The Mammography Debate: October 2001 – March 2002

Controversies in the Press and the Cancer Community

by

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Master's Paper
Presented to the Faculty

of

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
SCHOOL OF PUBLIC HEALTH

in partial fulfillment

of the requirements

for the degree of

MASTERS OF PUBLIC HEALTH

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
SCHOOL OF PUBLIC HEALTH

DECEMBER 2002

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Abstract

The media plays an important role in informing the public about medical and scientific research and discoveries. However, little is known about how the media covers these topics and disseminates information to the public. For this paper, I examined the media coverage of a debate about the usefulness of screening mammography in preventing mortality from breast cancer. The controversy began in October of 2001 when two researchers, Olsen and Gøtzsche, published a review for the Cochrane Collaboration in The Lancet, a prestigious British medical journal. In it they stated that according to their analysis, mammography was not useful in preventing breast cancer mortality.

To examine the debate that ensued after the article was published, I went to three major types of sources. These three sources formed the three arms of my conceptual model. The first set of sources were the original letters, editorials and articles published in The Lancet about the mammography issue between October of 2001 and March of 2002. The second set of sources were articles, editorials, and stories from six major newspapers and five major television news sources published or broadcast about the controversy during the time frame of October 2001-March 2002. The last group of sources were the news releases and information of other major players such as the National Cancer Institute, United States Preventive Services Task Force and the American Cancer Society. My goal was to examine how the research community, the news media, and the major players in the cancer field interacted to develop the debate.

The story of the debate will be presented chronologically as events happened from the publishing of the original article in October 2001, to the statements by the major cancer organizations and several expert panels who revisited the issue in light of the controversy, then to the Senate hearings in February, and concluding with the coverage of another review of mammography published by The Lancet in March 2002.

I conclude with a summary of the debate, the role of the media in covering the debate, and suggestions on how to handle these types of public health and medical controversies in the future.
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Acronyms Used in the Text:

ACS – The American Cancer Society
NCI – The National Cancer Institute
NIH – The National Institutes of Health
NYT – The New York Times
PDQ – The Physician Data Query Editorial Board
US DHHS – The United States Department of Health and Human Services
USPSTF – The United States Preventive Services Task Force
Section 1 - Introduction

A controversial research letter published in *The Lancet* in the fall of 2001 sparked a debate over the value of mammography in preventing breast cancer mortality. For many years the public and medical professionals have been told the same thing – Regular screening mammography detects breast cancer early and prevents deaths from breast cancer in women who are screened (American Cancer Society 2002, US Preventive Services Task Force 1995, 2002). These conclusions came from evidence from randomized clinical trials. In these trials screening mammography was shown to be an efficacious method of reducing breast cancer mortality. These trials have found that breast cancer can be detected in earlier and more treatable stages using mammography (Fletcher SW et al. 1993, Kerlikowske K et al. 1995, Kattlove H et al. 1995, Chen HH et al. 1995, Tabar L et al. 1995, Tabar L et al. 1999). These conclusions led many organizations to recommend mammography for all women beginning at age 40 or 50 on an annual or semi-annual basis (American Cancer Society 2002, National Cancer Institute 2002). However in October 2001 the conclusions about the benefits of screening mammography were called into question when two researchers reanalyzed the seven major randomized clinical trials of mammography for the prestigious Cochrane Collaboration and came to a conclusion that went against most previous consensus about mammography (Olsen and Gøtzsche 2001). They presented their data in a research letter in which they made the following statement.
“There is no reliable evidence that screening for breast cancer reduces mortality.”

– Ole Olsen and Peter C. Gøtzsche in *The Lancet* 2001

The debate that has ensued since this publication has questioned many aspects of the value of mammography screening in a healthy population. Much of the debate in the scientific community disputing different aspects of Olsen and Gøtzsche’s review has taken place in the pages of that same journal. Important groups that make recommendations about screening to the public such as the National Cancer Institute, the US Department of Health and Human Services and the United States Preventive Services Task Force have reanalyzed their stances on screening and released statements to the press and public with their recommendations (NCI 2002, USDHHS 2002, USPSTF 2002). Even the United States Senate has conducted hearings on the mammography question (Congressional Record 2002). All this controversy has brought into question recommendations that have been made for many years about screening mammography. Of interest in this paper is the debate that arose recently about the use of screening mammography for detecting breast cancer - how it was handled in the scientific literature, how important entities such as the National Cancer Institute participated in the controversy and how the news media covered the events since this is how the public would access this information.

**Project Objectives**

For the purposes of this project I will examine the news coverage of the mammography controversy that began with Olsen and Gøtzsche's research letter published in October of 2001 and died down again in March of 2002 when a
formal study rebutting the original article was published. I will look at the media sources that originally took up the story and focus in on the major sources of news in this country—selected television networks with a nationwide audience and a selection of major newspapers articles. Several sources of original information on this topic will also be examined including government entities such as the National Cancer Institute (NCI) and United States Senate, review panels such as the Physician Data Query (PDQ) and U.S. Preventive Services Task Force (USPSTF) and advocacy groups such as the American Cancer Society (ACS).

My interest in this paper is how news media, scientific community and other major players interacted to influence each other and how these interactions and actions were represented to the public by news media. The print and broadcast media produced stories conveying information about the scientific debate in research community. They have also produced stories and editorials that have attempted to reassure women who rely on mammography as their only defense against their fear of breast cancer. Finally they have reported the activities of the various government bodies that reevaluated their stances on mammography screening and conveyed their recommendations to the public. This interaction is the basis of the conceptual model in this paper. I will attempt to show how each factor influenced the other to produce the news coverage seen by the public.
Research Questions and Specific Aims

In this paper I will examine how one issue (doubts about the usefulness of screening mammography) created a debate that raged for months. The initial question was, what started the debate? How did one research letter spark such controversy that the media and other important entities interacted for months responding to it? Therefore to start off, a section about screening mammography in general and the Olsen and Gøtzsche’s review in particular are included to help contextualize the debate. Then I will examine the events of the debate and the media coverage chronologically - who first picked up the story in the press, what sources picked it up next and what media sources covered it? As part of this chronology I will more closely examine the actions of the major players – what things did they do and how were their actions reported by the press? Finally I will offer some hypotheses about what messages were received by the public about screening mammography and will attempt to offer some insight into how this debate serves as an important model of how the media, medical and public health research community and other organizations act together to inform the public about important health issues.

Question 1 – What started the debate?

For the first question I looked at the original Olsen and Gøtzsche’s review and the Lancet published editorials and correspondence addressing it. Of interest was the content of this literature and what the media picked up on.

Specific Aim 1: To assess the content of the original research letter that declared screening mammography ineffective and the scientific communities response.
**Question 2** – Who first picked up the story in the press? What was the timeline after the original article? What sources covered it the most?

For the second question I was interested in how this particular article jumped from the scientific literature to mass media attention. When did the media take notice and which sources produced the original articles? Additionally what events sparked further coverage?

**Specific Aim 2:** To locate media coverage through systematic search of major newspaper articles and television transcripts to determine patterns of coverage by the sources and form tallies to determine which sources covered the issues and when.

**Question 3** - What was the content of the newspaper articles and television stories? How did their content reflect what was going on in the scientific literature?

These questions will be answered in the course of the paper by reporting on actions of different entities and what the press wrote or said about them.

**Specific Aim 3:** To chronologically report on the coverage by the press over the months from October 2001 until March 2002.

**Question 4** – How did outside forces (the Senate, NCI, etc.) influence what was said in the press? What actions did they take in response to the debate?

To address this question each entity will be researched to determine any actions they took in response to the debate and then what the press covered about them.
Specific Aim 4: To examine the actions of important players such as the National Cancer Institute, United States Senate, United States Department of Health and Human Services and the American Cancer Society to determine what they did and how the media covered it.

Question 5 - What was the final message to the public? Did anything really change? What can we learn for future controversies?

For this question I was interested in what really ended up changing after all this occurred. Were women confused – or did they even follow what was going on?

Specific Aim 5: To locate and report on the final statements from the major players and to investigate what the public understood about the debate.

