-positives and women's characteristics on long-term adherence to breast cancer screening. *Breast Cancer Res Treat* 130:543-52.

52. Barlow WE, Chi C, Carney PA, Taplin SH, D'Orsi C, Cutter G, Hendrick RE, Elmore JG. (2004) Accuracy of screening mammography interpretation by characteristics of radiologists. *J Natl Cancer Inst* 96:1840-50.
53. Smith-Bindman R, Chu P, Miglioretti DL, Quale C, Rosenberg RD, Cutter G, Geller B, Bacchetti P, Sickles EA, Kerlikowske K. (2005) Physician predictors of mammographic accuracy. *J Natl Cancer Inst* 97:358-67.
54. Taplin S, Abraham L, Barlow WE, Fenton JJ, Berns EA, Carney PA, Cutter GR, Sickles EA, Carl D, Elmore JG. (2008) Mammography facility characteristics associated with interpretive accuracy of screening mammography. *J Natl Cancer Inst* 101:814-27.
55. Welch HG, Black, WC. (2010) Overdiagnosis in cancer. *J Natl Cancer Inst* 102:605–613.
56. Keen JD. (2010) Promoting screening mammography: insight or uptake? *J Am Board Fam Med* 23:775-82.
57. Zahl PH, Gotzsche PC, Maehlen J. (2011) Natural history of breast cancers detected in the Swedish mammography screening programme: a cohort study. *Lancet Oncol* 12:1118-24.
58. Weedon-Fekjær H, Ragnhild Sørnum R, Brenn MK. (2009) Hormone therapy use may explain recent results regarding tumor regression. *Arch Intern Med* 169:996–97.
59. Woloshin S, Schwartz LM. (2010) The benefits and harms of mammography screening: understanding the trade-offs. *JAMA* 303:164-5.
60. Evans WP. (2012) Breast cancer screening: Successes and challenges. *CA Cancer J Clin* 62:5-9.
61. Kalager M, Adami H-O, Bretthauer M, Tamimi RM. (2012) Overdiagnosis of invasive breast cancer due to mammography screening: results from the Norwegian screening program. *Ann Intern Med* 156:491-499.
62. Kopans DB, Smith RA, Duffy SW. (2011) Mammographic screening and "overdiagnosis". *Radiology* 260:616-20.
63. Suhrke P, Maehlen J, Schlichting E, Jorgensen KJ, Gotzsche PC, Zahl PH. (2011) Effect of mammography screening on surgical treatment for breast cancer in Norway: comparative analysis of cancer registry data. *BMJ* 343:d4692.
64. Jorgensen KJ, Keen JD, Gotzsche PC. (2011) Is mammographic screening justifiable considering its substantial overdiagnosis rate and minor effect on mortality? *Radiology* 260:621-7.
65. Paci E, Duffy SW, Giorgi D, Zappa M, Crocetti E, Vezzosi V, Bianchi S, Cataliotti L, del Turco MR. (2002) Are breast cancer screening programmes increasing rates of mastectomy? Observational study. *BMJ* 325:418.
66. Malmgren JA, Parikh J, Atwood MK, Kaplan HG. (2012) Impact of mammography detection on the course of breast cancer in women aged 40-49 years. *Radiology* 262:797-806.