Conceptual Model

For this paper I am examining the debate about the value of mammographic screening that arose in the fall of 2001. When Olsen and Gøtzsche's Cochrane review was published it was the first article in a long time to challenge the commonly held belief that mammography was an effective screening tool for detecting breast cancer in women. This one research letter started a significant discussion into the value of screening for all women. Some of this debate was conveyed to the public by the press in the form of articles in newspapers and stories on television news. Other players in the debate including government health agencies, advocacy groups and research review bodies also had their actions and recommendations reported on by the press. Information in The Lancet may have begun the debate, but over the next few
months the media received information about screening mammography from many different sides. Individual scientists and physicians wrote editorials and gave interviews to reporters, and scientific institutions and government agencies discussed the topic and issued their own statements and released recommendations to the press about screening mammography. Other research about media effects has shown that most likely the major players in this debate were not immune to the information coming from the press and were most likely either driven to action by it or influenced by its coverage (Jasperson AE et al. 1998). Therefore in the model the actions of each entity were theoretically influenced by the actions of every other entity and influenced by them.
Figure 1 – Conceptual Model

The Lancet
Research letters, correspondence, commentary and original articles

The Media
Selected Major Newspapers and National Television News Networks

Other Major Players
The U.S. Senate, the National Cancer Institute, USPSTF
In this paper, I marked the start of the debate covered with the research letter authored by Olsen and Gøtzsche and published in *The Lancet*, an important medical journal considered to be a leading source of medical research in the world, stating that a review of the randomized controlled trials showed no benefit to screening mammography (Olsen and Gøtzsche 2001). Accompanying the initial letter was an editorial and over the next few months letters and editorials from many different researchers from around the world were published in its pages. In March of 2002, a group of Swedish researchers published an article reviewing the benefits of Swedish randomized controlled trials of mammography which said that mammography was as useful as originally thought (Nyström L et al. 2002). This seemed to bring closure to the debate for now. The research published in the *Lancet* influenced both the media and the other major players outlined in the conceptual model. The media, both television and print, reported on the different findings published in the journal. Other major players such as the National Cancer Institute, the U.S. Senate and the US Preventive Services Task Force looked at the information published by the *Lancet* regarding the issue when reviewing and forming their recommendations about mammography. While not all of the inter-workings and letters published in the *Lancet* were ever reported on by the media or examined by the government players, the information published by the journal served as both a beginning and ending point in examining the controversy.
The Media

The media is the second component of the conceptual model and in this case consists of 6 major newspapers and 5 television news networks. Theoretically I assume here that the media plays a major role in informing the general public about discoveries published in the scientific and medical research literature. Most individuals will never read The Lancet or The New England Journal of Medicine, therefore their knowledge of happenings in science and medicine will most likely be tied to their consumption of mass media sources. Some journals, in an attempt to facilitate dissemination of a new discovery will distribute information in the form of press releases that simplify the content of the major articles or major articles are distributed with an embargo on their publication date so that reporters will have an opportunity to prepare their stories before publication of the actual article. Similarly major policy making organizations such as the Department of Health and Human Services or the National Cancer Institute will hold press conferences or distribute press releases to facilitate media in covering important topics.

In this case I was looking at coverage by newspapers and television news. The Pew Research Center Media Consumption Survey in 2000 found that 46% of people polled reported regularly reading the newspaper. Thirty percent reported watching the nightly network news regularly, 20% watched morning network news, 21% watched CNN regularly and 17% watched Fox News (2000). A higher percentage of women than men watched nightly network news regularly and a higher percentage of people aged 50-64 watched it regularly (Pew
Research Center 2000). A report specifically detailing how Americans follow scientific and medical news found that most say they either pay a "moderate amount" (50%) or a "great deal" of attention to this type of news (The National Health Council 1997). This same report found that more women than men follow health and science news (80% vs. 70%) and more people aged 50 or older (81%) vs. those aged 18-29 (60%) followed it (The National Health Council 1997). Therefore I concluded that a significant number of the public was following the media coverage of the mammography debate.

Other Major Players

After the debate began in the pages of the *Lancet* and was picked up by the press, many different organizations joined the fray. These players included government agencies such as the National Cancer Institute and the United States Department of Health and Human Services, independent review boards like the Physician Data Query Panel and the U.S. Preventive Services Task Force, two United States Senate subcommittees and advocacy groups like the National Breast Cancer Coalition and the American Cancer Society. Between October 2001 and March 2002, each of these major players responded in some way to the debate. They held press conferences or issued statements to the press. Individual members were quoted by newspaper articles and interviewed for stories both on television and in the papers. So the major players in many ways tie the conceptual model together. They most likely read and were influenced both by the research in the *Lancet* and coverage of events by the
media, and their actions and responses created more opportunities for media coverage or debate by the scientific community.

However to understand this most recent debate about screening mammography it is necessary to start with a brief summary about mammography and reflect on the evidence for it and on some of the drawbacks and controversy about it.
Section 2 – Background on Screening Mammography

Breast Cancer and Mammography

In the U.S. breast cancer is the most common type of cancer in women and is the second leading cause of cancer-related death in women (American Cancer Society 2002, Reis LAG et al. 1999). Screening mammography is capable of detecting cancers at much earlier stages before they can be detected through physical exam or before physical symptoms have developed (ACS 2002). Because breast cancer is a progressive disease, in theory screening is able to reduce breast cancer mortality by detecting tumors at smaller sizes, when the probability of lymph node metastases is lower, and by reducing the opportunity for the worsening of the grade of malignancy of the tumor (Tabar L et al. 1999, Tabar L et al. 1992).

Prior Information from Clinical Trials and Other Studies of Mammography

Efficacy and Effectiveness

Screening mammography has been found to significantly reduce breast cancer mortality in clinical trials of women aged 50-69, and appears to be relatively cost-effective in this group (Fletcher SW et al. 1993, Eddy DM 1989, Chen HH et al. 1995, Kerlikowske K et al. 1995, Larsson LG et al. 1996, Tabar L et al. 1999, Kattlove H et al. 1995). Therefore many major organizations recommend mammography for women in this age group (ACS 2000, USPSTF 1995, 2000, NCI 2002). However scientists have previously debated about the evidence of using mammography in women older and younger than the 50-69 year old age group (Begley 2002). For example, there is less evidence that
mammography is effective in women ages 40-49 and this resulted in a controversy over recommending it to this age group in 1997 (Begley 2002). In this case an NCI panel concluded that it was not useful for these women and they would not recommend it but in the end they were overruled by a mandate from the United States Senate (Begley 2002, Congressional Record 2002).

There is a limited amount of clinical research including women over 70; therefore, the efficacy of mammography in women 70 and older is not clearly established (Fletcher SW et al. 1993, Kerlikowske K et al. 1995, U.S. Preventive Services Task Force 1995). Data from the Swedish Two-County Trial has suggested screening mammography appears to reduce mortality up to age 74 with a 34% reduction in mortality for women 50-74, but no clinical trial studies have reported data on women 75 and older (Tabar L et al. 1995, Chen HH et al. 1995, Kerlikowske K et al. 1995). Therefore few organizations make clear recommendations about the use of mammography in this group of older women.

**Potential Drawbacks of Screening Mammography**

On the surface mammography appears to be a benign procedure, free from risks besides the immediate discomfort of the procedure itself. However in theory the beneficial aspects should outweigh the harms since mammography helps to detect cancers at smaller sizes than clinical breast exam alone. Harms due to mammography do exist and the primary harm is the risk of a false positive test. A false-positive finding leads to follow-up testing that has costs – physical, mental and financial. Mammograms can also be negative when a cancer really is present and may not show that a cancer is growing, giving a woman a false
sense of security that she is free of breast cancer. For example, mammography has been shown to cause significant morbidity in the elderly due to false positive mammograms (Welch HG & Fisher ES 1998, Elmore JG et al. 1998, Kerlikowske K et al. 1993). Therefore, balanced against the benefits of mammography are the costs, morbidity and adverse psychological effects of false positives (Eddy DM 1989). Data on screening mammography finds that the sensitivity of mammography is around 90% and the false positive rate in the 2 to 4% range (Mushlin Al et al. 1998). Additionally mammography is best suited to detect about 15 to 20 percent of all breast cancers, the tumors that grow fast enough to be detected but also grow slow enough that they are not out of control (metastasized throughout the body) by the time they are seen (Begley S 2002).

That may mean that 80% of breast cancers may not be helped with regular mammography. There is even evidence of possible increased unnecessary surgery resulting from mammography and increased detection of carcinoma in situ lesions which may never become invasive cancer (Olsen and Gøtzsche 2001).

**Controversies about Mammography**

Screening mammography has previously been controversial, but this most recent debate became high profile and garnered both media coverage and responses from government agencies and cancer organizations.

This most recent controversy has focused on the value of mammography for screening on a population basis. There have been several previous debates about mammography mainly dealing with the appropriate age to begin screening.
In February of 1993 the National Cancer Institute convened an international panel to review the studies of mammography in order to revise recommendations. They end up withdrawing their previous guidelines and rewriting them to exclude the recommendation of screening for women aged 40-49 (NCI 1993). In January 1997, a National Institutes of Health Consensus Panel reaffirms the lack of evidence for screening women aged 40-49 years (National Institutes of Health Consensus Development Panel 1997). Congress intervened and pressured them into including this age group (40-49 year-olds) in their recommendations for annual mammography (Congressional Record 2002).
Section 3 - Methods

Before beginning the project and forming the research questions, it was necessary to define the time period under examination. Obviously the beginning of the current debate was the publication of the Cochrane review on screening with mammography with breast cancer by the Danish researchers, Olsen and Gøtzsche, in The Lancet (2001). To provide an easily identifiable endpoint the publication of an article in the Lancet in March of 2002, an updated overview of the Swedish randomized controlled trials of mammography which reaffirmed a benefit of reduced breast cancer mortality for women who were screened was chosen as the endpoint (Nyström et al. 2002). This time period incorporated all of the correspondence, editorials and research letters published in The Lancet, the review by the Physician Data Query Panel, the statements put out by the National Cancer Institute and the Department of Health and Human Services, the new guidelines published by the U.S. Preventive Services Task Force, and the hearings on mammography conducted by several sub-committees of the U.S. Senate.

Medical Literature

Using Medline, I obtained the complete set of articles, letters and editorials about screening mammography that appeared in The Lancet from October 2001 to March 2002. This was done by looking at the table of contents from every issue of The Lancet during the above defined time period and selecting the articles, letters and editorials related to the controversy.
Media

To gather information about media coverage, I used the online database Lexis-Nexis to examine articles from newspapers and transcripts of television news coverage. Using Lexis-Nexis, I started with a key word search for mammograms in the title and text for the time period 10/01/01 - 03/31/02 for major newspapers and then eliminated down to articles from USA Today, The New York Times, The Washington Post, Los Angeles Times, The Boston Globe and The Seattle Times. These papers were chosen for several reasons. All had at least one original article about the mammography debate specifically and most had more than one. Then the major newspapers with significant circulation either nationwide or in their area were chosen as these articles are either seen by a large number of people directly or when they are republished in their local papers. For example we chose USA Today even though it only had one article because it has the highest circulation in the United States. Four of the six newspapers chosen – the LA Times, New York Times, USA Today and Washington Post are four of the top five newspapers in circulation and therefore important and widely read sources of coverage (http://www.naa.org/) . The remaining source, the Wall Street Journal, is only included in the database Lexis-Nexis in abstract form. The first two papers chosen the NYT and the Washington Post are also considered to be elite papers that are read by certain audiences and often set the tone for small papers reporting. The final two papers the Boston Globe and Seattle Times were added for regional variation. Additional reasons for inclusion for each paper are detailed below. The New York Times
was chosen not only because of its' nationwide readership, but because it is considered by other journalists to be one of the leading papers in the country and articles from it are often recycled to smaller papers. The Washington Post was chosen primarily because it was the first major newspaper to report on the Cochrane review and secondarily because the paper's continuing coverage of the debate over the time period and large readership. The Washington Post is also a major source of information for people inside "the Beltway", those in the government. The Boston Globe, located in the city with such significant medical institutions such as the Harvard Schools of Medicine and Public Health, the Massachusetts General Hospital and Brigham and Women's hospital was chosen for both its location and provocative editorials. The Seattle Times and the Los Angeles Times were chosen since they represented both West Coast readership and had some interesting original articles about the debate. By limiting to these 6 major newspapers this yielded about 100 articles with the keyword mammogram in the title or text. Since some important articles that were referenced by other articles were still missing I repeated the procedure of searching for articles using the keyword mammography in either the text or title and found approximately 10 additional articles and editorials. After going through the articles individually and reading for content I was able to eliminate articles not mentioning the controversy, letters to the editors (but not editorials) and correction notations. After doing this thirty-three articles and sixteen editorials remained, and this should represent a good sample of the coverage that the
public was exposed to while maximizing diversity of writing and editorialists.

Table One summarizes the number of articles or editorials by newspaper source.

Table One – Articles or Editorials Published in Selected Major Newspapers,
October 2001-March 2002

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<tr>
<td>News Articles</td>
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<td>3</td>
<td>17</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Editorials</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>0</td>
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<td>Total</td>
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<td>6</td>
<td>23</td>
<td>4</td>
<td>1</td>
<td>11</td>
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A priori I was able to choose the television news sources I wanted to use for the analysis. I chose to use all three major network news sources (ABC, NBC and CBS) since the public can usually receive these free of charge and all have morning and evening news coverage. Fifty-one percent of persons polled in the Pew Research Survey reported regularly watching some type of broadcast network news (2000). Since 40% of the persons surveyed also reported regular viewership of cable news such as CNN and Fox News, they are both included here (2000).

To locate TV news transcripts, Lexis-Nexis transcript search was used. Each source (CBS, CNN, ABC, NBC and Fox News) was first searched with the keyword *mammogram* and then with the keyword *mammography*. After eliminating stories that were broadcast more than once and transcripts that were just mentions of mammography or mammograms in headlines, this yielded twenty-two unique stories on the topic of screening mammography. Table 2 summarizes the number of stories by each broadcast source. Appendix A details
the number of articles and editorials published or broadcast by each source by week.

Table Two – Stories broadcast on selected major television news sources concerning the debate over mammography, October 2001 – March 2002

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<tr>
<th>Television News Source</th>
<th>ABC</th>
<th>CBS</th>
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<td>5</td>
<td>8</td>
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Internet

Other sources of information were gathered from the Internet. To help assess how much the public was following the debate, the Kaiser/Harvard School of Public Health – Health News Index (www.kff.org) was examined for that six-month period and it was found that people were polled concerning the mammogram issue for the period February 25, 2002 – March 25, 2002. These survey questions and results were downloaded from the site. To look at the actions of the major players the websites for the Physician Data Query (www.cancer.gov), the American Cancer Society (www.cancer.org) and the U.S. Preventive Services Task Force (www.ahcpr.gov) were searched for reviews, statements or articles regarding the debates. In addition to this information, press releases and transcripts of press conferences were downloaded from the National Cancer Institute (www.cancer.gov) and the US Department of Health and Human Services (www.hhs.gov/news/press/2002pres/20020221.html). Also found on the Internet was information from advocacy groups such as the National Breast Cancer Coalition (http://www.natlbcc.org/bin/index.htm). Finally the full Senate subcommittee transcript for the mammography hearing was obtained.
using Lexis-Nexis database and a press release regarding the hearings was downloaded from Senator Barbara Mikulski's (D-MD) website (http://mikulski.senate.gov/~mikulski/press/02/02/2002308431.html).
Section 4 – Results - Chronology of the Debate

Value of Mammography Questioned by Cochrane Review (October 2001)

Introduction

In the October 20, 2001 issue of the journal *Lancet*, a research letter stated that because mammography studies in the past were of mostly poor quality there was not enough data to show that screening mammography is effective in reducing mortality from breast cancer. In the version of their finding that Olsen and Gøtzsche submitted to the Lancet, they stated that there was no reliable evidence that screening for breast cancer reduces mortality (Olsen and Gøtzsche 2001). The two Danish researchers who authored the letter were originally writing a review for the prestigious Cochrane Collaboration, but due to conflicts with the Cochrane editors chose to publish a separate version research letter form to *Lancet* and in its unedited full form on the website at www.lancet.com. There was a great deal of controversy surrounding this action because the Cochrane editors had changed some of the systematic review in the final form published in electronic form in The Cochrane Database of Systematic Reviews and later in the Cochrane Library, the official source of Cochrane reviews (Horton 2001). The editors didn’t agree with the some of the conclusions about mammography and possible unnecessary treatment reached by Olsen and Gøtzsche and made the following statement in the Cochrane Library Document.

“At this stage the editorial group has elected to publish the review of outcomes on mortality and breast-cancer mortality but defer presentation or
discussion of results on changes in treatment (mastectomy, radiotherapy, etc.)
until further editorial review has been completed."

- The Cochrane Editors 2002 (In Olsen and Gøtzsche’s Cochrane Library Review)

The majority of the editorial group did decide that because Olsen and
Gøtzsche has been conscientious in their efforts and had followed the agreed
upon protocol that the sections of the review not having to do with treatment but
with mammography screening itself should be published at that time (Olsen and
Gøtzsche 2002). They do state that despite it being published it did not mean
that the editors necessarily agreed or disagreed with the conclusions reached by
Olsen and Gøtzsche. The editors did acknowledge that the conclusions of the
review would most likely have implications for screening programs and that
would possibly be controversial (Olsen and Gøtzsche 2002).