67. Armstrong K, Moye E, Williams S, Berlin JA, Reynolds EE. (2007) Screening mammography in women 40 to 49 years of age: a systematic review for the American College of Physicians. *Ann Intern Med* 146:516-26.
68. Spelic DC. (2003) Dose and image quality in mammography: trends during the first decade of MQSA. Available at: <http://www.fda.gov/Radiation-EmittingProducts/MammographyQualityStandardsActandProgram/FacilityScorecard/ucm113606.htm>. Accessed 01-29-12.
69. de Gelder R, Draisma G, Heijnsdijk EA, de Koning HJ. (2011) Population-based mammography screening below age 50: balancing radiation-induced vs prevented breast cancer deaths. *Br J Cancer* 104:1214-20.
70. John EM, Phipps AI, Knight JA, Milne RL, Dite GS, Hopper JL, Andrulis IL, Southey M, Giles GG, West DW, Whittemore AS. (2007) Medical radiation exposure and breast cancer risk: findings from the Breast Cancer Family Registry. *Int J Cancer* 121:386-94.
71. Petitti DB, Calonge N, LeFevre ML, Melnyk BM, Wilt TJ, Schwartz JS; U.S. Preventive Services Task Force. (2010) Breast cancer screening: from science to recommendation. *Radiology* 256:8-14.
72. Woolf SH. (2010) The 2009 breast cancer screening recommendations of the US Preventive Services Task Force. *JAMA* 303:162-163.
73. Shaneyfelt TM, Centor RM. (2009) Reassessment of clinical practice guidelines: go gently into that good night. *JAMA* 301:868-869.
74. United States Preventive Services Task Force. (2008) Procedure Manual. AHRQ Publication No. 08-05118-EF, July 2008. Available at <http://www.uspreventiveservicestaskforce.org/uspstf08/methods/procmanual.htm>. Accessed 01-25-12.
75. Nelson HD, Tyne K, Naik A, Bougatsos C, Chan BK, Nygren P, Humphrey L.(2009) Screening for Breast Cancer: Systematic Evidence Review Update for the US Preventive Services Task Force. Evidence Syntheses, No. 74. Available at <http://www.ncbi.nlm.nih.gov/books/NBK36392>. Accessed 01-25-12.
76. Calonge N, Petitti D. (2009) Testimony before the Committee on Energy and Commerce, Health Subcommittee. Available at [http://democrats.energycommerce.house.gov/Press\\_111/20091202/calongepetitti\\_testimony.pdf](http://democrats.energycommerce.house.gov/Press_111/20091202/calongepetitti_testimony.pdf). Accessed 01-29-12.
77. Rembold CM. (1998) Number needed to screen: development of a statistic for disease screening. *BMJ* 317:307-312.
78. Barratt A, Wyer PC, Hatala R, McGinn T, Dans AL, Keitz S, Moyer V, For GG; Evidence-Based Medicine Teaching Tips Working Group. (2004) Tips for learners of evidence-based medicine: 1. Relative risk reduction, absolute risk reduction and number needed to treat. *CMAJ* 171:353-358.