The actions of the editors have brought up accusations about their
attempts to muzzle unpopular findings about mammography (Horton 2001).
Despite the controversy over the way the findings were published and issues
about treatment, the main focus of concern and controversy, as predicted by the
Cochrane editors, has been about the conclusions about mammographic
screening reached by the Danes.

*The Cochrane Collaboration*

The Cochrane Collaboration is an international group of researchers and
others dedicated to systematic reviews of scientific evidence. The goal of the
collaboration is to produce systematic, current reviews of randomized clinical
trials of health care to help health care practitioners in making informed decisions for their patients (The Cochrane Collaboration 2001). A quote from the front of their brochure summarizes their goals quite well.

"Preparing, maintaining and promoting the accessibility of systematic reviews of the effects of health intervention."

- From The Cochrane Collaboration brochure

Their goal is to facilitate systematic review and they standardize the criteria on how to perform the analyses in order to standardize the reports. International collaborative review groups consisting of researchers, health care professionals, consumers and others work together to generate reviews according to the criteria. The preparation and maintenance of the reviews are the responsibility of the group to which they are assigned and the groups work in consultation with the staff from the Cochrane Centres to produce them. The reviews are then reviewed by the editors and published electronically in The Cochrane Database of Systematic Reviews that are in the Cochrane Library.

Cochrane reviews are systematic reviews and follow specific criteria. Olsen and Gøtzsche followed these criteria in producing their review of randomized controlled trials of mammography (The Cochrane Collaboration 2001). A systematic review begins with a clear statement of the objectives of the review and an outlining of the criteria that makes a trial eligible for inclusion. Then there is an exhaustive search for studies that meet the eligibility criteria. Once located the characteristics of each study are tabulated and the quality of the methods in the study assessed. After applying the eligibility criteria studies
that don’t meet them can be excluded with appropriate justification. Ideally, the original investigators are involved in the next step; that is assembling the most complete set of data. The results of the studies are analyzed and if possible statistical analysis applied. Also if possible sensitivity and subgroup analyses are performed. Finally a structured report is composed and submitted for review (The Cochrane Collaboration 2001).

Analysis of the Trials for the Review

Olsen and Gøtzsche’s review was based on 7 randomized clinical trials of mammography screening conducted in the U.S., Canada and Europe. Both Olsen and Gøtzsche’s review and the review in the Cochrane Library despite their slightly differing conclusions included the same trials and analysis. The included trials were all randomized controlled trials comparing screening with mammography with no screening. These seven studies were chosen after an extensive literature review that included Medline searches, contacting researchers directly and looking at unpublished data when necessary. The seven trials were chosen based on the methodology of the trials. The trials used in the analysis are listed in Table 3.
Table 3 – Randomized Clinical Trials of Screening Mammography Included in the Cochrane Review by Olsen and Gøtzsche

<table>
<thead>
<tr>
<th>Study</th>
<th>Quality Rating by Olsen and Gøtzsche</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada 1980 a, b</td>
<td>Medium</td>
</tr>
<tr>
<td>Edinburgh 1978</td>
<td>Flawed</td>
</tr>
<tr>
<td>Göteborg 1982 a, b</td>
<td>Poor</td>
</tr>
<tr>
<td>Malmö 1976</td>
<td>Medium</td>
</tr>
<tr>
<td>New York 1963</td>
<td>Flawed</td>
</tr>
<tr>
<td>Stockholm 1981</td>
<td>Poor</td>
</tr>
<tr>
<td>Two-County (Sweden) 1977</td>
<td>Poor</td>
</tr>
</tbody>
</table>

According to the systematic review there were no trials of high quality, two of medium quality, three of poor quality and two were so flawed they had to be thrown out of the summary estimates. Considering only the trials of best quality, there was no affect of screening in deaths due to cancer. For example the two best trials (according to their criteria) failed to find an effect on breast cancer mortality (relative risk 0.97 CI [0.82-1.14]) after 13 years of follow up. However when pooling the three trials of “poor-quality” trials there was marked effect (0.68 [0.58-0.78]) of screening (Olsen and Gøtzsche 2001).

Conclusions of Olsen and Gøtzsche’s Review

The researchers state that given the evidence of mammography screening trials they hope that women, clinicians and policy-makers consider the findings of
the review when deciding whether or not to get screening or to support screening programs (Olsen and Gøtzsche 2001). They further state that it would be necessary to have another large, well-conducted trial using the current higher quality mammography technology and using all-cause mortality and not breast cancer mortality as the endpoint to determine if screening mammography is a useful technique in preventing breast cancer deaths (Olsen and Gøtzsche 2001).

The Medical Research Community Response in *The Lancet* (October 2001 and December 2001)

*Correspondence and Commentaries about the Mammography Issue*

The commentary accompanying Olsen and Gøtzsche’s original research letter was entitled, “Screening mammography – an overview revisited” by Richard Horton was squarely on the side of the Danish researchers (2001). In his commentary Horton detailed the actions of the Cochrane reviewers in attempting to interfere with the results generated by Olsen and Gøtzsche. He mentioned the need for full independent review of mammography using the individual patient data from each trial but noted that may be impossible since it would require the participation of each trial’s principal investigator (Horton 2001). He finishes his commentary by stating that he agrees there is no reliable evidence from randomized trials to support population based screening mammography (Horton 2001).

A large portion of the correspondence section in the December 22/29, 2001 issue of the *Lancet* was devoted to the screening debate. There was a section of letters entitled “Screening for breast cancer with mammography” that
were from different researchers from around the world. For example, Dr. Anthony Miller wrote in to support the results from the Health Insurance Plan (HIP) trial conducted in the U.S., which were dismissed by Olsen and Gøtzsche as flawed (Miller 2001). Others wrote in to criticize different aspects of Olsen and Gøtzsche methodology as flawed or inappropriate (Lee and Zuckerman 2001, Senn 2001). Some criticized the way they had gone about publishing their results (Duffy, Tabar and Smith 2001). While others added their support to the idea that screening on a population basis may not be appropriate given the types of cancers detected with mammography, the risks of false positives or costs to individual women or warning that opposition to the ideas may be due to personal or financial stake in screening (Thornton 2001, Vaidya 2001, Dixon-Woods et al. 2001). Finally some warned that those opposed to the idea that screening is not effective may be those with a personal or financial stake in the mammography screening industry (Vaidya 2001). Gøtzsche had the opportunity to respond to each letter and did so in his author’s reply (2001).

The Media Get Involved (October 2001 and December 2001)

The Lone Ranger

In the media sources examined for this analysis, the first mention of the Danish researchers’ letter on mammography screening in *The Lancet* was published in *The Washington Post*. On October 19, 2001, the day before Olsen and Gøtzsche’s review came out, *The Post* published an article entitled “Analysis: Mammograms Don’t Cut Cancer Death Risk; Danish Researchers Find No Reliable Evidence in Major Studies to Support Medical Consensus” (Okie
2001). This article reported that the review stated that there was no reliable
evidence that mammography reduced the risk of dying from breast cancer, but
the coverage was not picked up in the other major newspapers or any of the
television news sources examined in this analysis until December. This was not
altogether surprising since these same researchers had previously published an
analysis questioning the value of mammography in 2000 which had stated that,
"There is no reliable evidence that screening decreases breast cancer mortality",
similar to the message of their 2001 letter (Gøtzsche and Olsen 2000). However
there had been very little coverage of it then. Possibly because the Lancet
critique published with the 2000 article had questioned the researchers’
reasoning, methods and results, unlike the commentary published with the
research letter in 2001 that strongly supported the findings (de Koning HJ
2000). It could have also been that in 2000 no one picked up on the story and gave it
prominent coverage.

The One that Got Things Started

Olsen and Gøtzsche’s second study of mammography may have
generated a similar lack of interest if it were not for the coverage instigated by
The New York Times in early December. After Gina Kolata’s article on the front
page of The New York Times (NYT) on December 9th, newspapers and television
news from across the country started to pick up the story and run their own
pieces about the mammography debate. From the publication of the original
research letter in October to the follow-up research letter opposing the findings in
The Lancet in March there were 33 articles in major newspapers, 16 newspaper
editorials or commentaries and 24 television news stories, and all but the
October Post article were published or broadcast after the NYT article on
December 9, 2001. Several experts have commented that without Ms. Kolata’s
coverage there would have been no debate over mammography. It may have
been the tone of the article or its’ prominent placement on the front page of one
of the countries leading papers. However her coverage was noticed and thus
other reporters followed with their own stories. The content of some of the
articles and stories published in December, including Ms. Kolata’s first article,
about mammography are detailed here.

The first article in the NYT reported that the study by Olsen and Gøtzsche
had stirred passionate debate both in Europe and the U.S. with their conclusion
that screening mammograms don’t prevent breast cancer deaths. The Kolata
article contained quotes from the Danish researchers and also contained
information from supporters of mammography from the National Institutes of
Health and the American Cancer Society. She also outlined the analysis
conducted by the Danes and how it challenged the usefulness of mammography
(Kolata 2001a). That same day on the ABC’s World News Tonight Sunday
reporter Bill Blakemore reported on the controversy over mammography. In the
report, Blakemore interviews Dr. Gøtzsche who states that while they think that
mammography is useful when a lump is suspected, inviting a healthy population
for screening is another matter (Blakemore 2001). Also in the interview, another
scientist, Dr. Lerner, and a breast cancer advocate, Ms. Christine Brunswick of
the National Breast Cancer Coalition, both emphasized the benefits of mammography have tended to be exaggerated to women (Blakemore 2001).

The following morning on ABC’s World News This Morning, CNN’s Morning with Paula Zahn and NBC’s Today show there were reports on the effectiveness of mammography and the conclusions of the Danish researchers (Berman 2001, Zahn and Cohen 2001, Couric 2001). An example of the importance of the NYT article is that on the Today Show they even stated that they were following up on the front-page story published in the NYT the day before (Couric 2001).

Coverage for the rest of the weeks in December was fairly limited. See Appendix A for a chart of the coverage by week and source. An article from the Seattle Times published at the end of December, reported that despite the debate the message from Seattle medical experts to women was to get a mammogram and then keep getting them. Many scientists did concede that mammography is not a perfect screening tool, but that the Danes review was methodologically flawed and therefore their conclusions about mammography were not as clear as stated (Blake 2002). Abigail Trafford wrote an impassioned article for the Washington Post which highlights why the simple statement that screening mammography does not save lives was so inflammatory to so many. She writes that many advocates and doctors hold up the idea that mammography saves lives as a “sacred dogma” and that “pink ribbon” fundamentalists are quick to brand those opposed to mammography as heretics (Trafford 2001). This helps
to explain how emotionally charged people got about the mammography debate in the next few months.

**The Physician Data Query (the PDQ) Weighs In (January 2002)**

In January 2002, the PDQ stated that while they agreed with portions of Olsen and Götzsche’s review they had reservations about other portions of it. They were only changing their recommendations about screening mammography to reflect other doubts the committee had about the evidence for mammography and about the value of screening mammography (McLellan 2002).

**The PDQ**

An independent advisory board to the NCI, the Physician Data Query Screening and Prevention Board (the PDQ) reviewed the evidence on screening mammography after the Cochrane review was published. The PDQ is responsible for the maintenance and accuracy of the PDQ summaries that appear on the NCI website (PDQ 2002). In this case the PDQ Screening and Prevention Editorial Board reviews the information about mammography screening. The board reviews the literature about screening on a regular basis and conveys their information to lay people and health professionals on the Website. They do not make official recommendations for the NCI.

**National Cancer Institute (NCI)/National Institutes of Health (NIH)**

The National Cancer Institute (NCI) is in a position of having to provide recommendations about cancer screening services based on the best scientific evidence available. Their recommendations are read and followed by health professionals and are currently used to make cases for covering women with
private insurance, Medicare and Medicaid. While the NCI is advised by the PDQ, they do not necessarily change their recommendations based on the findings of the PDQ.

**Media Coverage**

After the Physician Data Query Board (PDQ) issued their views on screening mammography there was a new flurry of news articles and TV news reports. Three articles in the NYT, one in *The Boston Globe* and one in *The Los Angeles Times* reported that the PDQ had concluded that they could no longer conclusively state that mammography prevented deaths from breast cancer (Kolata 2002b, Kolata 2002c, Kolata 2002d, Foreman 2002, Maugh 2002). Dr. Donald A. Berry of the M.D. Anderson Cancer Center and member of the PDQ Board was interviewed for several pieces and stated in the L.A. Times that while mammography may turn out to be beneficial that the current benefit was not spectacular (Maugh 2002). On American Morning with Paula Zahn on CNN, they discussed if mammograms are ineffective. Zahn and medical correspondent, Dr. Sanjay Gupta, talked about the conclusions of the PDQ that challenged the usefulness of mammography for women in the general population and how the NCI had not changed their recommendations despite that. They also talked about what the Cochrane analysis really showed and the controversy surrounding the issues (Zahn and Gupta 2002). An article in *The Boston Globe*, “Mammogram Studies Leave Future Unclear”, stated that the job of the PDQ was to sort out complicated data and to put their findings on their website. The article reported that the PDQ panel had concurred with the Danish researchers that there was
insufficient evidence to recommend mammography (Foreman 2002). The PDQ conclusions continued to be mentioned and contrasted with later developments over the next few months (ex. Kolata 2002 d, Stolberg 2002 a). When the PDQ statements stirred the debate, other medical organizations quickly reacted.


The next major development was the publishing of a full-page ad in *The New York Times* advising women to continue to have mammograms (See the full text of the letter in Appendix B and Kolata 2002 c). This ad was signed by 10 major cancer organizations including the American Academy of Family Physicians and the American Cancer Society. Four days later a letter to the editor, also in the *NYT*, strongly urged all women to listen to their physicians and obtain mammograms according to the current guidelines and was co-signed by 19 leading cancer organizations (Norton 2002).

**Media Coverage**

John McKenzie, on *World News Tonight* (ABC) on February 1, 2001, reported on the conflicting information regarding mammography. He talked about the full-page ad in *The New York Times* supporting mammography which was paid for by the 10 organizations. He featured the quote from the ad that stated, “While the existing studies of mammography screening have known limitations and even some flaws, the evidence as a whole solidly supports mammography screening.” On February 2, on *Saturday Today on NBC*, the full-page ad was also mentioned that was urging women not to abandon mammograms (O’Brian and Bloom 2002). On Page One of the *Los Angeles*
Times on February 1st, the lead sentence said that women should continue to get regular screening according to several national medical organizations, referencing the ad (Maugh 2002). The NYT mentioned in its article, "Dispute Builds Over Value of Mammography" that the ad had mentioned that the organizations were concerned that the public debates were eroding the public’s faith in mammography (Kolata 2002). They also reported that the Lancet had just published a new analysis supporting mammography. This was part of the next big event in the timeline.

The NCI and The Lancet Weigh In (January 31, 2002)

The National Cancer Institute released a statement on January 31, 2002 (Updated on 2/21/02) that after due consideration that they continued to recommend screening for women aged 40 and older with special consideration for women at high risk (NCI Press Release 2002). With this announcement it was clear that the NCI was choosing to ignore the recommendations of the PDQ, which is solely an advisory committee to the NCI, and were recommending the following.

1. Women in aged 40 to 49 should be screened every one to two years with mammography.
2. Women aged 50 and older should be screened every one to two years.
3. Women who are at higher than average risk of breast cancer should seek expert medical advice about whether they should begin screening before age 40 and the frequency of screening.
Scientific Literature Coverage

In the February 2, 2002 issue of The Lancet there was a news piece about the Physician Data Query (PDQ), the independent expert panel sponsored by the National Cancer Institute (McLellan 2002). This piece reported that the PDQ ad reassessed the evidence on mammography and changed their recommendations on their website to reflect the greater uncertainty about screening mammography. Additionally in the correspondence section of this issue, “Screening mammography: setting the record straight” the controversy focused on the publishing two versions of the Cochrane review – the one in The Lancet and they one sanctioned by the Cochrane reviewers on their website – and the resulting conflicts (CBCG editors 2002, Langhorne 2002, Gøtzsche 2002, Horton 2002, Goodare et al. 2002). There was also an original research letter in this issue “Mammographic screening: no reliable supporting evidence?” where a group of researchers using a different, and according to them more appropriate mortality-related measure, found that there was reliable evidence of mortality reduction due to screening (Miettinen et al. 2002).