79. American College of Radiology. (2009) Detailed ACR Statement on Ill Advised and Dangerous USPSTF Mammography Recommendations. Available at [http://www.acr.org/MainMenuCategories/media\\_room/FeaturedCategories/PressReleases/USSTFDetails.aspx](http://www.acr.org/MainMenuCategories/media_room/FeaturedCategories/PressReleases/USSTFDetails.aspx). Accessed 01-27-12.
80. American College of Radiology. (2009) USPSTF Mammography Recommendations Will Result in Countless Unnecessary Breast Cancer Deaths Each Year. Available at [http://www.acr.org/MainMenuCategories/media\\_room/FeaturedCategories/PressReleases/USSTFMammoRecs.aspx](http://www.acr.org/MainMenuCategories/media_room/FeaturedCategories/PressReleases/USSTFMammoRecs.aspx). Accessed 01-27-12.
81. Radiological Society of North America. (2009) Backlash Continues Against Breast Cancer Screening Guidelines. Available at [http://www.rsna.org/Publications/rsnanews/January-2010/BreastCancer\\_feature.cfm](http://www.rsna.org/Publications/rsnanews/January-2010/BreastCancer_feature.cfm). Accessed 01-28-12.
82. American Society of Breast Disease. (2009) American Society of Breast Disease Encourages All Women 40 and Older To Have Annual Mammograms. Available at [http://asbd.org/news/policy\\_screening\\_mammography.pdf](http://asbd.org/news/policy_screening_mammography.pdf). Accessed 01-29-12.
83. American Congress of Obstetricians and Gynecologists. (2009) Interpreting the U.S. Preventive Services Task Force Breast Cancer Screening Recommendations for the General Population. Available at [http://www.acog.org/About\\_ACOG/News\\_Room/News\\_Releases/2009/Interpreting\\_the\\_US\\_Preventive\\_Services\\_Task\\_Force..](http://www.acog.org/About_ACOG/News_Room/News_Releases/2009/Interpreting_the_US_Preventive_Services_Task_Force..) Accessed 05-17-10.
84. American Cancer Society. (2009) American Cancer Society responds to changes to USPSTF mammography guidelines. Available at <http://pressroom.cancer.org/index.php?s=43&item=201>. Accessed 01-29-12.
85. Margolies L. (2010) Mammographic screening for breast cancer: 2010. *Mt Sinai J Med* 77:398-404.
86. Kopans DB. (2010) The recent US preventive services task force guidelines are not supported by the scientific evidence and should be rescinded. *J Am Coll Radiol* 7:260-4.
87. Javitt MC, Hendrick RE. (2010) Revealing Oz behind the curtain: USPSTF screening mammography guidelines and the hot air balloon. *Am J Roentgenol* 194: 289-280.
88. Thrall JH. (2010) US Preventive Services Task Force recommendations for screening mammography: evidence-based medicine or the death of science? *J Am Coll Radiol* 7:2-4.
89. AAFP, AANP, AAPA, ACP, ACPM, AJPM, APHA, NACCHO, P for P, PHI, TAH. Letter to Waxman and Barton. (2009) Available at [http://www.acponline.org/advocacy/where\\_we\\_stand/medicare/mammography.pdf](http://www.acponline.org/advocacy/where_we_stand/medicare/mammography.pdf). Accessed 01-27-12.
90. American Academy of Family Physicians. (2010) AAFP, Others Defend USPSTF, Breast Cancer Screening Recs in Letter to HHS. Available at <http://www.aafp.org/online/en/home/publications/news/news-now/health-of-the-public/20100526joint-brca-ltr.html>. Accessed 01-27-12.



91. National Breast Cancer Coalition. (2009) NBCC Commends Revised U.S. Preventive Services Task Force Breast Cancer Screening Recommendations. Available at <http://www.breastcancerdeadline2020.org/about/press-room/press-releases/2009/nbcc-commends-revised-us.html>. Accessed 01-29-12.
92. Breast Cancer Action. (2009) From the Executive Director: Does Mammography Screening Save Lives? Available at <http://bcaction.org/2009/12/21/from-the-executive-director-does-mammography-screening-save-lives>. Accessed 01-29-12.
93. National Women's Health Network. (2009) New mammography guidelines. Available at <http://nwhn.org/blog/new-mammography-guidelines>. Accessed 01-29-12.
94. Szabo L. (11-17-2009) New focus in breast cancer screening. *USA Today*. Available at [http://www.usatoday.com/NEWS/usaedition/2009-11-17-1Amammogram17\\_ST\\_NU.htm](http://www.usatoday.com/NEWS/usaedition/2009-11-17-1Amammogram17_ST_NU.htm). Accessed 04-27-12.
95. Graham J, Maugh II, TH. (11-17-2009) Mammogram guidelines spark heated debate. *LA Times*. Available at <http://www.latimes.com/news/nationworld/nation/la-na-mammogram17-2009nov17,0,3942708.story>. Accessed 04-27-12.
96. Pearlstein S. (11-20-2009) Sebelius's cave-in on mammograms is a setback for health-care reform. *Washington Post*. Available at <http://www.washingtonpost.com/wp-dyn/content/article/2009/11/19/AR2009111904053.html>. Accessed 04-27-12.
97. Sack K, Kolata G. (11-19-2009) Breast Cancer Screening Policy Won't Change, U.S. Officials Say. *New York Times*. Available at <http://query.nytimes.com/gst/fullpage.html?res=9E02EEDA1F3DF93AA25752C1A96F9C8B63&ref=ginakolata>. Accessed 04-27-12.
98. Squiers LB, Holden DJ, Dolina SE, Kim AE, Bann CM, Renaud JM. (2011) The public's response to the U.S. Preventive Services Task Force's 2009 recommendations on mammography screening. *Am J Prev Med* 40:497-504.
99. Barker KK and Galardi TR. (2011) Dead by 50: lay expertise and breast cancer screening. *Soc Sci Med* 72:1351-8.
100. Davidson AS, Liao X, Magee BD. (2011) Attitudes of women in their forties toward the 2009 USPSTF mammogram guidelines: a randomized trial on the effects of media exposure. *Am J Obstet Gynecol* 205:30.e1-7.
101. Nekhlyudov L, Li R, Fletcher SW. (2005) Information and involvement preferences of women in their 40s before their first screening mammogram. *Arch Intern Med* 165:1370-4.
102. Hersch J, Jansen J, Irwig L, Barratt A, Thornton H, Howard K, McCaffery K. (2011) How do we achieve informed choice for women considering breast screening? *Prev Med* 53:144-6.
103. Nekhlyudov L, Braddock CH 3rd. (2009) An approach to enhance communication about screening mammography in primary care. *J Womens Health* 18:1403-12.
104. Bekker HL. (2010) Decision aids and uptake of screening. *BMJ* 341:c5407.