Media Coverage

Both the statement by the NCI and the article by the Lancet were covered by the press. They were both mentioned in a report on ABC World News Tonight as supporting mammography (McKenzie and Johnson 2002). On American Morning with Paula Zahn and on CNN Live both airing on February 1, 2002, the same story was run about the mammography controversy and in it the medical correspondent (Dr. Gupta) stated that the NCI had been all over the controversy...
from the beginning and were still recommending mammography for women 40
and over (Hemmer and Gupta (a,b) 2002). The NBC Nightly News began their
report on mammography by stating that there had been absolutely no change in
NCI's recommendations (Bazell 2002). On the CBS Evening News, Dr. Peter
Greenwald of the National Cancer Institute stated that despite the PDQ's report
the NCI's guidelines supporting mammography would not change (Assuras
2002). They also interviewed one of the authors of the piece published in the
Lancet, Dr. Claudia Henschke of New York Weill Cornell Medical Center, stated
that the reliable evidence of mammography saving lives is in the later years of
follow-up as shown in their analysis (Assuras 2002). There was also coverage of
the Lancet article and the NCI statement in the NYT and the LA Times (Maugh

The US Department of Health and Human Services Presents Their
Recommendations (February 21, 2002)

In a news conference on February 21, 2002 the official voice for the US
government on the mammography matter, the United States Department of
Health and Human Services presented their recommendations in a large press
conference in Washington, D.C. The Department of Health and Human Services
reported the United States Preventive Services recommendations as the ones
they endorse for guiding the use of screening mammography (US DHHS Press
Office 2002). The Director of the U.S. Department of Health and Human
Services, Tommy Thompson, held a press conference to present the
recommendations of the government (Vendantam 2002). The recommendations
were based on the two-year evaluation of the evidence conducted by the U.S. Preventive Services Task Force (USPSTF), an independent group of scientists that publishes the Guide to Clinical Preventive Services (US DHHS Press Office 2002).

U.S. Department of Health and Human Services Secretary Tommy G. Thompson presented the governments recommendations for mammography. In the news conference Secretary Thompson made the following statement -

"The federal government makes a clear recommendation to women on mammography: If you are 40 or older, get screened for breast cancer with mammography every one to two years".

- Tommy G. Thompson (NYT – Excerpt 2002)

The Department supports the recommendations of both the USPSTF and the NCI. On a personal note, he also revealed that his wife was a breast cancer survivor and that she believes that mammography screening may have saved her life (US DHHS Press Office 2002). The recommendations presented by Secretary Thompson came from the United States Preventive Services Task Force.

*United States Preventive Services Task Force (USPSTF)*

The USPSTF produces *The Guide to Clinical Preventive Services* that is an established reference for health professionals and is updated every few years by the task force (USPSTF 1995). The third edition of *The Guide* is scheduled to come out this fall. Partially due to the controversy caused by the debate, they released their updated mammography guidelines earlier to be reported by the
government (USPSTF 2002). Committees of expert scientists from across the country write the recommendations by weighing the evidence from all available trials in making their decisions. In second edition, the USPSTF was a supporter of breast cancer screening in women aged 50 to 74 and rated the evidence for screening as good (USPSTF 1995). In its third edition to be published later this year, they extended their screening recommendations to include women in their forties but drop their rating of evidence to fair (HHS Press Office 2002).

*Media Coverage*

The government’s recommendation was that screening mammograms would now be recommended for women every one to two years starting at age 40 (Vendantam 2002, Stolberg 2002, Garvey 2002). This recommendation advised starting at a younger than the previous recommended starting age of 50, but while it was not mentioned much in the news conference the quality rating of the evidence for screening mammography was reduced from good to fair (USPSTF 2002).

The press conference made the national headlines that night on both the ABC and CBS evening newscasts, both stated that Tommy Thompson had confirmed the value of mammograms for women over 40 in a press conference (Jennings 2002 and Andrews 2002 a). There was also coverage on the CBS, NBC, CNN and Fox News morning shows. The *CBS Morning News* had an interview with Secretary Tommy Thompson who reiterated that he felt that, “Mammography is an important and effective early detection tool that does help to save lives” (Andrews 2002 b). The *CBS Early Show* featured a longer
interview in which he stated that the federal government is clearly recommending that if you are over 40 you should have a mammogram every one to two years (Clayson 2002). Fox News also interviewed Secretary Thompson for their newscast in which he reiterated the government’s recommendations.

The *USA Today* reported that the USPSTF had stated that there was only “fair evidence” that mammograms reduced breast cancer deaths (*USA Today* 2002). The article started by restating the common opinion that mammograms are sometimes a painful procedure and added that because of the likelihood of false positives that mammograms might cause more pain and discomfort than benefit. The article also reported that Thompson had intended his announcement to “quiet the controversy” over screening but they gave the opinion that the controversy maybe was the needed impetus to get better answers to the screening question (*USA Today* 2002). *The Washington Post*, stated that the recommendation by the Department of Health and Human Services was based on a comprehensive two-year evaluation by the USPSTF and that they were recommending mammography. The reporter also stated since no new studies are coming and experts continue to disagree that the DHHS’s recommendations may not settle the debate (Vedantam 2002). The *NYT* ran excerpts from Secretary Thompson’s speech and had an article on the new guidelines and previous controversy (Stolberg 2002 b). There were numerous other articles and editorials and this event marked the greatest coverage of the mammography debate in the period studied.
The Senate Hearings (February 28, 2002)

On February 28, 2002 Senators Tom Harkin (D – Iowa) and Barbara A. Mikulski (D – Maryland) co-chaired a US Senate subcommittee hearing entitled “Making Sense of the Mammography Controversy: What Women Need to Know” on February 28, 2002. According to Senator Mikulski’s office, this hearing was prompted by the recent Cochrane review on mammography and the resultant media coverage that had questioned the value of screening mammography (Mikulski Press Release 2002). The hearing was a joint hearing of the Senate Committee on Health, Education, Labor and Pensions’ Public Health Subcommittee and the Senate Committee on Appropriations Subcommittee on Labor, Health, Human Services and Education (See Table 4 for Senators Attending).

Table 4. Senators Speaking at the Joint Hearing on the Mammography Controversy (Making Sense of the Mammography Controversy 2002)

<table>
<thead>
<tr>
<th>U.S. Senate Health, Education, Labor and Pensions Committee: Public Health Subcommittee</th>
<th>U.S. Senate Appropriations Committee: Subcommittee on Labor, Health and Human Services, Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edward M. Kennedy (Chairman, D-MA), Tom Harkin (D-IA), Barbara A. Mikulski (D-MD), James Jeffords (I-VT), Jeff Bingaman (D-NM), Paul David Wellstone</td>
<td>Tom Harkin (Chairman, D-IA), Ernest F. Hollings (D-SC), Daniel K. Inouye (D-HI), Harry Reid (D-NV), Herb Kohl (D-WI), Patty Murray (D-</td>
</tr>
</tbody>
</table>

Randolph
<table>
<thead>
<tr>
<th>(D-MN), Jack Reed (D-RI), John Edwards (D-NC), Hillary Rodham Clinton (D-NY)</th>
<th>WA), Mary Landrieu (D-CA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>William Frist (Ranking Member, R- TN), Judd Gregg (R-NH), Mike Enzi (R-WY), Tim Hutchinson (R-AR), Pat Roberts (R-KS), Susan Collins (R-ME), Jeff Sessions (R-AL), Christopher Bond (R-MO)</td>
<td>Arlen Specter (Ranking Member, R-PA), Thad Cochran (R-MS), Judd Gregg (R-NH), Larry Craig (R-ID), Kay Bailey Hutchison (R-TX), Ted Stevens (R-AK), Mike Dewine (R-OH)</td>
</tr>
</tbody>
</table>

Witnesses at the hearing included both scientists, persons from the medical community and breast cancer advocates. Andrew Von Eschenbach, the new Director of the National Cancer Institute testified at the hearing reassured the women of the nation that the NCI still recommends that women begin mammographic screening in their 40s to encourage trends in increasing survival seen in the last decade (Congressional Record 2002). A member of the PDQ Board, Dr. Donald Berry also testified to the Senate, he stated that women should be told the truth about screening. They need to be told that the benefits and risks of mammography are uncertain and that they should be informed of these benefits and risks and decide about screening for themselves (Congressional Record 2002).
Media Coverage

The New York Times was the only newspaper in this study that reported on the Senate hearings and stated that after the Senators heard from both opponents and supporters of mammography the Senate members "pointedly threw their support behind breast cancer screenings" (Stolberg 2002 c). According to the article the senators were often outright ignoring the testimony of experts contending that mammograms may not be an ideal tool (Stolberg 2002 c). Good Morning America on ABC was the only television news program to report on mammography on the day of the hearings and their reporter, Dr. Tim Johnson, attempted to clarify the issues and offer reassurance. He made the important distinction that diagnostic mammography had never been in question; it was screening mammography that had been debated. He stated that the debate was about whether or not finding these breast cancers at earlier stages saves lives (Johnson 2002).

The Medical Research Community Gets the Last Word – For Now (March 2002)

The final major event in this debate was the publishing of a new review of the Swedish mammography trials in The Lancet. Conducted by the Swedish clinical trials researchers, the new analysis (another round of statistical analysis of existing trials), stated that women who get mammograms regularly are 21 percent less likely to die from breast cancer and that screening mammograms are especially useful for women over the age of 55 (Smith 2002). In it the group of Swedish researchers presented results of their updated overview of the four
Swedish randomized trials. They found that a significant reduction in breast cancer mortality was achieved for women aged 55-69 at the start of screening (Nyström et al. 2002). The accompanying commentary by Gelmon and Olivotto entitled “The mammography screening debate: time to move on” specifically addressed the need for clear information for journalists and the potential confusion that has been created by recent controversy (2002). These strong supportive findings for breast cancer screening were reported in *The Washington Post* and *The Boston Globe*, and seemed to bring to a conclusion some of the mammography debate for now (Okie 2002, Smith 2002).

**The Role of Editorials Throughout the Debate**

The mammography controversy produced many editorials, and because they did not have to reflect a balanced view of the issue they were some of the most colorful writing about the debate. They also represented the opinions of a wide variety of people including breast cancer doctors and breast cancer survivors. It reveals the emotions of the people involved and reflects emotional investments rather than careful reporting of facts. Some of the editorials were by the editorial staff at the newspapers and some were commentaries by leaders in the mammography field. The editorials were often the most inflammatory and presented strong arguments for and against mammography. While I can’t detail all of them in this paper due to their number, all of the editorials published by these newspapers during this time period and examined for this analysis are listed by title in Appendix C under the newspaper editorials section. Some of the more interesting ones are mentioned here. I did not include the letters to the
editor that were often the most passionate treatises about the issue because of their large number and erratic length and quality of writing. I also felt they would carry less weight with the public than editorials or articles that were reviewed and edited by the news professionals.

For example, an opinion statement in The Seattle Times stated in mid-December that, "In the final analysis, a statistical study doesn’t mean much to a woman whose breast cancer was caught in time because of a mammogram" (Mammograms: Should we . . . 2001). This brings up an important issue in the content of both articles and editorials; while most mentioned the published research the anecdotal evidence from individual women and physicians is often used as a counter argument as to why mammography works. This is a significant difference from scientific articles that can’t use anecdotal experiences to support a point. Ellen Goodman of The Boston Globe writing as a member of a high-risk group, women with a family history of breast cancer, made two important points from the standpoint of the mammography consumer. The first was that while the research on mammography is done on thousands of patients, women have to make hard decisions one by one. The second was that women are looking for a cure for breast cancer and need less confusion over what they should do now about detecting it early (Goodman 2001).

Dr. Daniel B. Kopans, the director of breast imaging at Massachusetts General Hospital in Boston and a professor of radiology at Harvard Medical School lambasted both The Lancet and The New York Times for their coverage
of the mammography issue. His opening paragraph was in all caps and made this statement (Kopans 2002).

IN OCTOBER THE MEDICAL JOURNAL LANCET IRRESPONSIBLY PUBLISHED A LETTER THAT CALLED INTO QUESTION WHETHER MAMMOGRAPHIC SCREENING COULD SAVE LIVES. IGNORED BY MOST PHYSICIANS AND SCIENTISTS, THE LETTER WAS GIVEN CREDENCE TWO MONTHS LATER BY AN UNCONSCIONABLE FRONT-PAGE ARTICLE IN THE NEW YORK TIMES, HIGHLIGHTING ITS CONCLUSIONS. LIKE A STONE DROPPED INTO THE WATER, WAVES OF CONFUSIONS SPREAD FROM THE ARTICLES.

- Daniel B. Kopans

Kopans’ editorial sharply criticized the Danish researchers Cochrane review and encouraged women to continue to have mammography. I. Craig Henderson, vice chairman of the National Academy of Sciences Institute of Medicine committee that studied the early detection of breast cancer stated in his editorial in the NYT that regular mammograms remain an important tool even though they are not perfect (Henderson 2002). The following week again in the NYT, Virginia L. Ernster, a professor of Epidemiology at the University of California - San Francisco, editorialized that mammography is a personal choice that needs to be made individually carefully weighing the benefits of mammography against the uncertainties and frequency of false positives (Ernster 2002). Another editorial called the controversy over mammography “absurd” (Kinsley 2002). Barron Lerner, author of “The Breast Cancer Wars”, attempted in

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his editorial in *The Washington Post* to clarify many of the important issues of the debate. His editorial was unique in that it included the problems for physicians that arise when evidence-based medicine contradicts their own clinical-judgment (Lerner 2002). He also highlighted that despite the current focus in modern medicine on patient autonomy that physicians still feel uncomfortable letting patients make their own decisions (Lerner 2002). Lerner also brought up an important point not seen in any other articles or editorials that by questioning mammography and thus early detection, we “potentially weaken one of the core concepts that has kept this coalition of activists, survivors and politicians successful” referring to the highly active breast cancer advocacy community who tend to advocate strongly for mammography (Lerner 2002).

The final editorial mentioned here is one by Barbara A. Brenner, the executive director of Breast Cancer Action, an advocacy group much like those described by Lerner. However contrary to Lerner’s opinion that advocacy groups need the mammography issue, she states that the current debate is “drowning out other important discussion”. Meaning that there is an important need to move beyond mammography to make progress in breast cancer survival (Brenner 2002).

What the Public Heard (February – March 2002)

Unfortunately there is limited information about what the public took from the coverage of the mammography debate. The only source was a poll of 1003 adults conducted by the Kaiser Family Foundation and the Harvard School of Public Health (2002) that found that nearly half of all adults reported closely
following the ongoing stories about screening mammography during the time period from February 25 to March 25, 2002. Not surprisingly more women than men reported following the discussion closely during this time period (64% vs. 27%). Interestingly fewer people could identify the topic of the recent debate. When asked the question, “Thinking about what you have seen or heard in the news recently about mammograms, what was the recent debate about?” they could respond in one of three ways. Thirty-six percent answered that it concerned the introduction of a better breast cancer-screening test, 37% responded that they didn’t know and only 27% correctly answered that the debate was about whether or not mammograms have been proven to save lives (Kaiser Family Foundation 2002). While more women followed the discussion, approximately equal numbers of men and women knew that it was about whether or not screening mammography saved lives (Kaiser Family Foundation 2002).

**Advocacy groups - The American Cancer Society and The National Breast Cancer Coalition**

_The American Cancer Society_

These recommendations are virtually identical to those put out by the American Cancer Society and other organizations in recent years (ACS 2002). The ACS is the largest community-based health organization dedicated to preventing cancer occurrence, suffering and death. Dr. Harmon Eyre, Chief Medical Officer of the ACS stated that the ACS agreed with the U.S. Preventive Services Task Force that the scientific evidence behind mammography is strong.
enough to recommend screening mammography for all women (Making Sense 2002).

National Breast Cancer Coalition

Among those opposing the idea that mammography was a good screening tool was the National Breast Cancer Coalition, a consumer advocacy group headed up by Fran Visco (NBCC 2002). Visco stated in an interview for an article in The Washington Post that this simplification and seemingly lock step stance of major cancer players about mammography greatly underestimated a woman's ability to weigh the evidence and understand the pros and cons. The article concludes with the opinion that this "get-a-mammogram-no-matter-what-you-hear recommendation sounds more like faith-based health policy than evidence-based medicine", a good summary to the U.S. government stance (Trafford 2002).
Conclusions and Public Health Implications

On February 11th of 2002, Gina Kolata and Michael Moss wrote an article that was published in The New York Times that summarized the debate about screening mammography. In their article they detail how for decades mammography had simply been assumed to the best way to reduce breast cancer mortality and that now it was the “focus of a bitter and unusually public scientific dispute that is being fought in the pages of medical journals and the columns of daily newspapers” (Moss and Kolata 2002).

In this paper I have attempted to illuminate several aspects of the debate about mammography that has taken place in the news media, the medical journal The Lancet, and some of the major players in the cancer field. It is important to realize that many aspects of medical research are often unclear and that debates such as this will arise from time to time. What is important is how the media and others, such as government agencies and advocacy groups, handle these debates. I feel that the role of the media in covering these debates is essential since much of the public is not exposed to medical information any other way. In the final section of this paper I will attempt to form some recommendations on how debates and controversies such as this are handled in the future. First it is important to recap certain aspects of the recent mammography controversies.