105. Mathieu E, Barratt AL, McGeechan K, Davey HM, Howard K, Houssami N. (2010) Helping women make choices about mammography screening: an online randomized trial of a decision aid for 40-year-old women. *Patient Educ Couns* 81:63-72.
106. Kopans DB. (2010) Screening for breast cancer among women in their 40s. *Lancet Oncol* 11:1108-9.
107. Berg WA. (2010) Benefits of screening mammography. *JAMA* 303:168-9.
108. Nelson HD, Zakher B, Cantor A, Fu R, Griffin J, O'Meara ES, Buist DS, Kerlikowske K, van Ravesteyn NT, Trentham-Dietz A, Mandelblatt JS, Miglioretti DL. (2012) Risk Factors for Breast Cancer for Women Aged 40 to 49 Years: A Systematic Review and Meta-analysis. *Ann Intern Med* 156:635-48.
109. van Ravesteyn NT, Miglioretti DL, Stout NK, Lee SJ, Schechter CB, Buist DS, Huang H, Heijnsdijk EA, Trentham-Dietz A, Alagoz O, Near AM, Kerlikowske K, Nelson HD, Mandelblatt JS, de Koning HJ. (2012) Tipping the Balance of Benefits and Harms to Favor Screening Mammography Starting at Age 40 Years: A Comparative Modeling Study of Risk. *Ann Intern Med* 156:609-617.
110. Ziogas A, Horick NK, Kinney AY, Lowery JT, Domchek SM, Isaacs C, Griffin CA, Moorman PG, Edwards KL, Hill DA, Berg JS, Tomlinson GE, Anton-Culver H, Strong LC, Kasten CH, Finkelstein DM, Plon SE. (2011) Clinically relevant changes in family history of cancer over time. *JAMA* 306:172-8.
111. Sifri RD, Wender R, Paynter N. (2002) Cancer risk assessment from family history: gaps in primary care practice. *J Fam Pract* 51:856.
112. Burke W, Culver J, Pinsky L, Hall S, Reynolds SE, Yasui Y, Press N. (2009) Genetic assessment of breast cancer risk in primary care practice. *Am J Med Genet A* 149A:349-56.
113. Sweet KM, Bradley TL, Westman JA. (2002) Identification and referral of families at high risk for cancer susceptibility. *J Clin Oncol* 20:528-37.
114. Trivers KF, Baldwin LM, Miller JW, Matthews B, Andrilla CH, Lishner DM, Goff BA. (2011) Reported referral for genetic counseling or BRCA 1/2 testing among United States physicians: a vignette-based study. *Cancer* 117(23):5334-43.
115. Murphy AM. (2010) Mammography screening for breast cancer: a view from 2 worlds. *JAMA* 303:166-7.
116. United States Preventive Services Task Force. (2005) Genetic Risk Assessment and BRCA Mutation Testing for Breast and Ovarian Cancer Susceptibility: Recommendation Statement. *Ann Intern Med* 143:355-361.
117. Institute of Medicine. (2011) Clinical practice guidelines we can trust. Available for download at <http://www.iom.edu/Reports/2011/Clinical-Practice-Guidelines-We-Can-Trust.aspx>. Accessed 01-26-12.
118. Sniderman AD, Furberg CD. (2009) Why guideline-making requires reform. *JAMA* 301:429-31.

119. Burda BU, Norris SL, Holmer HK, Ogden LA, Smith ME. (2011) Quality varies across clinical practice guidelines for mammography screening in women aged 40-49 years as assessed by AGREE and AMSTAR instruments. *J Clin Epidemiol* 64:968-76.
120. Brawley O, Byers T, Chen A, Pignone M, Ransohoff D, Schenk M, Smith R, Sox H, Thorson AG, Wender R. (2011) New American Cancer Society process for creating trustworthy cancer screening guidelines. *JAMA* 306:2495-9.
121. American College of Physicians. Screening mammography in women aged 40-49: A report of the American College of Physicians and American College of Radiology consensus meeting. *ACP Internist*, May 2012. Available at <http://www.acpinternist.org/archives/2012/05/policy.htm>. Accessed 05-04-12.

## Appendix I. Relevant AMA Policies on Screening Mammography

### **H-55.993 Early Detection of Breast Cancer**

(1) The AMA supports public education efforts to help women recognize their important role in breast self-examination and to encourage them to report immediately to their physicians any changes that they notice. (2) The AMA encourages physicians to educate their patients in the process of breast cancer detection, emphasizing the technique of self-examination of their breasts. (3) Physicians requesting mammographic examinations should refer their patients to radiologists who use properly functioning equipment that provides the best image resolution at the lowest level of radiation exposure. (4) Physicians are encouraged to recognize the importance of mammography as an effective screening device to detect early breast cancer. (5) The AMA encourages pharmaceutical companies to include in the packaging of their contraceptives, and all female hygiene products, materials which promote the package and correct techniques of breast self-examination, and which stress the importance of physician breast examinations and appropriate use of screening mammography. (CSA Rep. A, I-83; Reaffirmed: CLRPD Rep. 1, I-93; Res. 501, I-95; Reaffirmed and Modified: CSA Rep. 8, A-05)

### **H-55.984 Screening and Treatment for Breast and Cervical Cancer**

The AMA: (1) supports increased funding for comprehensive programs to screen low income women for breast and cervical cancer and to assure access to definitive treatment; and (2) encourages state and local medical societies to monitor local public health screening programs to assure that they are linked to treatment resources in the public or private sector. (Res. 411, A-92; Reaffirmed: CSA Rep. 8, A-03)

### **H-55.985 Screening and Education Programs for Breast and Cervical Cancer Risk Reduction**

Our AMA supports (1) programs to screen all women for breast and cervical cancer and that government funded programs be available for low income women and (2) the development of public information and educational programs with the goal of informing all women about routine cancer screening in order to reduce their risk of dying from cancer. (Res. 418, I-91; Reaffirmed: Sunset Report, I-01; Reaffirmed: CSAPH Rep. 1, A-11)

### **D-525.998 Mammography Screening for Breast Cancer**

In order to assure timely access to breast cancer screening for all women, our AMA shall advocate for legislation that ensures adequate funding for mammography services. (Res. 120, A-02)

### **H-525.993 Mammography Screening in Asymptomatic Women Forty Years and Older**

1. Our AMA strongly endorses the positions of the American College of Obstetrics and Gynecology, the American Cancer Society, and the American College of Radiology that all women have screening mammography as per current guidelines. 2. Our AMA favors participation in and support of the efforts of the professional, voluntary, and government organizations to educate physicians and the public regarding the value of screening mammography in reducing breast cancer mortality. 3. Our AMA advocates remaining alert to new epidemiological findings regarding age-specific breast cancer mortality reduction following mammography screening. 4. Based on recent summary data our AMA recommends annual screening mammograms and continuation of clinical breast examinations in asymptomatic women 40 years and older. 5. Our AMA encourages the periodic reconsideration of these recommendations as more epidemiological data become available. 6. Our AMA supports seeking common recommendations with other organizations. 7. Our AMA reiterates its longstanding position that all medical care decisions should occur only after thoughtful deliberation between patients and physicians. (CSA Rep. F, A-88; Reaffirmed: Res. 506, A-94; Amended: CSA Rep. 16, A-99; Appended: Res. 120, A-02)

**H-525.985 Safety and Performance Standards for Mammography**

Our AMA actively encourages the development of new activities, and supports the coordination of ongoing activities, to ensure the following: (1) that the techniques used in performing mammograms and in interpreting mammograms meet high quality standards of performance, including evidence of appropriate training and competence for professionals carrying out these tasks; (2) that the equipment used in mammography is specifically designed and dedicated. The performance of mammography imaging systems is assessed on a regular basis by trained professionals; (3) that the American College of Radiology Breast Imaging Reporting and Database System is widely used throughout the United States and that mammography outcome data in this database are used to regularly assess the effectiveness of mammography screening and diagnostic services as they are provided for women in the United States; and (4) regular breast physical examination by a physician and regular breast self-examination should be performed in addition to screening mammography. (BOT Rep. JJ, A-91; Reaffirmed: Sunset Report, I-01; Reaffirmed: CSAPH Rep. 1, A-11)

Appendix II. ACP–ACR Consensus Points on Screening Mammography

1. Screening mammography has been shown to decrease the number of deaths from breast cancer in women ages 40-74.
2. The benefits and harms associated with screening vary by age, and women will view these benefits and harms differently. Thus, all women should discuss the benefits and harms of breast cancer screening with their primary care provider.
3. Breast cancer incidence increases steadily with age. There is no abrupt change in incidence at age 50. Additionally, the outcomes of screening (recall rates, biopsy recommendation rates, and cancer detection rates) also change steadily with increasing age, without any sudden change at the age of 50.
4. Younger women have a lower risk of breast cancer but more potential years of life saved by detection and successful treatment.
5. Since women over the age of 74 were not included in the randomized, controlled trials, there is no proof that screening saves lives in older women. Decisions about screening in this age group should be individualized and made between a woman and her primary care provider.
6. The majority of breast cancers occur in women without major risk factors.
7. There are false positive screening studies at all ages that result in women being recalled for additional evaluation that ultimately shows no evidence of cancer. With increasing age, there is a gradual decrease in the percentage of false positives as the incidence of breast cancer increases.
8. It is important to note that mammography does not find all cancers, and some cancers that are detected may not be found early enough to result in a cure. If a woman discovers a lump, even after having had a negative mammogram, she should bring it to her doctor's attention. If a clinician remains concerned about a clinically evident finding, even after a negative mammogram, the finding should be evaluated further.
9. The primary benefit of screening mammography is a reduction in mortality from breast cancer.
10. The potential harms associated with screening mammography include:
  - a. Transient discomfort from the study
  - b. Recall for a false positive mammogram resulting in anxiety and inconvenience; the majority of these are resolved by additional mammographic views and/or ultrasound
  - c. The need for biopsy of a lesion that is ultimately proven to be benign
  - d. Treatment of a cancer that would not have become clinically significant. At present, we are unable to distinguish cancers that have lethal potential from those

that do not, whether or not they are clinically evident or detected by screening mammography. Consequently, all women being evaluated for breast cancer, no matter how it was detected, should be informed that it is possible they may undergo treatment for a cancer that might not have lethal potential.

11. Third-party payers should cover screening mammography for all women ages 40 and above who elect to be screened.