Screening Mammography Debate in the Lancet

The original Cochrane review research letter published by Olsen and Gøtzsche, the accompanying commentaries about it and the follow-up correspondence responding to it illustrate the problems that can result from the
secondary analyses of clinical trials. Different researchers using different techniques can get different results using the same data sources. This exposes one of the great limits of meta-analysis, the scientific community often relies on the synthesis and analysis of multiple trials in order to make recommendations to the medical community and public. Even reviewers from the prestigious Cochrane collaboration produced a review that ended up producing more controversy than clarity.

Another problem that can arise when reviews are used to make recommendations is this. Epidemiologists and statisticians look at data from clinical trials and other studies and make findings based on the data and not the people in the trials. These recommendations come out and often conflict with what is currently medical practice. Since physicians often use anecdotal evidence from their personal practice to judge the value of a test, their personal experience may conflict with the conclusions of the study and therefore they may be resistant to change based only on reviewed data. Many of the scientists writing in to The Lancet to comment on the review defended their own work and questioned why it was discounted by the reviewers, others remarked that use of screening mammography finds cancers at smaller sizes and earlier stages, still others defended the review as an important wake-up call about the limits of mammography. The final article published on mammography was yet another review of almost the same data (just the Swedish trials) showed the opposite result of the Cochrane review, but since more people tend to believe that mammography works it seemed to appease the current controversy.
The Screening Mammography Debate in the News Media

Coverage of the current screening mammography debate began in earnest after an article was published on the front page of The New York Times. Even though the original research letter was published in late October it went largely unnoticed until The New York Times article. This article in December created the first flurry of news coverage about the issue, all of which was basically stating that these scientists had shown mammography to be largely ineffective in reducing breast cancer mortality and most featured responses by irate breast cancer screening advocates declaring that the new analysis must be wrong. It was after this coverage in December that the major players such as the Physician Data Query and the National Cancer Institute began to review the information.

The Screening Mammography Debate and the Major Players

The PDQ was the first major player to weigh in on the mammography debate and have their recommendations covered by the media. Since they also stated that they had some issues about the usefulness of screening mammography this made their statements inflammatory to large groups of major cancer players. This may have been what sparked 9 major professional medical and cancer organizations to place a full-page ad in the New York Times. Even this ad sparked its own media coverage with outlets reporting that the mammography controversy had grown but that mainstream organizations like the American Cancer Society and the American Medical Association were still advocating screening. Most likely because of the statements of these
organizations that the National Cancer Institute felt it was important to restate their position that mammography is still recommended. At the end of February, the US Department of Health and Human Services also presented their guidelines. They presented the updated recommendations of the US Preventive Services task force that recommend mammography for all women over 40 every one to two years. This became the official position of the government in regards to screening. While this was ostensibly supposed to quiet the debate about the mammography issue, several sub-committees of the U.S. Senate held hearings after the announcement interviewing some of the major players in the mammography and breast cancer field about the original Olsen and Gøtzsche review and the subsequent recommendations and reports of the PDQ, NCI and USPSTF. It is important to realize that while the official and bigger name cancer players were holding press conferences and releasing their information, the organizations that advise and influence a woman’s decision to screen for breast cancer, such as the American Cancer Society and National Breast Cancer Coalition were also weighing in with recommendations and advice both in the news and on their perhaps more importantly on their websites.

A Brief Caveat on the Role of the Internet

While Internet coverage was not discussed in this paper, it is important to realize its growing influence on the public. More and more people are connecting to the Internet every day. More importantly both the media and the Internet play a role in informing the general public and current cancer patients about new developments in the field. For example, a study evaluating the use of the news
media and the Internet as sources of medical information for patients and oncologists found that 50% of patients searched the Internet for information and that patients were evenly split in their opinions about the balance and accuracy of news media reports of medical issues (Chen and Siu 2001).

Other Examples of Public Health/Medical News Coverage

There were two major medical and public health issues that occurred either during the mammography controversy or just after it concluded. These were two more examples of how public health interacts with the media and the public. Fears about bioterrorism, mainly the use of smallpox and anthrax, had the public clamoring for information after 9/11/2001. Recently this has led to a debate, which has been fueled by media coverage, of who should be vaccinated for smallpox and when. Also recently there were new concerns over the use of hormone replacement therapy when the largest trial studying the use of the drugs found that use of both estrogen and progesterone increased risks of strokes and breast cancer (NIH Press Office 2002). Both of these issues were covered heavily by the press and were important to the general public.

Final Comments on Screening Mammography

It is impractical and unlikely that another randomized trial of mammography will ever be undertaken. We as a society would never consent to a randomization that had one arm of the trial having women receive no screening. So in the case of mammography, we will have to live with a certain degree of uncertainty. What medical professionals need to do is to inform their
patients more fully about the benefits and risks when making their recommendations about any type of screening test.

*Lessons that can be learned and applied to other public health and medical controversies*

The public and the media could learn several important things from how the debate was presented in the literature, covered by the news media and responded to by the major players.

1. Scientists often disagree about the results of a study and that when reanalysis of data is done sometime the results are different. It is important to keep in mind the methodology of the review and the way it was published. Peer-reviewed published research is the best way to ensure that the study was rigorously conducted and has valid results.

2. It is important for both the media and the public to keep in mind the context of review and who wrote it in determining its value in deciding a complicated question such as mammography.

3. The public needs to look at who are the “experts” that are quoted or interviewed by reporters. For example, do their work affiliations indicate that they may have some bias about the issue and have they carefully reviewed all the scientific evidence before coming to their conclusions?

4. What the scientific community discusses about an issue isn’t necessarily what the media reports on.

5. What the media reports on isn’t necessarily what the public hears.
This was evidenced by the Kaiser Family Foundation survey showing that most people thought the debate was about mammography technology, not use.

6. This debate was an excellent example of what happens when major players (government agencies, advocacy groups, review boards) don't coordinate to decide in private what the message about a subject will be. In this case and in many others these groups issued recommendations piecemeal, which could potentially confuse the public and may frustrate them in their attempts to be informed consumers.

7. A Need for Mutual Respect between the Media and the Medical/Public Health Community

There is a growing need for reporters to be trained to deal with the scientific literature and researchers. There is also a need to educate both researchers and major players on how to deal with the media in order to get the clearest messages out to the public. Their needs to be a mutual respect built between these entities so that controversies such as this are presented more clearly to the public. In the future we need to build better communication between the scientific community, media, major players and most importantly the public so that important research information is diffused in the most efficient manner.
### Appendix A: Table of Dates of Coverage and Sources

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Appendix B: Text of the Full Page Ad Supporting Screening Mammography from The New York Times

2002/01/31 - We, the undersigned, representing a broad spectrum of concerned health organizations, are responding to coverage in the media and the resulting public discussion questioning the value of mammography. This discussion has been stimulated by a recent report published in the British medical journal, The Lancet, which concluded there was no scientific support for breast cancer screening with mammography.

Women and their healthcare professionals should know that numerous independent expert groups in the U.S. and Europe have repeatedly subjected the world's major clinical studies of mammography to careful scientific scrutiny, and also have carefully evaluated the analysis published in The Lancet. While the existing studies of mammography screening have known limitations and even some flaws, the evidence as a whole solidly supports reduced breast cancer mortality rates due to mammography screening. Early breast cancer detection means a greater chance for successful treatment and a greater range of treatment options.

We have grave concerns that these public debates have already begun to erode the confidence in mammography that has been built up over the past two decades. While mammography is not a perfect tool, it is effective and has contributed significantly to the declines in breast cancer mortality since 1990. In fact, there will be many thousands fewer breast cancer deaths among U.S. women this year due to the combined progress we've made in early detection and improved therapy. If women are dissuaded from getting regular mammograms, lives will be lost.

We strongly urge women to continue to follow the advice of their physicians and the leading medical organizations. Our organizations will continue to monitor new scientific research in order to offer the best advice to women and their physicians.

This letter is cosigned by the following organizations:

American Academy of Family Physicians, American Cancer Society, American College of Physicians, American Society of Internal Medicine, American College of Obstetricians and Gynecologists, American College of Preventive Medicine, American Medical Association, Cancer Research Foundation of America, National Medical Association, Oncology Nursing Society, Society of Gynecologic Oncologists
Appendix C: Full Listing of Materials from The Lancet Related to the Debate

[In Chronological Order]


Appendix D: Full Listing of Articles and Editorials About the Debate [In Chronological Order]


Appendix E: Full Listing of Television News Transcripts [In Chronological Order]


References:


