DO SURGEONS INFLUENCE THE TREATMENT RATES FOR T1 BREAST CANCER PATIENTS AT THE LOCAL LEVEL OF HEALTH CARE?

by

Mary Brewer Loritsch

Dissertation Submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION in Curriculum and Instruction

APPROVED:

Co-Chair
Larry Weber, Ed.D

Co-Chair
Kerry Redican, Ph.D.

Charles Baffi, Ph.D.

Jim C. Fortune, Ph.D.

Mary Ella Zelenik, M.D.

May 1995
Blacksburg, Virginia

Key words: Breast Cancer, Mastectomy, Lumpectomy, Breast Conservation Surgery, Patient Decision-Making.
DO SURGEONS INFLUENCE THE TREATMENT RATES FOR T1 BREAST CANCER PATIENTS AT THE LOCAL HOSPITAL LEVEL OF HEALTH CARE?

by

Mary Brewer Loritsch

Larry Weber, Kerry Redican, Co-Chairs

Education, Curriculum and Instruction Design

(ABSTRACT)

Breast cancer is the leading cause of death in women ages 35-54. A research consensus has been published stating that breast conserving therapy or surgery (BCT/BCS) and mastectomy treatments for T1 breast cancers yield comparable recurrence and survival rates. Standards of medical practice for various diseases and conditions are known, but very little if any, information or research exists on individual hospital medical practice. This study focused on the grassroots level of health care by investigating local treatment protocols, patient/physician beliefs and actual treatments chosen concerning early diagnosis of breast cancer.

The major question researched in this study was: Do surgeons influence the treatment rates for T1 breast cancer patients at the local hospital level of health care? The research design focused on a four step approach using descriptive data and explanatory survey data for the time period of January 1991 to May 1994. The steps included:

1. analyzing cross-sectional, demographic, tumor board data,
2. reporting hospital surgical rates for mastectomy and BCT plus creating a timeline, 3. survey general and reconstructive surgeons associated with the medical center as to their beliefs concerning the efficacy of mastectomy and BCT treatments, their presentation of information to the patient, and their beliefs concerning why patients choose mastectomies, and 4. survey T1 breast cancer patients for information regarding their decision-making processes used in their treatments.

A 406 bed medical center located in southwestern Virginia was the site of the study. General and reconstructive surgeons on staff and affiliated with the medical center during January 1991 to May 1994 comprised the medical population to be surveyed. All surviving T1 breast cancer patients treated during the same time frame comprised the population. The surgeon survey tool, used with permission, was a questionnaire developed from a 1992 Colorado study. The patient survey tool was created for the study. To protect the privacy of participants, all responses are confidential and reported only as aggregated data.

Local hospital data was found to support national and international statistics. Surgeons were not found to unduly influence the treatment choices of T1 breast cancer patients at the local level of health care. Patients were satisfied with their treatment choices and if given the same circumstances, would make the same decisions again.
ACKNOWLEDGEMENTS

I would like to express sincere appreciation to all who contributed to this study. A sincere thank you is extended to my: family-husband Toby, sons Todd and Mike, parents Dave and Louise Brewer, whose support and encouragement enable me to make my dreams and goals realities; mentor and friend-Robert A. Harrell, Ph.D., Dean of Academics and Student Affairs at Virginia Western Community College, who let me learn how higher education really works; Virginia Western Community College Radiography students past and present-especially the Class of 1996-for teaching me far more that I ever taught them; Swedish colleagues-Britt Kihlen, Ph.D., R.T.(T) for opening her country, home and heart to me and the Education, Radiology, Radiation Therapy, and Mammography staff of the Karolinska Institute and Hospital in Stockholm for an enlightening look into Swedish education of radiology personnel and breast cancer diagnosis and treatments: technical support-Bobbie Bayne, Judy Moreth, Sandra and Kevin Connolly, Sylvia Foster, Ben Zirkle, Chas Houston, John Starnes, Mary Johnson, Joyce Music, and Dr."Z"; and the many personnel and professional friends who inquired about my work and always encouraged my efforts. Many thanks to all of you.

I would also like to express sincere appreciation to my committee members, Dr. Weber, Dr. Redican, Dr. Baffi, Dr.
Fortune and Dr. Zelenik, and thank them for their expertise, support and friendship throughout this study.
Dedication

To my grandmothers, Mary Bise and Alma Brewer, who lost their lives to breast cancer.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE PAGE</td>
<td>i</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>ix</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>x</td>
</tr>
<tr>
<td>CHAPTER 1: INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Treatment Strategies</td>
<td>1</td>
</tr>
<tr>
<td>Prevention Strategies</td>
<td>3</td>
</tr>
<tr>
<td>Summary</td>
<td>4</td>
</tr>
<tr>
<td>Purpose of Study</td>
<td>4</td>
</tr>
<tr>
<td>Research Question</td>
<td>5</td>
</tr>
<tr>
<td>Selected Definitions</td>
<td>6</td>
</tr>
<tr>
<td>Limitations of Study</td>
<td>7</td>
</tr>
<tr>
<td>Significance of Study</td>
<td>8</td>
</tr>
<tr>
<td>CHAPTER 2: LITERATURE REVIEW</td>
<td>9</td>
</tr>
<tr>
<td>Epidemiological Database</td>
<td>9</td>
</tr>
<tr>
<td>Breast Cancer Treatments</td>
<td>18</td>
</tr>
<tr>
<td>Breast Cancer Prevention-Secondary</td>
<td>28</td>
</tr>
<tr>
<td>Mammographic Screenings</td>
<td>30</td>
</tr>
<tr>
<td>Psychosocial Considerations</td>
<td>35</td>
</tr>
<tr>
<td>Choice Factors in Treatment</td>
<td>40</td>
</tr>
<tr>
<td>Summary</td>
<td>44</td>
</tr>
<tr>
<td>CHAPTER 3: METHODOLOGY</td>
<td>47</td>
</tr>
<tr>
<td>Research Design</td>
<td>47</td>
</tr>
<tr>
<td>Participants</td>
<td>47</td>
</tr>
<tr>
<td>Measures</td>
<td>48</td>
</tr>
<tr>
<td>Procedures</td>
<td>49</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>51</td>
</tr>
<tr>
<td>CHAPTER 4: RESULTS OF THE STUDY</td>
<td>53</td>
</tr>
<tr>
<td>Tumor Board Data</td>
<td>53</td>
</tr>
<tr>
<td>Surgery Rates</td>
<td>53</td>
</tr>
<tr>
<td>Surgeon Survey</td>
<td>57</td>
</tr>
<tr>
<td>Patient Survey</td>
<td>63</td>
</tr>
<tr>
<td>Limitations and Delimitations</td>
<td>68</td>
</tr>
</tbody>
</table>
CHAPTER 5: DISCUSSION AND CONCLUSIONS
General Mammographic Data
Surgery
Surgeon Profile
Minor Research Questions
Major Research Question
Conclusion

LITERATURE CITED

APPENDICES

VITA
LIST OF TABLES

Table 1: Hospital Total Cancer and Breast Cancer Cases 1984-1994..........................54
Table 2: Statistical Breast Data for Selected Demographic Characteristics.................55
Table 3: Breast Surgery Rates January 1991-May 1994.......58
Table 4: Breast Cancer Diagnostic Data.................................62
Table 5: Patients: Age of Respondents.........................65
Table 6: Patients: Initial Cancer Detection Method............66
Table 7: Patients: Breast Cancer Treatment Preferences.........................67
Table 8: Patients: Information Offered by Surgeons............69
Table 9: Patients: General Responses to Survey............70
LIST OF FIGURES

Figure 1: 1991-94 Breast Surgery Rates.........................60
CHAPTER 1

INTRODUCTION

The incidence of breast cancer has risen steadily in the United States since tracking abilities became available with the creation of several formal, yet limited, cancer registries in the 1930’s. Mortality rates have remained stable over the same period of time. In 1993, it was estimated that 182,000 (15%) American women would be diagnosed with breast cancer and 46,000 (25%) women would die. In age specific death rates, breast cancer is the leading cause of death in women ages 35-54 with one in nine women developing breast cancer in her lifetime (American Cancer Society, 1993). In the United States today, one women looses her life to breast cancer every 12 minutes (Ferraro, 1993). Breast cancer is a major public health issue. Faced with the magnitude of the disease of breast cancer, possible measures to decrease mortality include exploring the options of treatment and prevention.

Treatment Strategies

Physicians are challenged to diagnose and treat a complex disease that attacks the physical, psychological, social, and sexual aspects of women’s lives. Early surgical strategies dealing with breast cancer treatment have seen the disease characterized by the Halsted theory which supported the belief that the disease was systemic and would
spread throughout the body if not completely removed (Kiebert et al., 1991). This belief necessitated a surgical procedure called radical mastectomy or Halsted mastectomy. A radical mastectomy is the complete removal of all breast tissue, axillary lymph nodes and muscles of the chest wall. If the condition warranted, surgery could extend up into the cervical area with the further removal of cervical muscle and lymph nodes. A modified radical mastectomy is also commonly done and this procedure differs from the radical by leaving the chest wall muscles and some lymph nodes intact. These rather harsh and disfiguring surgeries were advocated and practiced as standard protocol well into the mid 1900’s and are still being performed today.

Concurrently, radiotherapists and surgeons in the United States and Europe were exploring conservative techniques for the treatment of early breast cancer (Osborne et al., 1983). Conservation advocates look at breast cancer as being a localized, regional disease process rather than a highly metastatic, systemic process. Breast-conserving surgery options include varying forms of lumpectomies, dissections of axillary nodes and radiotherapy to the remaining breast tissue. Conservation techniques preserve the integrity of the breast and enhance the psychosocial adjustment of breast cancer patients, plus decrease overall breast cancer mortality rates. Conservation and mastectomy
treatment options greatly enhance the physicians’ abilities to effectively challenge the disease of breast cancer.

Media attention also became apparent in the 1970’s and 1980’s as prominent women in politics and entertainment publicly disclosed their breast cancer experiences. Patient advocacy and support groups began to form and women were urged to be active participants in their own health issues.

Many prospective and retrospective studies and clinical trials have taken place since the 1950’s. Results indicate that breast-conserving surgery and mastectomy treatments yield comparable recurrence and survival rates for patients with T1 and T2 stage (early) breast cancers (Fisher et al., 1989).

Physician attitudes and beliefs concerning breast cancer treatment strategies and the role the patient plays in the decision making process have also been studied. Results indicate that physicians have various beliefs concerning treatment options for breast cancer regardless of research findings (Tarbox et al., 1993).

**Prevention Strategies**

Breast cancer prevention studies began in 1963 with the early detection HIP project of New York. National and international early detection-mammographic screening studies followed in the 1970’s and 1980’s with follow-up statistics continually being reported. Mammographic screenings detect
a large majority of T1 tumors. The major results of these screening studies indicate that breast cancer mortality rates can be decreased up to 30% by screening procedures (Tabar et al., 1984) Thus, breast cancers can be detected earlier and treatments can begin when the disease is in a lesser stage.

Summary

Given the prevention and treatment statistical data, one would expect current medical practice to yield a large amount of detected T1 breast tumors, decreased radical mastectomy rates and increased treatment rates of conservative breast surgeries. A 1992 article by Tarbox, Rockwood and Abernathy from Denver General Hospital found that for the past five years, 72% of T1 cancer patients in Colorado were treated with modified radical mastectomies. A study was undertaken to determine the reasons why Colorado surgeons were still performing high rates of modified radical mastectomies given the current standards equating conservation and mastectomy treatments. The results indicated that a group of responding surgeons believe the research that the two surgical procedures are of equal value but unknowingly influence the patient treatment choice with a biased presentation of information.

Purpose of Study

The question now exists as to what extent research
findings equating treatments of conservative breast surgery with modified radical mastectomies for T1 breast cancers are influencing local surgical practices. Are patients with T1 breast cancers being given biased or unbiased treatment information from their surgeons? This study replicated the Denver study but, differed by concentrating on the decision making process at the grassroots level of health care by using only one, local, community hospital for the time period of January 1990-May 1994. The study consisted of the following four parts: 1) mammographic data (including annual cancer rates, sex, race, disease stage, and survival rates) from a breast cancer clinic located in a 406 bed tertiary care community hospital in southwest Virginia was demographically analyzed, 2) specific hospital mastectomy and conservation breast surgery rates were examined, and 3) surgeons on staff and those in private practices with hospital privileges were surveyed as to their beliefs concerning breast cancer treatments, and 4) T1 breast cancer patients were surveyed as to their beliefs and treatment decision-making processes.

Research Question

The major question to be researched in this study was: Do surgeons influence the treatment rates for T1 breast cancer patients at the local hospital level of health care? Other minor research questions include: 1. do surgeons and
patients believe that BCS and mastectomy are equal (provide the same survival chances) treatment options for T1 breast cancers? 2. do patients receive clear and unbiased information concerning treatment options? 3. what diagnostic modality do surgeons utilize most often in diagnosing T1 breast cancer? 4. of patients who opted for breast surgery, what factors influenced their decisionmaking process? 5. do patients often seek second opinions in their decision making process for breast cancer treatment? 6. do patients want surgeons to make treatment decisions for them? 7. concerning, satisfaction of treatment choices; do patients feel satisfied concerning the decisions they made? 8. did patients have enough time to decide about their treatments? and 9. how many treatment choices included reconstruction?

Selected Definitions

Selected definitions of terms used in this study are as follows:

Absolute Risk - rate at which cancer occurs in the general population.

Attributable Risk - the amount of disease in the general population that could be changed or prevented by adjusting or altering risk factors.

BCT/BCS - Breast Conserving Therapy, Breast Conserving Surgery.
Incidence - number of new cases in the population at risk at some point in time.

Lumpectomy - surgical removal of a breast tumor and small amount of surrounding tissue.

Mastectomy - surgical removal of the breast.

Mortality - death, rate of death.

Prevalence - number of existing cases in a specific point in time or over a specific period of time.

Relative Risk - calculations of specific risk factor(s) of exposure(s) to groups of people who do and do not develop a specific disease process.

T1 - tumor 2 cm or less in greatest dimension.

T2 - tumor more than 2 cm but not more than 5 cm in greatest dimension.

Limitations

Limitations of this study exist in analyzing data which uses only one hospital and records a small number of specific surgeons as survey responders. Procedures for coding and management of data by the hospital also limit retrieval attempts.

This study recognizes that the influence of surgeons was not directly measured in the research. The study did measure the perception of influence from patients and surgeons according to the survey responses.
Significance of Study

Very limited amounts of research on the patient/physician decision-making processes relative to early breast cancer disease has been done on the international, national, and state levels. Standards of medical practice for various diseases and conditions are known but, very little if any, information or research exists on individual hospital medical practice. This study is significant because it focuses only on the surgeons and patients affiliated with one, local hospital breast clinic. Treatment protocols, patient/surgeon beliefs and actual treatments chosen are identified at the grassroots level of health care. Information from this study will aid current and future hospital administration, patients, and physicians in the diagnosis and treatment of breast cancer at the local health care level.
CHAPTER 2

LITERATURE REVIEW

Epidemiological Database

In the United States, attempts to formalize cancer registry centers have been ongoing since the first bone sarcoma registry began in 1920. The most current attempt at a comprehensive registry is being undertaken by the Commission on Cancer of the American College of Surgeons and the American Cancer Society. The title of the project is The National Cancer Data Base (NCDB) and it has to date, issued two calls for data. The first call was in November 1989 for 1990 and 1985 data and the second call was issued in January 1992 for 1990 and 1985 data. Mailings were sent to approximately 2,000 hospitals, central and state registries plus vendors and suppliers of software. By December 1992, 1,008 hospitals had sent one or more years of cancer data. At this time, the NCDB is representative of only a sampling of voluntary data submitted by a small number of hospitals and registries and does not represent the entire nation. The NCDB expects to grow in the future and be a source for cancer treatment data in the United States (Steele et al., 1993)

To date, precise ways of knowing the number of new cases diagnosed yearly is unobtainable. The American Cancer Society estimates for each upcoming year using data that are
several years old. The National Cancer Institute began the SEER (Surveillance, Epidemiology and End Results) program in 1973. SEER counts data on an continuous basis from select population based cancer registries covering approximately 10% of the U.S. population. Since 1979, published cancer statistics have estimated cancer incidence based on SEER and applied to the U.S. Census estimates of population for the upcoming year.

Breast cancer incidence rates, by location sites, continue to rise for women in the U.S. In 1985 and 1988, the incidence rates were 26% and 28%. Of the total cancer incidence among U.S. women in 1993, breast cancer will account for 32%.

A historical look at breast cancer incidence reveals a slight increase of less than 1% annually from 1950 (74.4/100,000) to 1975 (91.5/100,000) with the greatest occurring in the early 1970's. From 1975 to 1977 incidence rates declined, but began to increase in 1978. This increase was much more rapid than the increase noted between 1950-1975. From 1975 to 1987, incidence rates for (white) women rose from 91.5 to 112.4 per 100,000. Beginning in 1988, there was a slight decline in incidence; however, the 1993 rate brings a continued increase (Dawson & Thompson, 1989).

Race and age play strategic parts in breast cancer
incidence. Breast cancer incidence increases in women from age 50 to 80 and then begins to decline. Black women have a higher incidence of breast cancer below the age of 45, however, over the age of 45 white women have a higher incidence. Because breast cancer in general is more prevalent in older women, the overall incidence rates tend to be higher for white than black women (Dawson & Thompson, 1989).

The American Cancer Society estimates that 182,000 new female and 1,000 new male breast cancer cases will be diagnosed in 1993. Specific Virginia cancer statistics estimate that 27,000 new cancer cases will be diagnosed, with the largest amount of 4,400, being breast cancer.

Mortality data in the U.S. are based on cause of death information supplied by the Division of Vital Statistics. Mortality rates are then standardized to age using the 1970 Census population data. Current national and state estimates of cancer deaths are then specified for specific sites using 1983-1989 data (Boring et al., 1993).

Overall, heart disease and lung cancer are responsible for the most deaths of American women with death rates from breast cancer remaining relatively constant (mid 20%’s) over the past fifty years. However, age specific death rates reveal breast cancer to be the leading cause of death in women ages 35-54 (Dawson & Thompson, 1989; Ferraro, 1993).
The American Cancer Society estimated that for 1993, 182,000 women and 1000 men would be diagnosed with breast cancer and 46,000 women and 300 men would die. An annual case fatality rate calculated on these data yields 25% for women and 30% for men. Virginia data were estimated at 4,400 new breast cancer cases with 1,100 deaths. An annual case fatality rate calculated on Virginia data yields a rate of 25% (American Cancer Society, 1993).

When looking to how lethal breast cancer is, survival rates give more information than mortality rates. The site of the disease at the time of diagnosis has strong influence on breast cancer survival rates. The earlier it is diagnosed and the smaller, less invasive the disease is, the better the chance for survival.

Race is a factor in breast cancer survival rates. From 1979 to 1984, 49% of breast cancer diagnosed in white women was localized as compared to 41% for black women. The five year survival rates were 91% and 86% respectively. However, when breast cancer was regionalized at diagnosis, white women's five year survival rates fell to 55% as compared to 69% for black women. Research done with SEER data by McWhorter and Mayer (1987), yields interesting results relative to race and survival rates. After adjusting and standardizing the data for age, histology, and site diagnosis, black women were more likely to receive non-
surgical treatments for breast cancer and no cancer follow-up therapies. These findings coupled with current research (Osteen et al., 1992, Satariano et al., 1992, Farrow et al., 1992, and Nattinger et al., 1992) that reports geographic differences in breast cancer treatment and management further compounds the issue of mortality and survival rates.

To summarize, five year survival rates for black and white women have steadily risen since the 1950’s. The survival rate for white women was 60% in 1950 and has risen to 76% in 1985. The survival rate for black women was first reported in 1960 as 46% and in 1985 has risen to 64%. Since mortality rates have remained stable and incidence has risen, it seems logical to deduce that early detections and screenings plus earlier treatments explain the prevalence, incidence, and mortality relationships of breast cancer data.

The etiology of breast cancer remains unknown. It is felt to be a multifactorial disease with complex risk factor interactions. A risk factor is commonly defined as an identified factor that makes some people more likely to develop a disease process than others. The American Cancer Society lists the following as risk factors in developing breast cancer:

1. increasing age—lower risk for 30 and under, moderate for 40-45 and greatest over 50,
2. family history—women with mothers, sisters, and aunts with breast cancer are 2 to 3 times more likely to develop breast cancer,

3. previous breast cancer—10-15% of women who have cancer in one breast will develop cancer in the other breast,

4. diet—a high-fat diet is linked to risk but needs further study,

5. race or national origin—more common in North American and northern European women,

6. menstrual history—early onset of menses and late menopause increase the risk while early menopause decreases the risk,

7. pregnancy—never pregnant or pregnant after 30 increases risk,

8. hormonal factors—oral contraceptives and estrogen replacement may influence risk, and

9. fibrocystic changes—benign reoccurrences may increase risk (American Cancer Society 1993).

Absolute risk for breast cancer is most commonly specified as a cumulative risk up to a certain age. The familiar phrase, 1 in 9 women will get breast cancer in her lifetime is an example of absolute risk. Lifetime has the common definition of meaning by the 85th year of life.

Relative risk values are associated with prospective studies and try to evaluate specific risk factor exposures
to groups of people who do and do not develop a specific disease process. Breast cancer relative risks can be found in research for such exposures as previous cancers, family history, menarche after 10, menopause before 50, and first pregnancy before 30. Race and age factors are also involved in interpreting relative risk values.

Attributable risk is another term to consider and refers to the general population and the amount of disease that could be changed or prevented by adjusting or altering risk factors (Love, 1990). Even though some risk factors for breast cancer have been ascertained, 70% of women who develop breast cancer do not have any of the risk factors that are reported by The American Cancer Society (Steidman et al., 1982). Because there does not seem to be clear evidence of who will develop breast cancer, many women are trying to assess their particular risks and some are choosing prophylactic mastectomies as a prevention tactic. Statistical research is lacking on this controversial topic however, some information is known (Snyderman, 1984). Of women who develop cancer in one breast, the incidence of developing cancer in the other breast is thought to be high by physicians and reported to be five times higher than that of the general population. Noninvasive cancers, such as lobular carcinoma in situ, have reported bilateral rates of 30-40% (Robbins and Berg, 1964).
What risk factors make women consider prophylactic mastectomies? Who is considered a high risk patient? Research into risks yields the following profile of a high risk prophylactic mastectomy patient. A high risk patient is one with: a. previous breast biopsies with atypical results, b. family history of breast cancer, especially a mother or sister who has died from the disease, c. breast tissue that is hard to interpret on mammograms, painful and or disfigured breasts, d. severe cancerphobia to the point of mental and physical impairment, and e. reproductive history that includes early menarche and late menopause, giving birth after 30 years of age, and hormone replacements (Henderson et al., 1991; Gail et al., 1989; Snyderman, 1984, Hirshaut & Pressman, 1992).

Since 70% of all diagnosed breast cancer patients do not demonstrate identifiable risk factors, many women continue trying to gain insights into their individual risks. Dr. Mitchell H. Gail and his associates at the National Institutes of Health in Maryland have published a rather complex mathematical formula that can be used by physicians to calculate the probabilities of white females, who have annual examinations, to develop breast cancer (Gail et al., 1989). In addition to risk factor calculations, genetic codes may also hold answers for women. Of all breast cancers, 2 to 4 %, have genetic origins (Biesecker
et al., 1993). Dr. Mary-Claire King, a geneticist at the University of California, Berkeley, was the first, in 1990, to show that familial breast cancer could be connected to a single gene. The gene has been named BRCA1 and resides on the DNA chromosome #17q12-12 (Brown, 1993; Biesemacker et al.; King et al., 1993).

As research continues to narrow in on a specific gene, there are already some scientists thinking as capitalists. "At the University of Utah, one of the foremost gene hunters, Mark Skolnick, has already set up a company called Myriad Genetics that will patent and market a test for the gene if he finds it first" (Brown, 1993). If genetic screening becomes a reality in breast prevention, what treatment will be offered to patients?

Public health issues concern keeping the entire community or public safe while trying to improve the physical, mental and social conditions of the people (O'Toole, 1992). Breast cancer presents many public health concerns. Women are being told through media and by physicians that breast cancer kills and to seek early detection through mammography and breast self exams plus, be aware of risk factors. The area of risk assessment seems vulnerable to the patient seeking answers and to the health care provider performing the assessment. Consider the following facts: 1. there is no known cause of breast
cancer, 2. there is a general list of possible risk factors many of which patients have no control over, and 3. 70% of women who develop breast cancer have no risk factors. How then can one realistically assess risk? The uncertainty of the process leaves much room for professional and personal beliefs and judgements on the sides of both the patients and the health care providers. Breast cancer centers with full-range counseling services are helping in the assessment area however, not all areas offer a breast center or are training health personnel for counseling work.

In summary, since the 1950’s, there is epidemiological evidence of increases in incidence and prevalence rates of breast cancer. Mortality rates remain constant and women are trying to identify and calculate risk factors. A genetic predisposition to breast cancer has been documented while counseling and decision making abilities are gaining in importance.

Breast Cancer Treatments

Breast cancer treatments begin with a diagnosis. Diagnosis begins with the detection of a specific problem area or palpable lump. Detections are made in three ways: the woman locates a lump during self exam, doctors locate lumps during physical exams, or lumps are detected from mammograms. Of all breast lumps detected, 90% are benign conditions. Of the malignant 10%, 75% of them are detected
by women, either by chance or by preforming breast self
exams (Hirshaut & Pressman, 1992). Estimates vary, however,
approximately 33% of women do not practice any form of
breast self examination (Swanson et al., 1993).

Once a palpable lump has been identified, a mammogram
is performed to internally view the area. Ultrasonography
can also demonstrate breast tissue and may be used in
conjunction with mammography. At the present time,
computerized axial tomography (CT) and magnetic resonance
imaging (MRI) modalities are being investigated
experimentally for future diagnostic use.

After a lesion has been identified and defined, it
should be biopsied for a definitive diagnosis. Biopsies can
take several forms depending on the preference of the
surgeon and the condition of the patient. For palpable
breast lesions, the simplest form of biopsy is the fine-
needle aspiration. If the lump is a fluid-filled cyst,
needle aspirations are viewed as treatments as well as
diagnosis. Aspirations can be done very satisfactorily in a
physicians office. If a lesion cannot be felt, stereotactic
needle biopsies can be performed. A mammography machine
which incorporates the ability of stereo radiographs and
fine-needle insertion comprise this technique. Biopsies
obtained from either form of aspiration necessitate sending
the samples to a laboratory for pathologic examination.
Formal biopsies are done in hospitals or ambulatory out-patient clinics. These procedures are usually performed on solid breast lesions and require the use of sterile surgical procedures and patient anesthesia. Formal biopsies can take either of two forms. If the tumor is large and only a small portion of it is removed for examination, it is called incisional. If the tumor is small and the biopsy can remove all of it, surgery is called excisional. If the area under question consists of microscopic calcifications rather than a mass, needle localization procedures can be used. Under mammography, a fine, flexible wire is guided and inserted into the specific problem location and left in place for the surgeon to use in guiding the biopsy procedure. Formal biopsied specimens are sent to the hospital pathology department for immediate examination. If pathology confirms the presence of cancer, disease staging is then determined.

Cancer staging is a complicated process by which the extent of a disease is classified. Tumor size, nodal involvement and metastasis extent are rated. This process is called the TNM system and is published in manual form by the American Joint Committee on Cancer. The Joint Committee is comprised of the following groups: American Cancer Society, National Cancer Institute, College of American Pathologists, American College of Physicians, American
College of Radiology, and American College of Surgeons. (See Appendix B for staging information.) In brief, there are five levels of cancer disease which are noted as Stage 0, I, II, III, and IV. Stage II and III are further divided into categories of A and B. In each of these stages, tumor size and location, lymph node involvement, and metastasis are evaluated. After staging has been accomplished, treatment decisions are then evaluated.

Surgery remains the major treatment option for cancer of the breast. Surgical procedures vary from conservative lumpectomies to radical mastectomies depending upon the extent of the disease and the patient’s treatment decisions. For patients who demonstrate zero to one nodal involvement and a well defined, encapsulated or isolated small-less than 5cm.-breast lesion, lumpectomy or breast conserving therapy (BCT) is an option. The surgical procedures for excisional biopsies are the same as for cancerous lumpectomy in the United States (Mendelson, 1992). Successful BCT should incorporate control of the disease as well as good cosmetic results. Texts do not agree on the definition of lumpectomy or BCT. Many synonyms are used and one should always strive for a complete definition from the surgeon prior to the procedure. The terms segmented mastectomy, excisional biopsy, wide excision, tumorectomy, lumpectomy, and tyleectomy are often used interchangeably. The definitive
surgical procedure for BCT in the United States is wide excisional biopsy or partial mastectomy, limited resection. In Europe, other procedures such as quadrantectomy are advocated for the surgical treatment of breast cancers (Mendelson, 1992).

In addition to the CBT suggested, radiation therapy is also prescribed as treatment. After the lumpectomy site has healed, which is approximately 4 to 6 weeks, five daily doses of between 45 and 50 Gy is administered for a time period of five weeks. Some patients also benefit from iridium implants which boost the total breast dose to 60-66 Gy (Krishman, et al., 1989).

Recurrence of disease poses a threat to survival. There is approximately an 8% chance of local recurrence after CBT and radiation therapy. This rate compares favorably to the local recurrence rates of 8-10% associated with mastectomy (Love, 1990). Because recurrence is a possibility after initial breast cancer treatment, many doctors and patients opt for the additional treatment form of chemotherapy or adjuvant therapy. Following the complete treatment course of CBT, patients should be routinely monitored by physical, laboratory, and mammography exams.

Mastectomy is another surgical option for breast cancer patients who exhibit large or multiple lesions with axillary
nodal involvement to the muscles. This surgery can be extensive with removal of the breast, axillary content and the pectoralis major and minor muscles. Just as in CBT, mastectomy has varying forms and nomenclature. The radical mastectomy, named after Dr. William Halsted, was first developed in the late 1800’s. This procedure was very mutilating as breast cancers were detected then at such late disease stages that surgeries were extensive. Skin grafting was often needed after the surgery. The procedure could also involve the nodes and muscles in the neck region which was known as supra-radical or extended radical mastectomy. These procedures are not advocated for current medical practice. A variation of this procedure became popular in England in 1948 and in the United States in the 1970’s. The procedure is called modified radical mastectomy and it removes all breast tissue and lymph nodes, but leaves the muscles intact. Since screenings and other early detection methods are in practice today, many cancers are being detected prior to nodal involvement into chest muscles, thus making a less disfiguring surgery process advantageous (Hirshaut & Pressman, 1992).

Removal of part of the breast is called a partial mastectomy. This procedure has many variations depending upon the amount of breast and lymph nodes removed. Types of partial mastectomies range from lumpectomies, wide
excisional biopsy to quadrantectomy, which excise 20-25% of the breast tissue and skin. Following partial mastectomies, radiation therapy and adjuvant therapies are recommended.

The simple or total mastectomy is the procedure currently being used to excise non-invasive breast cancers. Simple mastectomies resemble modified radical mastectomies, however, no lymph nodes are removed. Simple mastectomies are used primarily for cancers conditions that have not spread from the original site, but have a chance of spreading.

Lobular carcinoma in situ (LCIS) and ductal carcinoma in situ (DCIS) are often called precancerous conditions and are being detected with greater prevalence with the use of mammographic screenings and advancements in technical quality of mammography radiography. LCIS is commonly defined as an accumulation of abnormal or atypical cell growth located in the lobules which branch out from ducts in breast tissue. In a limited but hallmark study, Dr. Cushman Haagensen and associates, studied LCIS patients for thirty years and found that out of 211 patients only 36, or 17%, developed breast cancer during that time span. The cancers that developed were diffuse in origin suggesting that LCIS is a possible warning sign or danger signal for future cancer development. Having LCIS appears to increase a patient's risk of developing breast cancer later in life.
DCIS is much more complicated than LCIS by virtue of having atypical cells in the ductal system of the breast tissue it can, on its own, grow into a cancerous lesion. Research on DCIS is also limited but, studies on a total of 78 women have shown that of DCIS patients not receiving mastectomies, 20-25% of women will develop invasive breast cancer lesions within 10 years (Page & Dupont, 1982). Major conclusions are not available from such limited research, however, DCIS appears to be more lethal than LCIS. Treatment options are not clearly delineated for LCIS and DCIS. To avoid the possibility of developing breast cancer in the future, patients may opt for bilateral total mastectomies. This form of treatment yields a 99% chance of remaining disease free. Patients who choose a more conservative surgical approach, with or without radiation therapy follow-up, face between a 10 to 20% chance of developing breast cancer. Wide excisional surgeries followed by radiation therapy will decrease the future cancer risk to between 5 and 10% (Love, 1990). Because there is so little formidable research dealing with LCIS and DCIS, the National Surgical Adjuvant Breast Project (NSABP) is currently conducting a national, randomized clinical trial, B17, in hopes of gaining valuable statistical evidence for treatment insight.
Treatment options for cancer are of constant concern to the medical community. In 1990, the National Cancer Institute and the Office of Medical Applications of Research of the National Institutes of Health convened a Consensus Development Conference on the Treatment of Early-Stage Breast Cancer to evaluate available scientific information and "...resolve safety and efficacy issues related to biomedical technology" (Hirshaut & Pressman, 1991, p. 127). The conference published conclusions and made recommendations. The following is a conference recommendation for a treatment strategy for Stage I and II breast cancers.

"Breast conservation treatment is an appropriate method of primary therapy for the majority of women with Stages I and II breast cancer and is preferable because it provides survival rates equivalent to those of total mastectomy and axillary dissection while preserving the breast" (NIH Consensus Conference, 1990).

With the published recommendation of the NIH Consensus Conference, surgeons and patients now have more information relative to state of the art treatment options.

Breast reconstruction techniques are considered elective and are available and offered to mastectomy patients. The options are many and patients may have reconstruction immediately following mastectomy or wait until a future time. The physical and emotional status of the patient dictates the use of reconstruction.
Implants are the standard forms of reconstruction. Silicone gel and saline types of implants were available to patients for cosmetic use until recently. In 1992, the Food and Drug Administration ordered the use of silicone gel implants be discontinued for the general public due to leakage complications. At the present time, silicone gel implants may be used following mastectomy if certain conditions exist and procedures are followed. Implants may be inserted directly after mastectomy or tissue expanders may be used to stretch the skin and an implant later inserted.

Reconstructions may also be done with the patients own skin and muscles. These procedures include the latissimus dorsi flap, the tram flap and the free flap reconstructions. While achieving natural-looking results, these procedures are preformed by plastic and reconstructive certified surgeons and can be time-consuming, complicated surgeries that may include an additional expense.

Another restorative option counter to reconstruction is a breast prosthesis. Patients who do not wish additional surgery or expense may opt for wearing a prosthetic device. The quality of breast prosthesis have improved over the past decade and now give very natural-looking results (Hirshaut & Pressman, 1992; Love, 1990).

In conclusion, there are basically two treatment
options for breast cancer. One option is to remove the breast and decide if a reconstruction is wanted, plus undergo systemic treatments of chemotherapy and or hormonal therapies. The second option is to have a conservative form of surgery that will remove the cancer yet preserve breast tissue. The conservation technique would then be followed by radiation therapy and or chemo or hormonal therapies. Regardless of treatment, all breast cancer patients should be followed closely with imaging modalities and physical examinations to enhance a disease free state of health.

**Breast Cancer Prevention-Secondary**

Possible significant strategies for reducing breast cancer mortality explore methods that achieve early disease detection. Two methods have been investigated in this secondary preventive framework. The methods are breast self-examination (BSE) and screening mammography.

Breast self-examination information and practices have been advocated in premenopausal women by the medical community for over thirty years. However, BSE has not been stressed in the 65 and over age group (Williams, 1988).

The benefits of BSE have not been thoroughly researched but, limited studies have yielded conflicting results. In three studies, clinical effectiveness of BSE’s was proven and documented (Newell, 1985; Huguley & Brown, 1981; Greenwald et al., 1978). The United Kingdom Trial of Early
Detection of Breast Cancer conducted a major study of 237,000 women between 1979-1981. This randomized study included the components of physical examination plus mammography for 46,000 women, BSE training and clinic referrals for 64,000 women and a control group of 127,000 women. After a seven year follow-up, no significant benefit in breast cancer mortality was observed from BSE (Rutqvist et al., 1980).

Many factors influence the practice of BSE’s. Women age 20-50 years who annually visit gynecologists receive a physical exam and in general, practice BSE’s on a limited regular basis. Women over 65 who visit physicians may also feel their health needs are being protected. There is also a group of women who do not seek regular health checks for a variety of reasons. Attitudes of women regarding how they were their own standards of health have been found to influence their participation in BSE’s. Society places great emphasis on fertility, sexuality and over all youthful body images. Some women may not value touching their bodies due to their personal, religions, or ethical experiences and values. As the U.S. population ages and given that breast cancer incidence increases with age, perhaps more prevention measures should be addressed toward the aging, female population (Williams, 1988). If a BSE can prevent one woman from being a mortality statistic, then BSE has accomplished
a secondary preventive task. The puzzling aspect of BSE appears to be that not all women see benefit in the procedure. Given the limited BSE research there is also questioned value to BSE’s merits. What is advocated however, is more BSE clinical trials over significant periods of time for different age groups (Rutqvist, et al., 1990).

**Mammographic Screenings**

The second strategy for reducing breast cancer mortality is mammographic screening. The hallmark study into breast screening was conducted from 1963-1970 by Dr. Shapiro and associates of New York. The Health Insurance Plan of Greater New York, or HIP study, provided the first scientific evidence indicating that early diagnosis and treatment through breast screening can reduce breast cancer deaths. After ten years of study, the mortality rate was 29% lower in the study group compared to the control group. Recently published data reveals the mortality rate has dropped to 23%. From eighteen years of follow-up data, significant reductions in breast cancer mortality rates appeared in the 40-49 age group after 8 years and in the 45-49 age group after 5 years. According to this study, the major age group to benefit from breast screenings is women above 50 years of age (Shapiro et al., 1990).

The HIP study sparked worldwide interest in breast
screening and prompted further studies and projects. In the U.S., the American Cancer Society (ACS) and The National Cancer Institute (NCI) organized an observational and demonstration study in 1973. The Breast Cancer Detection Demonstration Project (BCDDP) further investigated breast screening practices on a national basis and gave particular attention to specific age groups which the HIP study did not address. Twenty-nine BCDDP centers were established in twenty-seven locations throughout the U.S. with approximately 290,000 females participating.

At the same time, the NCI began the Surveillance, Epidemiology and End Results (SEER) program. Health data was collected by SEER from select population based cancer registries covering approximately 10% of the U.S. population. These two data bases yielded an enormous amount of information for health and medical practice in the U.S.

For women who participated in the BCDDP and had breast cancers detected, the 5, 8, and 10 year survival rates were 88, 83, and 79%, respectively. The BCDDP data has been statistically compared to the SEER data. Some of the results indicate that in the BCDDP, early breast cancer detection practices as advocated can reduce the Case Fatality Rate by 46%. Basic conclusions of the BCDDP are:

1. of 1,000 screened participants, 7 breast cancers will be detected, yielding a prevalence of 7 per 1000. 42% of the
cancers were not palpable and detected only by mammography (Hall, 1986), 2. women 40-49 years of age, benefit from mammographic screening to the same extent that women 50 and over do, and 3. that women play very involved and collaborative, not passive, roles in the screening and detection of breast cancer. The BCDDP is the foundation upon which the breast cancer screening practices in the U.S. are based (Shapiro et al., 1988).

After HIP, studies using case control methodologies were cited in Florence, Italy, and in the Dutch DOM and Nijmegen studies. Eight randomized and controlled studies were conducted from 1976 to 1982 that are considered major bodies of research. The Swedish WE, Malmo, United Kingdom, Canadian I and II, Stockholm and Gothenburg studies, including published follow-ups, continue to corroborate the HIP findings that mammographic screenings are beneficial and have significantly reduced breast cancer mortality rates (Rutqvist et al., 1990).

Internationally, Sweden is considered a leader in breast cancer screening research. Dr. Laszlo Tabar and associates initiated the WE study in 1977 and continue to document with follow-up data. Sweden is a small Scandinavian country, slightly larger in land mass than the state of California and has an entire population of approximately the state of New Jersey. Sven Tornberg, M.D.,
Ph.D., director of the Onkologiskt Centrum of Stockholm-Gotland, reports that 90% of the Swedish female population participates in mammography screening. The resulting screening data is updated daily and centralized and computerized in Stockholm. Three registries allow critical access to the population. The registries consulted are: 1. a cancer registry begun in 1958, 2. a cause of death registry begun in 1952., and 3. a daily updated population registry completed by the post offices. Because of the unparalleled success of mammography screening in Sweden, Dr. Tornberg hopes to soon begin screening programs for cervical and prostate cancers (Personal interview, June 9, 1993).

An extensive implementation of a mammographic screening project in the U.S. would be extremely difficult. It is estimated that only 5% of the female population over the age of 50 have annual mammograms and further estimated that only one-third of women eligible even have at least one mammogram (Hall, 1986).

D. M. Eddy estimated the costs verses benefits relation for screening implementation. If women age 40-75 were screened over a ten year period, 1% or 100 out of 10,000 would die of breast cancer. If a 40% reduction in breast cancer is assumed only 40 of 10,000 women or 4% would reap benefits. Mortality rates in general would probably go down only slightly because women screened who do not develop
breast cancer still have many other factors that can contribute to death.

"Eddy has estimated that annual screening for 10 years using physical examination alone in women over the age of 50 would have a net cost of $10,000 to $15,000 per year of life expectancy gained and of $20,000 to $90,000 if mammography were added to the screening procedure. On a population level, if 25 percent of the women in the United States who are between the ages of 40 and 75 were screened annually for 10 years by both mammography and physical examination, 4000 deaths from breast cancer per year would ultimately be avoided, and the new annual cost would be approximately $1.3 billion " (Harris et al., 1992, p. 326; Eddy, 1989).

From the initial results of the screening data, in 1987 the ACS and the NCI issued policy statements or working guidelines form mammography use. The American College of Radiology also supported these guidelines. A baseline mammogram was recommended for women between the ages of 35 to 40 with follow-up mammograms every two years for women aged 40-49. For women aged 50 and older, annual mammograms were advocated. On December 3, 1993, the NCI revised their guidelines to reflect an emphasis on the 50 and over age group. Their current recommendation only advocated mammography and physical examinations for women 50 and over ("Routine exam", 1993). The ACS remains committed to its original guidelines and has not made any changes.

The recent change in guideline statements by the NCI present physicians and asymptomatic patients with questions concerning appropriate levels of care for women aged 40-49.
Five to eight year follow-up data on the HIP and WE studies, in particular, related marked reductions in mortality rates for women 50 and above. Now at 15-18 years of follow-up, the same mortality results have been suggested for the 40-49 age group. Currently, a number of medical professionals are questioning the wisdom of changing the NCI guidelines. Dr. Ken Heilbrunn from Seattle, Washington, Dr. Edward Sickles, professor of radiology and chief of breast imaging at the University of California at San Francisco, and Dr. Ellen Mendelson, chief of mammography and women’s imaging at Western Pennsylvania Hospital in Pittsburgh, are some of the prominent physicians who have publicly criticized the change in NCI guidelines and have offered statistical data that uphold the NCI’s previous guideline statement (Greer, 1994).

In summary, BSE’s and screening mammography have made advances in the problems of breast cancer. Reduction in mortality rates of up to 40% through mammographic screenings is a major advancement in medical care. Public health policies should continue to support further research ventures plus, investigate additional interventional strategies and economic considerations.

Psychosocial considerations

As noted earlier, breast cancer is a disease that effects not only the physical body of a woman but also, the mental, emotional, and spiritual aspects of her being.
Society places continued emphasis on the nurturing qualities of the female body. When the breasts experience disease, the breast-feeding, life-nurturing, and sexual identity aspects of women are directly attacked. In order for women to cope and make decisions concerning the disease process of breast cancer, there is much more to be considered than mere physical treatments. Logic alone does not always represent the basis by which decisions are made concerning breast cancer.

In 1978, two psychosocial studies were conducted on aspects of mastectomy from the male and female perspectives. These early studies were limited to patients from one northeastern hospital but, indicated that women have great psychosocial stress prior to breast surgery and that much counseling should be done for a quality psychosocial adjustment to the disease and the surgery. Men were found to be very emotionally involved with their mastectomy partners and wanted to be included in the decision-making process but were not often consulted prior to surgery (Jamison et al., 1978; Wellish et al., 1978).

Formal attention to the psychological and sociological aspects of patients with breast cancer began to emerge in the early to mid 1980’s with studies published by Wendy Schain, Ed.D. and associates, and Drs. Steinberg and Wise. These new areas of investigation focused on factors that
affected how women felt and thought about their cancer diagnosis and treatment options. Studies were done with women who were given no choice of treatment and to women who had choices between mastectomy and conservative breast surgeries. Pre- and post-surgery assessments were made primarily by questionnaires however, some limited interviews were also done. From these studies a solid amount of corroboration emerged as to the psychosocial natures of breast cancer patients. Patients who opted for breast conservation treatments tended to be younger and had placed considerable value on their physical appearances. They viewed their lifestyles as too active for mastectomy and reconstruction surgeries. They also exhibited less measurable emotional and physical stress and were able to deal with stress on adult levels with appropriate self-interest. Positive feminine feelings, sexual coping practices and better adjustments to intimacy were also demonstrated. The mastectomy patients were older and did not have particular interests in their body images. They demonstrated more rigid personalities and seemed poorly equipped to handle stress. After surgery they reported poor feelings of femininity and body image, greater difficulties adjusting to lifestyle changes as well as to continuing or initiating sexual intimacy (Ward et al., 1989; Wellisch et al., 1989; Wolberg et al., 1987; Ashcroft et al., 1984;
Stinberg et al., 1985; Leinster et al., 1989).

Margaret Cawley, R.N., M.S. and associates have reported that even though lumpectomy patients have had less disfiguring treatments than mastectomy patients, they still have a need for facilitating and coping strategies in order to affectively adjust to their illnesses. The emotional needs of the patient must have the same attention as the physical needs from medical professionals. Fifty-four per cent of the women in the Crawley study reported having little or no time to address their fears and concerns. Of the 60-70 year old patients, 61% felt they were treated as less capable of making a decision and given less information based only on their ages. Forty-five per cent of the participants were not given any information concerning postsurgical arm conditions and the exercises necessary to progress satisfactorily (Crawley et al., 1990). By instituting social support groups, prescribing antidepressive therapies, and teaching pain control strategies, the conservative breast treatment patient will have better psychosocial coping skills (Spiegel, 1990).

Recurrence of disease is often cited by surgeons and patients as a very important psychological factor in the treatment decision-making process for breast cancer. In a 1991 article by Lasry and Margolese, it was found that contrary to what is thought, fear of recurrence does not
factor into patient choice of lumpectomy or mastectomy. The choices appear to have equal amounts of recurrence fears for the patients.

The decision-making process that patients and surgeons undertake concerning breast cancer is influenced by what each brings to the situation. Individual beliefs, knowledge, communication skills, and personal biases will have psychological and sociological effects. A thorough understanding of the communication style of each participant is needed. Is the decision-making process to be a sharing, exchange process or an authoritarian approach? The desire a patient has to know about her condition and the desire to which she wishes to participate may be two different issues. Blanchard and associates conducted a study on preferences for information and participation in the decision-making process of hospitalized adult cancer patients. In the study, 92% of the participants wanted to receive all available information, but only 69% of the patients wanted to be actively involved in the decision-making process about their treatments (Blanchard et al., 1988). The issues of power and control will need to be defined for patients and surgeons. Does the patient want control over her health condition or does the doctor want it? What is the patients’ outlook on quality of life? The surgeon must be aware of the patient’s views to know how and
when to present information. In an study by Fisher and Wisniewski, which investigated how importantly surgeons rated functions of the patient-physician relationship, less than 10% of the 36 surgeons viewed as critical discussing the patient’s feelings and treatment options. Only half of the 36 felt that the surgeon should take the patient’s views into account when making a treatment decision (Fisher & Wisniewski, 1986).

Psychosocial considerations are becoming major topics of research for breast cancer patients and physicians. Any help in understanding the physician-patient decision-making process, skills needed for interaction, response styles, and psychological needs will advance the practice of medicine for breast cancer patients. Psychosocial interventions improve the quality of life and the survival of cancer patients (Spiegel, 1990).

**Choice factors in treatment**

Physicians play important roles in the decision-making processes of treatment choice in breast cancer patients. To what extent do clinical trials and research results influence the practice of medicine at the physician level? How long does it take for protocols or the gold standard of care to change? With evidence of comparable equality between outcomes for mastectomy and conservative breast surgeries (CBS) in patients who have stage I and II breast
cancers, researchers are now beginning to study the role of physicians' beliefs and attitudes in patient treatment choices.

An international study undertaken in Milano, Italy examined 657 physicians on their beliefs, attitudes, and personal characteristics undertaken when making medical decisions concerning treatments of early breast cancers. The findings indicated that only a very small percentage of physicians were ignorant or distrusting of data and results of current clinical trials. Physicians who advocated CBS were influenced by their medical specialty and the way they feel about patients being involved in the decision-making process. The study also concluded that treatment decisions were made by physicians by means other than strictly scientific information (Liberati et al., 1990).

In 1991 and 1992, national studies were conducted in the states of Washington and Colorado, respectively. The extent to which breast conserving surgeries and mastectomies were preformed were analyzed. A randomized clinical trial involving 8,095 women in Washington concluded that, despite evidence of the equivalency of BCS and mastectomy treatments advocated by the NIH, BCS procedures were not being preformed on the majority of women with stage I or II breast cancer. Other factors such as patient and physician education, patient income, physical relationship of
radiation therapy services to the hospital or physician, age of patient, specialty of the physician, and the attitude of the physician to published trial results may also contribute to the underutilization of CBS procedures (Lazovich et al., 1991).

The 1992 study conducted in Colorado reported that for the past five years, 72% of TI cancer patients were receiving modified radical mastectomies. Surgeons were surveyed as to why they were preforming such a high number of mastectomies given the advocated equality of CBS and mastectomy procedures. The surgeons' responses were grouped into three categories. Forty-four per cent felt the two procedures were equal, 22% did not believe the procedures to be equal, and 34% believed the procedures to be equal, but unknowingly presented biased information which influenced patients to opt for mastectomy treatment. The study also asked surgeons why they thought patients wanted mastectomies. Results indicated that 71% believed patients wanted the extreme treatment to assure that every treatment option had been exhausted. Another factor in treatment choice surgeons reported was that 84% believed that 6 weeks of radiation therapy following BCS was an extreme and inconvenient situation. Interestingly enough, when the surgeons were asked how often they preformed radical mastectomies, they replied 54% of the time while the cancer
registry reported a mastectomy rate of 72%.

"The difference in what the surgeons thought that they were doing and what the registry indicates leads [us] to believe that many surgeons may not realize their own biases in performing modified radical mastectomies" (Tarbox et al., p. 419, 1992).

Another subtle aspect of surgeon bias may effect the way information is presented to patients concerning types of treatments and recurrences. Since BCS and mastectomy patients were not found to have differing rates of fears regarding recurrences, perhaps surgeons should not consider this criterion (Lasry & Margolese, 1991).

Differences in surgical treatments were also found to vary according to geographic locations. Patients in New England were found to undergo mastectomies for T1 and T2 stage cancers with lesser frequencies than other parts of the United States. These findings cannot be justified based on differences in hospital and patient characteristics (Nattinger et al., 1992; Farrow et al., 1992).

Treatment choices can also be effected by race and sex factors. Franks and Clancy found that physician gender bias exists in the decision-making process as female doctors tend to screen more aggressively for female conditions than do male doctors (Franks & Clancy, 1993). In a Detroit study comparing CES and mastectomy for black and white women, researchers found that the age of the white patient at diagnosis and the size of the hospital for black women were
strong predictors of the type of treatment administered. Results concluded that young, white women undergoing treatments at large hospitals were likely to have BCS and radiation while black women treated at small hospitals were more likely to have mastectomies (Satariano et al., 1992).

Being told that you have breast cancer and then trying to make a decision regarding your treatment options can be an extreme ordeal for any patient. Now add to this ordeal other factors that may influence the treatment choice such as: physician gender-bias, attitudes and beliefs of the physician/surgeon, regional variations in surgical treatment and differing treatment options for race and age. Decision-making processes in treatment options for breast cancer patients remains very complex.

**Summary**

In reviewing breast cancer epidemiological data, the evidence is clear concerning incidence, prevalence and mortality rates. Incidence and prevalence rates have risen steadily with breast cancer continuing to be the most common killer of women in the United States.

The treatment options for breast cancers remain surgical. Current trends in surgical management equate the efficacy of BCS and partial radical mastectomies. Women with T1 or T2 cancers are opting with greater frequencies for less physically disfiguring treatments.
BSE's and mammographic screenings are advocated as prevention strategies. The clinical data reveals significant 35 to 40% reduction in mortality rates for women 40 years of age and over who receive mammographic screenings and clinical examinations on a regular basis.

Psychosocial factors also play significant roles in the decision-making processes of breast cancer patients. Patient assumptions and beliefs based on concepts of quality of life, body image, femininity and sexuality guide thought processes. The formal and informal support networks of patients contribute to the success of any treatment option.

Medical professionals influence choices made by patients in conscious and unconscious ways. Biased information is reported to patients from surgeons. In various locations of the United States mastectomy surgical rates continue to remain at high levels even with the advocated efficacy of CBS and mastectomy treatments for T1 and T2 breast cancers. Information from clinical trials that have direct implication on private medical practices seem very slow to statistically materialize. One way to examine how effectively surgeons are understanding and utilizing information from clinical trails is to study their surgical treatment rates. Are breast cancer patients with limited, regional disease being given the state of the art knowledge in treatment options? Are women continuing to
undergo disfiguring, mutilating surgeries when a more conservative surgery could be used? Can a local hospital assure the female community that it offers the gold standard in breast cancer care? The purpose of this study will look at the grassroots approach to breast cancer treatment for one local hospital. Limited international and national data is known concerning the role surgeons play in influencing treatment choice. However, local data are not available. In order to ascertain what is occurring at the most basic level of medical treatment, local hospitals must investigate and analyze their individual data and physician practices concerning breast cancer.
CHAPTER 3
METHODOLOGY

Research Design

The research design of this study utilized descriptive data plus census explanatory and descriptive surveys. A four step approach to data collection was incorporated. The first step analyzed cross-sectional, demographic, hospital tumor board data from 1984 to May 1994. The second step of the study reported hospital surgical rates for mastectomy and CBS thus, creating a timeline. The third step of the study completed a census survey of general and reconstructive surgeons associated with the medical center from January 1991 to May 1994. The fourth step of the study consisted of a census survey of T1 breast cancer patients treated at the medical center from January 1991 to May 1994.

The organization of the methods chapter presents information on participants, instrumentation and measures, procedures, data analysis, limitations and delimitations.

Participants

A medical center located in southwestern Virginia was the site of the study. The medical center involves a 406 bed tertiary care facility associated with a multispecialty medical practice that has ten extended locations and is one of the largest and oldest practices in the entire southeastern United States. The medical facility is also
comprised of a 145 bed multifaceted psychiatric and substance abuse facility with three satellite clinics. A nonprofit educational foundation is also associated with the medical center. The breast clinic of the medical center was officially begun in 1984. The medical director of the breast clinic has requested an analytic study be performed.

General and reconstructive surgeons on staff and affiliated with the medical center during January 1991 to May 1994 comprise the medical population to be surveyed. Due to the small number, all 13 surgeons will be surveyed.

All T1 breast cancer patients treated during the time frame of January 1991 to May 1994 comprise the patient population to be surveyed. The entire patient population for T1 breast cancer patients during the specified time frame is 115.

**Measures**

The surgeon survey tool, used with permission, was a questionnaire developed from the Colorado study of 1992 by B. Tarbox, B.S., J. Rockwood, B.S. and C. Abernathy, M.D.. Questions were added to the questionnaire to include the following: gender and age of the surgeon, medical school attended and the years since graduation, the amount of second opinions their patients obtained, and referral status of patients. This survey tool was chosen because it was specifically developed and used to ascertain surgeon beliefs
Regarding treatment protocols for breast cancers.

A survey tool was created for the patients accessed information concerning their beliefs about breast cancer treatments, and the information they received concerning treatment options. The major parameters of the surgeon survey tool was used as a guide in developing the patient tool. Demographic items were added that parallel the added items on the surgeon survey as well as statements concerning treatment satisfaction. The content validity of this tool was examined by 6 educators, 1 medical doctor, 2 members of the public and 2 health care workers. Any corrections or improvements were noted and employed. The entire survey mailing packet was reviewed and approved by the human studies coordinator of the university as well as meeting the standards of confidentiality protocols for the hospital.

**Procedures**

Tumor board data are available from the hospital and they were analyzed in cross-sectional format for the years of 1984 to May 1994. Trends in data concerning annual breast cancer rates, sex, race, disease stage, and survival rates are depicted in table and graph form.

A timeline was constructed from the hospital data supplied concerning the number of mastectomy and conservative surgery rates.

Surgeons who worked for or were affiliated with the
medical center from the dates of January 1991 to May 1994 were identified by the breast clinic medical director. They were sent a cover letter from the medical director of the breast clinic and the researcher, consent form, survey, and an addressed envelop with return postage. To protect their privacy, all responses were confidential and reported only as aggregated data. Hospital letterhead stationery and envelopes were used along with typed mailing labels. Mailings were sent out from the hospital.

In order to protect the privacy of patients, hospital breast pathology reports, routinely sent to the medical director of the breast clinic, were used to select participants. In situ, comedo, and multifocal cancers were eliminated as well as lesions measuring more that 5cm and having lymph node involvement. From the time frame of January 1991 to May 1994, 115 participants were selected who fit the T1 staging category. The pathology reports contained no personal patient information only the names of the patients. Again, to protect patients' privacy, a hospital, tumor board employee who has access to the files, was asked to pull the addresses of the selected patients and type mailing labels. Hospital letterhead stationery and envelopes were used as well as typed mailing labels. All surveys were mailed from the hospital tumor board office and included: a cover letter from the medical director of the breast center.
and researcher, a consent form, a survey, and an addressed envelop with return postage.

Participants were given five weeks to respond and postcard reminders were sent out at the three week mark. Postcards were bright yellow in color, typed, and used hospital postage with mailing labels. All mailings had return addresses to the hospital in care of the tumor board employee. The employee opened the survey responses and separated the signed consent forms and questionnaires. The consent forms were filed in the tumor board office while the questionnaires were given to the researcher.

Data Analysis

Cross-sectional frequency distributions will be determined for demographic, mammography data and will be depicted in table and graph form. A timeline showing the hospital reported surgery rates for mastectomy and conservative operations will be generated and depicted in table and graph form.

In the original Colorado study that is to be replicated in part three of this study, the surgeons were found to divide into three belief groups. The groups were then compared using the SAS computer program and computing Chi-square tests. When multiple comparisons were needed, individual significance levels were appropriately modified using the method of Bonferroni. This study will also use
this methodology.

The original survey tool created for the patient responses will use frequency distributions and percentages for evaluation.
CHAPTER 4

RESULTS OF THE STUDY

Tumor Board Data

Over a ten year period, breast cancer continues to comprise a significant percentage of the incidence of cancer at the local hospital level. Table 1 shows the total number of cancer cases per year and breast cancer percentages by gender. Women continue to comprise the largest patient population of breast cancers. Incidence rates according to sites for breast cancer fall in the upper twenties to upper thirty percents.

Other demographic data available from the tumor board office is represented in Table 2. White women aged 61-70 are diagnosed with local breast cancers most often at the local hospital level. The age groups of 41-50 and 71-80 closely follow in cancers diagnosed. Over 90% of breast cancer cases are primarily diagnosed at the local hospital. Less than 10% are diagnosed elsewhere and referred or sent to the local hospital for treatment.

Surgery Rates

The management of data concerning breast surgeries is not very well differentiated at the local hospital in this study. The tumor board office only had cumulative data for the years of 1982-1986. Breast surgeries increased during this time span with individual data as follows: 1982-46
Table 1

Hospital Total Cancer and Breast Cancer Cases 1984-1994

<table>
<thead>
<tr>
<th></th>
<th>Total cases</th>
<th>Total M</th>
<th>Total F</th>
<th>Breast M</th>
<th>Breast F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>397</td>
<td>167</td>
<td>230</td>
<td>0</td>
<td>74</td>
<td>0</td>
</tr>
<tr>
<td>1985</td>
<td>454</td>
<td>195</td>
<td>259</td>
<td>0</td>
<td>71</td>
<td>0</td>
</tr>
<tr>
<td>1986</td>
<td>431</td>
<td>202</td>
<td>237</td>
<td>1</td>
<td>82</td>
<td>1</td>
</tr>
<tr>
<td>1987</td>
<td>359</td>
<td>179</td>
<td>183</td>
<td>0</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>1988</td>
<td>428</td>
<td>194</td>
<td>243</td>
<td>0</td>
<td>82</td>
<td>0</td>
</tr>
<tr>
<td>1989</td>
<td>537</td>
<td>233</td>
<td>313</td>
<td>1</td>
<td>83</td>
<td>1</td>
</tr>
<tr>
<td>1990</td>
<td>555</td>
<td>269</td>
<td>292</td>
<td>0</td>
<td>112</td>
<td>0</td>
</tr>
<tr>
<td>1991</td>
<td>484</td>
<td>208</td>
<td>280</td>
<td>2</td>
<td>107</td>
<td>1</td>
</tr>
<tr>
<td>1992</td>
<td>553</td>
<td>262</td>
<td>292</td>
<td>0</td>
<td>103</td>
<td>0</td>
</tr>
<tr>
<td>1993</td>
<td>593</td>
<td>293</td>
<td>300</td>
<td>0</td>
<td>114</td>
<td>0</td>
</tr>
<tr>
<td>1994*</td>
<td>527</td>
<td>226</td>
<td>301</td>
<td>1</td>
<td>89</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. From Hospital Tumor Board Data. *Partial Data
<table>
<thead>
<tr>
<th>Race</th>
<th>%</th>
<th>1</th>
<th>%</th>
<th>0</th>
<th>%</th>
<th>0</th>
<th>%</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>99.4%</td>
<td>114</td>
<td>100%</td>
<td>114</td>
<td>100%</td>
<td>103</td>
<td>100%</td>
<td>103</td>
</tr>
<tr>
<td>Black</td>
<td>4%</td>
<td>3</td>
<td>77%</td>
<td>8</td>
<td>100%</td>
<td>10</td>
<td>100%</td>
<td>10</td>
</tr>
<tr>
<td>Asian</td>
<td>4%</td>
<td>2</td>
<td>10%</td>
<td>1</td>
<td>100%</td>
<td>1</td>
<td>100%</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>%</th>
<th>1</th>
<th>%</th>
<th>1</th>
<th>%</th>
<th>1</th>
<th>%</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>8%</td>
<td>6</td>
<td>99%</td>
<td>10</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td>0</td>
</tr>
<tr>
<td>10-19</td>
<td>39%</td>
<td>28</td>
<td>100%</td>
<td>18</td>
<td>100%</td>
<td>12</td>
<td>100%</td>
<td>12</td>
</tr>
<tr>
<td>20-29</td>
<td>49%</td>
<td>15</td>
<td>100%</td>
<td>7</td>
<td>100%</td>
<td>3</td>
<td>100%</td>
<td>3</td>
</tr>
<tr>
<td>30-39</td>
<td>22%</td>
<td>17</td>
<td>100%</td>
<td>21</td>
<td>100%</td>
<td>17</td>
<td>100%</td>
<td>17</td>
</tr>
<tr>
<td>40-49</td>
<td>9%</td>
<td>7</td>
<td>100%</td>
<td>22%</td>
<td>23</td>
<td>100%</td>
<td>16</td>
<td>100%</td>
</tr>
<tr>
<td>50-59</td>
<td>3%</td>
<td>2</td>
<td>100%</td>
<td>4%</td>
<td>5</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>60-69</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>%</th>
<th>1</th>
<th>%</th>
<th>1</th>
<th>%</th>
<th>1</th>
<th>%</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>100%</td>
<td>1</td>
<td>100%</td>
<td>1</td>
<td>100%</td>
<td>1</td>
<td>100%</td>
<td>1</td>
</tr>
<tr>
<td>Female</td>
<td>0%</td>
<td>1</td>
<td>0%</td>
<td>1</td>
<td>0%</td>
<td>1</td>
<td>0%</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Job</th>
<th>%</th>
<th>1</th>
<th>%</th>
<th>0</th>
<th>%</th>
<th>0</th>
<th>%</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>%</th>
<th>1</th>
<th>%</th>
<th>0</th>
<th>%</th>
<th>0</th>
<th>%</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2: Characteristics Breat Data for Selected Demographic Characteristics
<table>
<thead>
<tr>
<th>Stage</th>
<th>100%</th>
<th>77 %</th>
<th>101%</th>
<th>114%</th>
<th>100%</th>
<th>103</th>
<th>104%</th>
<th>109</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>1</td>
<td>4</td>
<td>%</td>
<td>4</td>
<td>%</td>
<td>1</td>
<td>%</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5%</td>
<td>4</td>
<td>11%</td>
<td>12</td>
<td>8%</td>
<td>8</td>
<td>10%</td>
<td>11</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>4</td>
<td>0</td>
<td>%</td>
<td>0</td>
<td>%</td>
<td>3</td>
<td>%</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>%</td>
<td>0</td>
<td>%</td>
<td>3</td>
<td>%</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>%</td>
<td>23%</td>
<td>18</td>
<td>%</td>
<td>11%</td>
<td>31</td>
<td>37%</td>
<td>15</td>
<td>15</td>
<td>16%</td>
</tr>
<tr>
<td>51%</td>
<td>59%</td>
<td>11%</td>
<td>%</td>
<td>12%</td>
<td>59%</td>
<td>11%</td>
<td>7%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>18%</td>
<td>11%</td>
<td>11%</td>
<td>%</td>
<td>12%</td>
<td>59%</td>
<td>11%</td>
<td>7%</td>
<td>7%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Status</th>
<th>100%</th>
<th>77 %</th>
<th>101%</th>
<th>100%</th>
<th>103</th>
<th>104%</th>
<th>109</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>4</td>
<td>9%</td>
<td>%</td>
<td>9%</td>
<td>8%</td>
<td>9%</td>
<td>9%</td>
<td>4</td>
</tr>
<tr>
<td>5%</td>
<td>4</td>
<td>7%</td>
<td>%</td>
<td>8%</td>
<td>8%</td>
<td>9%</td>
<td>9%</td>
<td>4</td>
</tr>
<tr>
<td>96%</td>
<td>93%</td>
<td>93%</td>
<td>%</td>
<td>96%</td>
<td>96%</td>
<td>96%</td>
<td>96%</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Case</th>
<th>100%</th>
<th>77 %</th>
<th>101%</th>
<th>100%</th>
<th>103</th>
<th>104%</th>
<th>109</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>4</td>
<td>9%</td>
<td>%</td>
<td>9%</td>
<td>8%</td>
<td>9%</td>
<td>9%</td>
<td>4</td>
</tr>
<tr>
<td>5%</td>
<td>4</td>
<td>7%</td>
<td>%</td>
<td>8%</td>
<td>8%</td>
<td>9%</td>
<td>9%</td>
<td>4</td>
</tr>
<tr>
<td>96%</td>
<td>93%</td>
<td>93%</td>
<td>%</td>
<td>96%</td>
<td>96%</td>
<td>96%</td>
<td>96%</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2 (cont'd)
cases, 1983-57 cases, 1984-66 cases, 1985-71 cases, and
1986-82 cases. The total number of breast surgeries from
1982-1986 is 322 cases with 289 or 90% being recorded as
mastectomies and 30 or 9% as lumpectomies. Surgical data
concerning the breast began to be more differentiated and
recorded beginning in 1991. Surgical breast data from
January 1991-May 1994 is found in Table 3. With the
exception of 1993, lumpectomies or conservative surgical
procedures comprise the majority of breast cancer cases.
Figure 1 presents a timeline graph of the surgical
percentage rates for mastectomy and lumpectomy. From Figure
1, the conservative approach of lumpectomy is somewhat more
perferred than mastectomy.

Surgeon Survey

Thirteen surgeons were surveyed with a fifteen item
questionnaire (see Appendix C). Ten questionnaires
returned. Nine questionnaires were complete, however, one
was incomplete. The return rate of the nine completed
surgeon surveys was 69 percent with a nonreturn rate of 31
percent.

Demographic data was collected concerning age, gender,
years in practice, place of residency, and year graduated
from medical school. Of the nine respondents, one chose not
to answer this section. Seventy-five percent of the
surgeons were 31-50 years of age. Eighty-eight percent were
Table 3

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th>Lumpectomy (%)</th>
<th>Mastectomy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>75</td>
<td>40 (53)</td>
<td>35 (47)</td>
</tr>
<tr>
<td>1992</td>
<td>80</td>
<td>46 (57.5)</td>
<td>34 (42.5)</td>
</tr>
<tr>
<td>1993</td>
<td>58</td>
<td>27 (47)</td>
<td>31 (53)</td>
</tr>
<tr>
<td>1994</td>
<td>31</td>
<td>19 (61)</td>
<td>12 (39)</td>
</tr>
</tbody>
</table>
male with 75% of the surgeons practicing 20 years or less. Seventy-five percent of the surgeons graduated within the last 20 years with 25% graduating over 30 years ago. Using the standard four geographic quadrants of the United States, 62.5% of the surgeons reported performing their residencies in the south. The east region was the next highest category with 25% response rate. The west region had a 12.5% response rate with the north receiving no responses.

When asked to approximate how many T1 breast cancer patients they yearly treat, the surgeons reported a range of 97-107 or an average of 102 patients. Of the T1 cancer patients, the surgeons reported 47% opted for breast conserving surgery while 43% opted for mastectomy. There was one surgeon who did not answer this question.

Surgeons were asked about their beliefs concerning the treatments of T1 breast cancers. When specifically asked if they believe that BCS gives the same chance for long term survival as modified radical surgery, 9 out of 9 or 100% responded yes. Many made comments that their belief is based on current literature and scientific studies. One-hundred percent of the surgeons also believe that they present BCS and modified radical options to patients as equal in terms of survival. Since the surgeon group presented no difference in beliefs, no further statistical analysis was conducted.
When asked to rank the diagnostic procedures used most often, one surgeon chose not to answer but commented that all of the procedures listed were important. Of the remaining eight surgeons, 62% ranked mammograms as being most important. Fifty percent ranked clinical or physical breast exams to be next important. Of the remaining two options, 50% of the surgeons ranked surgical biopsy as third in importance. Needle aspiration/core biopsy ranked in fourth place with 62% of the surgeons.

Table 4 represents data acquired through the hospital mammography department by the medical director of the breast center. Mammograms are rising over physical breast exams in their ability to diagnose breast cancers.

Surgeons were asked to list the reasons why their T1 patients opted for modified radical surgery. Two reasons were consistently ranked high by the surgeons. Sixty-seven percent reported that patients wanted the more radical surgery in order to feel like everything possible had been done and 56% said patients feel six weeks of radiation therapy is too inconvenient. The patients expressed desires to get all of the treatment action over at one time.

Seventy-seven percent of the surgeons responded that less than 20% of their patients wanted them to make the final decision about treatment options.

Of the patients who opted for modified radical surgery,
<table>
<thead>
<tr>
<th>Year</th>
<th>Physical Exam</th>
<th>(%)</th>
<th>Mammogram</th>
<th>(%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984-86</td>
<td>164</td>
<td>(79)</td>
<td>44</td>
<td>(27)</td>
<td>208</td>
</tr>
<tr>
<td>1988</td>
<td>56</td>
<td>(55)</td>
<td>27</td>
<td>(34)</td>
<td>85</td>
</tr>
<tr>
<td>1990</td>
<td>26</td>
<td>(53)</td>
<td>23</td>
<td>(47)</td>
<td>49</td>
</tr>
</tbody>
</table>
less that 20% obtain reconstruction according to the surgeons.

Seventy-five percent of the surgeons responded that less than 10% of their patients get second opinions and 56% responded that 90-100% of their patients are referred to them for treatment.

Patient Survey

One hundred and eleven patients were found to fit the category of T1 cancer status and were included in the study. Five questionnaires or 5% were returned as undeliverable. Fifty-nine completed questionnaires were returned for a rate of 53%. Forty-seven or 42% were not returned.

A seventeen item questionnaire (see Appendix D) yielded the following patient responses concerning breast cancer. Patients varied in ages from 31-90 years. From Table 5 it can be seen that the highest number of responses were from patients in the 61-70 age range.

The education levels of the patients ranged from grade school to master and doctorate graduate degrees. High school graduates comprised the largest group with 25 or 42% responding. Trade or professional certificates and master or doctorate graduate degrees were the next largest categories with 15 (25%) and 14 (24%) respectively.

In Table 6, patient responses are shown as to which diagnostic method was used to determine their breast cancer.
Screening mammography was the method of breast cancer detection for 42 (70%) patients. Of this group, 15 (36%) patients noted that a surgical biopsy followed to finalize the diagnosis. Breast Self Exam (BSE) was the next highest.

Patient responses to treatment choices are shown in Table 7. Conservative lumpectomy with radiation, chemotherapy or hormonal therapy lead the responses with 25 (28%) patients. Modified radical mastectomy came in second with 20 (23%) patients. From this table, it can also be seen that patients opt for modified radical mastectomy choose not to have reconstruction at a rate of 15 to 5 or 3 to 1.

Information given to breast cancer patients by surgeons seems to vary considerably. In Table 8 it can be seen that the major source (39%) of additional information comes from consultations with radiation and or medical oncologists. Twenty-nine per cent of patient participants were given statistical information and 19% were given books or written materials. No patients indicated being given information on the national breast cancer support groups.

The remaining patient responses on a variety of topics are summarized in Table 9. The summary points of Table 9 are as follows: 73% were referred to the surgeons, 68% do not obtain second opinions, 86% reported being presented a choice of treatment options which were 89% clear and
Table 5

Patients: Age of Respondents

<table>
<thead>
<tr>
<th>Years of Age</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31-40</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>41-50</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>51-60</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>61-70</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
<td>71-80</td>
<td>14</td>
<td>24</td>
</tr>
<tr>
<td>81-90</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 6

Patients: Initial Cancer Detection Methods

<table>
<thead>
<tr>
<th>Procedure/Exam</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSE</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>Screening Mammogram</td>
<td>42</td>
<td>70</td>
</tr>
<tr>
<td>Clinical Exam By Doctor</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Surgical Biopsy</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Needle Aspiration</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>99</td>
</tr>
</tbody>
</table>

*Note.* One patient had cancer in both breasts yielding 60 total responses. Of the 42 (70%) patients to indicate mammograms, 15 (35%) had follow-up surgical biopsies.
Table 7

Patients: Breast Cancer Treatments Performed

<table>
<thead>
<tr>
<th>Treatment</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radical Mastectomy</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Modified Radical Mastectomy</td>
<td>20</td>
<td>23</td>
</tr>
<tr>
<td>Mod. Rad. Mast. with a Therapy</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Conservative Lumpectomy</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Cons. Lump. with a Therapy</td>
<td>25</td>
<td>28</td>
</tr>
<tr>
<td>Reconstruction after Surgery</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>No reconstruction-Prothesis</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>88</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. There were multiple responses to this category yielding 88 total responses.
impartial by the surgeon, 61% believe BSC and mastectomy to
be of equal value when speaking to survival rates, 27% do
not believe the two treatments are equal with 12 % having no
response as to equality, 92% responded that they believe
patients choose the mastectomy option to feel safer from
cancer, 80% of patients do not want surgeons to make the
treatment decisions while 20% do, 88% feel they were given
enough time to decide about treatment options, 93% have not
experienced any recurrence, 95% of respondents expressed
satisfaction with their treatment choice and 88%, if given
the same choices, would choose the same treatment again.

Limitations and Delimitations

Limitations imposed on this study exist from using only
one hospital and its surgical staff, patients and the data
collection systems. Patient confidentiality practices of
the hospital limited the direct access of the researcher to
medical files and subsequent data collection. Tumor Board
personnel became vital participants in this study as well as
working their full-time jobs.

Delimitations of this study consist of narrowing the
participants to the most recent 3 1/2 year time frame.
Table 8

Patients: Information Offered by Surgeons

<table>
<thead>
<tr>
<th>Information</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Cancer Society</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Other Stats on Breast Cancer</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Videos</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Talk with Breast Cancer Patients</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Visit Local Support Groups</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>National Support Groups</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Written Materials</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>Consults with Oncologists</td>
<td>48</td>
<td>39</td>
</tr>
<tr>
<td>None of the above</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Other (Friends)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>124</td>
<td>101</td>
</tr>
</tbody>
</table>

Note. One respondent did not answer this question. There were multiple responses to this category yielding 124 total responses.
<table>
<thead>
<tr>
<th>Topics</th>
<th>Yes # (%)</th>
<th>No # (%)</th>
<th>No ans. # (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referred to Surgeon</td>
<td>43 (73)</td>
<td>16 (27)</td>
<td>0 (0)</td>
<td>59</td>
</tr>
<tr>
<td>Obtained Second Opinions</td>
<td>19 (32)</td>
<td>40 (68)</td>
<td>0 (0)</td>
<td>59</td>
</tr>
<tr>
<td>Presented Choice of Treatments</td>
<td>51 (86)</td>
<td>8 (14)</td>
<td>0 (0)</td>
<td>59</td>
</tr>
<tr>
<td>Choices Clear and Impartial</td>
<td>53 (89)</td>
<td>4 (6)</td>
<td>2 (4)</td>
<td>59</td>
</tr>
<tr>
<td>BCS &amp; Mast. Equal Survival Rates</td>
<td>36 (61)</td>
<td>16 (27)</td>
<td>7 (12)</td>
<td>59</td>
</tr>
<tr>
<td>Choose Mast. to Feel Safer</td>
<td>54 (92)</td>
<td>0 (0)</td>
<td>5 (8)</td>
<td>59</td>
</tr>
<tr>
<td>Want Dr. to Make Decision</td>
<td>12 (20)</td>
<td>47 (80)</td>
<td>0 (0)</td>
<td>59</td>
</tr>
<tr>
<td>Given Enough Time to Decide</td>
<td>52 (88)</td>
<td>7 (12)</td>
<td>0 (0)</td>
<td>59</td>
</tr>
<tr>
<td>Any Recurrence</td>
<td>4 (7)</td>
<td>55 (93)</td>
<td>0 (0)</td>
<td>59</td>
</tr>
<tr>
<td>Pt. Satisfied With Treatment</td>
<td>56 (95)</td>
<td>3 (5)</td>
<td>0 (0)</td>
<td>59</td>
</tr>
<tr>
<td>Would Choose Same Treatment Again</td>
<td>52 (88)</td>
<td>5 (8)</td>
<td>2 (3)</td>
<td>59</td>
</tr>
</tbody>
</table>
CHAPTER 5

DISCUSSION AND CONCLUSIONS

Early detection and treatment of breast cancer at the local hospital level is crucial to the health care of the female population. This study was undertaken to investigate a local hospitals practices concerning early detected breast cancers. Discussion will be organized into the following components. general mammographic data, survival, surgery, surgeon profile, minor research questions, major research question and conclusion.

General Mammographic Data

Mammographic data reveals that the local hospital incidence rate of breast cancer is the same or slightly higher than the 32% national rate.

The profile of an average T1 breast cancer patient at the local hospital indicates a 60-80 year old white woman with a high school education.

Surgery

Surgical data from the hospital has been in varying formats. Within the last 2-3 years, a more specific and consistent method of recording has been implemented. From 1982-1986, mastectomy was the surgery preformed 90% of the time. No breast surgery data was collected by the hospital from 1986-1990. However, from 1991-1994 the conservative approach of lumpectomy was somewhat more favored for early
breast cancer surgical management.

It is interesting to note that when surgeons were asked to approximate how many T1 breast cancer patients they treated yearly, their averaged answer of 102 patients was very close to the actual number of 115 patients reported by hospital data. Clearly, estimations by the surgeons are accurate.

Surgeon Profile

According to the responses on the surgeons’ surveys, the average surgeon profile at the hospital is a male of 31-50 years of age, medically educated in the south, and with 20 or less years of experience.

The geographic information obtained from the survey can be directly compared to the national studies citing a difference in breast cancer treatment based on geography (Osteen et al., 1992; Satariano et al., 1992; Farrow et al., 1992 and Nattinger et al., 1992). A preference for mastectomy breast cancer management was found to exist in East North Central, Mountain, South Atlantic, West North Central, West South Central, and East South Central regions of the United States. The Middle Atlantic, New England and Pacific regions were significantly more cautious in using mastectomy. The surgeons practicing in the time frame of this study were found to be medically educated in the South Atlantic geographic area that favors using the
treatment method of mastectomy. Thus, the beliefs and practices gained in medical school do not seem to be over influencing the current practices of the surgeons.

**Minor Research Questions**

1. Do surgeons and patients believe that BCS and mastectomy are equal (provide the same survival chances) treatment options for T1 breast cancers?

   In general, surgeons and patients do believe that BCS and mastectomy are equal treatment options in that they provide the same survival chances for T1 breast cancer patients. The surgeons unanimously agree citing current medical studies and literature as proof. However, 27% of the patients surveyed do not believe the treatments to be equal. Twelve percent of the patients said they just didn’t know what to believe. With only 61% of the patients expressing belief in the two treatments, leads one to further wonder if patients are provided the medical data or if other factors are affecting their beliefs.

2. Do patients receive clear and unbiased information concerning treatment options?

   Both surgeons and patients agree mastectomy and BCS treatment choices for T1 cancers were presented and further state that the presentations were of a clear and impartial nature. In this study, surgeons do not seem to be letting any personal opinions concerning treatments creep into their
patient interactions. The results of this study do not substantiate the results of the Colorado study by Tarbox and associates which found that surgeons unknowingly influence the patient treatment choice by presenting biased information.

3. What diagnostic modality do surgeons utilize most often in diagnosing T1 breast cancer?

An interesting note here is the response from patients as to what sources of information the surgeon gave or offered for consideration in their treatment decision-making. Approximately 40% of patients consulted with oncologists while 16% were given books or written materials, American Cancer Society statistics and other general statistics. A very few patients were given or offered the use of videos, talking with breast cancer patients and contact with local breast cancer support groups. No patients were given any information concerning national breast cancer support groups and 3% of patients reported receiving no information at all. If surgeons do not give patients all or a large majority of breast cancer data, how can patients be expected to make well-informed decisions about their health?

The use of mammography as a diagnostic tool in the detection of breast cancer is well documented nationally and internationally. At the local hospital level of health
care, mammography is also the most requested and reported tool for diagnosing T1 cancers according to surgeons and patients. Clinical breast exams and needle aspirations/core biopsies are also utilized by surgeons to a slightly lesser extent that mammography. In this study, 18% of patients reported using BSE for detection and these data are, by proportion, slightly lower than the 33% national rate of women who do not perform BSE (Lazovich et al., 1991; Love, 1990).

4. Of patients who opted for breast surgery, what factors influenced their decision-making process?

When faced with the equal treatment options for T1 breast cancers, both patients and surgeons agree that mastectomy is chosen over lumpectomy to make the patient feel in control and that everything medically possible has been done to rid them of the cancer, thus making them feel psychologically safer. Surgeons also report that over half of their patients have negative feelings concerning radiation therapy and its treatment duration. Even though the treatment options of BCS and mastectomy have proved to be equal in terms of survival rates, patients still want the more invasive treatment for reasons that defy medical knowledge. The documented recurrence rates for BCS and mastectomy are remarkably similar. Recurrence reported with BCS is 8% and for mastectomy is 8-10%. Even with this data,
patients still choose mastectomy. This patient decision-making scenario supports psychosocial studies in that more than hard medical facts go into patient decision making practices (Ward et al., 1989; Wellisch et al., 1989; Wolberg et al., 1987; Ashcroft et al., 1984; Stineberg et al., 1985; Leinster et al., 1989).

5. Do patients often seek second opinions in their decision-making process for breast cancer treatment?

Surgeons primarily obtain their patients from referrals however, when the patients are given the breast cancer diagnosis information by the surgeons, only 1/3 of them seek a second opinion. There seems to be a very high degree of confidence and trust in the referral process. Since the majority of patients do not seek second opinions, this further necessitates that surgeons practice the gold standard of care and make unbiased presentations to the patients.

6. Do patients want surgeons to make treatment decisions for them?

A majority of patients (80%) do not want surgeons to make their treatment choices for them. The patients wish to be informed and involved and may even ask the surgeon for a personal opinion however, ultimately they want control of making the final treatment choice. Surgeons relate to this situation and agree statistically.
7. Concerning satisfaction of treatment choices; do patients feel satisfied concerning the decisions they made?
8. Did patients have enough time to decide about their treatments?

From this study, patients do feel they had enough time to make their treatment decisions and are satisfied with the results. Given the same circumstances, the patients said they would choose the same treatment option again. Patients at the local hospital level of health care feel satisfied with their breast cancer decisions.

9. How many treatment choices included reconstruction?

Surgical reconstruction after breast surgery is a very limited option (<10%) as reported by patients and surgeons at the local hospital for T1 cancers. There does not seem to be any relationship between treatment choices and reconstruction rates in this study.

**Major Research Question**

This study found that surgeons at the local hospital level of health care do not unduly influence the treatment rates for T1 breast cancer patients. Surgeons believe in the equality of BCS and mastectomy treatment options for T1 breast cancers and present this to their patients in an apparently unbiased manner. Surgical rates and mammography use support the national and international data trends concerning breast cancer detection and treatment.
Conclusion

The disease of breast cancer continues to be a major killer of women. Insights gained through knowledge must continue with patients and physicians being totally informed. This study has shown that at this one local hospital, the beliefs of surgeons do not unduly influence the treatment rates concerning T1 breast cancers and that patients said they were satisfied with their decision-making process.

This study does surface areas on which the breast center may wish to focus future actions and research. Knowledge of breast self exams should be increased as cancer can be detected by this means and women still minimally practice this procedure.

The negative viewpoint that patients have concerning radiation therapy needs to be addressed by the radiation oncologist and therapists. If patients were better informed about radiation therapy, perhaps this would remove the negative stigma and influence the decision-making process in a more positive fashion.

National breast cancer support groups act as literal warehouses of information for breast cancer patients and the general consumer. This information needs to be given to patients. Patients and their families need to have access to all historical and current breast cancer statistics and
literature. Perhaps the breast center of the hospital should investigate the possibilities of providing a community resource center for breast cancer patients similar to facilities found in some major cities. Smaller cities and rural areas should inform their patients to the extent that larger cities do. There should not be geographic differences in sources of patient information.

In view of national data, future research could be undertaken to further investigate any geographic differences in treatment methods within the state and or region. Another research topic could focus more on the psychosocial aspect of why patients don’t seem to believe or trust scientific research and data concerning breast cancer treatments.

In closing, consider the remarks of a breast cancer survivor (Copyright © 1994, by Steve Austin and Cathy Hitchcock, from the book Breast Cancer, by Prima Publishing, Rocklin, CA (916) 632-4400):

...My mind is racing. My emotions are in turmoil. One moment I’m feeling like a zombie; the next I’m in a panic. Underneath it all is a sinking feeling telling me I’m going to die. Before my time. Soon.
In this irrational state I’m required to make perhaps the most important decisions of my life. I need to think clearly. I have to choose a doctor and decide whether to do a needle biopsy, excision biopsy, or lumpectomy. I am an emotional basket case; after all, I know in my gut it is cancer and that I’m going to die, so what’s the point?...
After getting the news I had the "the big C," I was overwhelmed by a confusion of feelings—many of them contradictory. Everything seemed blurred; it was hard to say exactly what I felt. I was frantic. In the midst of suddenly discovering I might well be dead soon and, in the meantime, hacked apart, fried, or worse, I was supposed to decide everything. Immediately. My surgeon gave me a "simple" choice: lumpectomy with radiation or mastectomy. He told me some women preferred a mastectomy. Weeks of radiation would then be avoided, along with its side effects. I'd just "get it over" in one fell swoop.

Sure. Just get your breast cut off and it's all over. Permit me to doubt. I'm rather attached to my breasts—downright fond of them. They're a part of my identity as a woman and an important part of sexual pleasure. And breast cancer is a systemic disease anyway. Lopping off a breast doesn't necessarily mean it's "all over."

I thought I wanted the doctor to tell me which treatment option was a sure bet. What the two-year-old inside of me wanted was to be told exactly what to do so I could be a good little girl and get better. The doctor didn't have a sure bet to offer me. So, instead of being reassured, I was left with my fear and anxiety: Which treatment can I trust? Will it work? What's the right choice? Please, Mommy, tell me what to do. Please, Doctor, fix me....

My tumor was small, so the cosmetic result of a lumpectomy would probably be good. Of course, lumpectomy would also be less invasive than mastectomy. The surgeon admitted that cutting more does absolutely nothing to improve survival chances. I chose lumpectomy....

Living with breast cancer is a process that continues to challenge me in the most unexpected ways. I remain surprised and sometimes momentarily dismayed at the curve balls life keeps throwing me; recurrent fear has been one of those off-speed pitches. But fortunately, I also have a great deal of curiosity to see what will be served up next and how I can enhance my life with that new knowledge....

LITERATURE CITED


"Routine exam after 50 only?" Associated Press, Roanoke Times and World News, 12/5/93.


Appendices
Appendix A

TNM Cancer Staging
CANCER STAGING

Primary Tumor (T)

TX  Primary tumor cannot be assessed

TO  No evidence of primary tumor

Tis  Carcinoma in situ: intraductal carcinoma, lobular carcinoma in situ, or Paget’s disease of the nipple with no tumor

T1  Tumor 2 cm or less in greatest dimension

T1a  0.5 cm or less in greatest dimension

T1b  More than 0.5 cm but not more than 1 cm in greatest dimension

T1c  More than 1 cm but not more than 2 cm in greatest dimension

T2  Tumor more than 2 cm but not more than 5 cm in greatest dimension

T3  Tumor more than 5 cm in greatest dimension

T4  Tumor of any size with direct extension to chest wall or skin

T4a  Extension to chest wall

T4b  Edema (including peau d’ orange) or ulceration of the skin of the breast or satellite skin nodules confined to the same breast

T4c  Both (T4a and T4b)

T4d  Inflammatory carcinoma
Regional Lymph Nodes (N)

NX  Regional lymph nodes cannot be assessed (e.g., previously removed)

N0  No regional lymph node metastasis

N1  Metastasis to movable ipsilateral axillary lymph nodes(s)

N2  Metastasis to ipsilateral axillary lymph nodes(s) fixed to one another or to other structures

N3  Metastasis to ipsilateral internal mammary lymph nodes(s).

Pathologic Classification (pN)

pNX  Regional lymph nodes cannot be assessed (e.g., previously removed, or not removed for pathologic study)

pN0  No regional lymph node metastasis

pN1  Metastasis to movable ipsilateral axillary lymph nodes(s)

pN1a  Only micrometastasis (none larger than 0.2 cm)

pN1b  Metastasis to lymph nodes(s), any larger than 0.2 cm

pN1bi Metastasis in one to three lymph nodes, any more than 0.2 cm and all less than 2 cm in greatest dimension
pN1bii  Metastasis to four or more lymph nodes, any more than 0.2 cm and all less than 2 cm in greatest dimension

pN1biii Extension of tumor beyond the capsule of a lymph node metastasis less than 2 cm in greatest dimension

pN1biv  Metastasis to a lymph node 2 cm or more in greatest dimension

pN2   Metastasis to ipsilateral axillary lymph nodes that are fixed to one another or to other structures

pN3   Metastasis to ipsilateral internal mammary lymph nodes(s)

**Distant Metastasis (M)**

MX   Presence of distant metastasis cannot be assessed

M0   No distant metastasis

M1   Distant metastasis (includes metastasis to ipsilateral supraclavicular lymph nodes(s))

**Histopathologic Type**

Carcinomam NOS (not otherwise specified)

Ductal

Intraductal (**in situ**)

Invasive with predominant intraductal component

Invasive, NOS
Comedo
Inflammatory
Medullary with lymphocytic infiltrate
Mucinous (colloid)
Papillary
Scirrhous
Tubular
Other
Lobular
In situ
Invasive with predominant in situ component
Invasive
Nipple
Paget’s disease, NOS
Paget’s disease with intraductal carcinoma
Paget’s disease with invasive ductal carcinoma
Other
Undifferentiated carcinoma

Histopathologic Grade (G)
GX Grade cannot be assessed
G1 Well differentiated
G2 Moderately differentiated
G3 Poorly differentiated
G4 Undifferentiated

92
### Stage Grouping

<table>
<thead>
<tr>
<th>Stage</th>
<th>T</th>
<th>N</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 0</td>
<td>Tis</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage I</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIA</td>
<td>T0</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T1</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIB</td>
<td>T2</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T3</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIIA</td>
<td>T0</td>
<td>N2</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T1</td>
<td>N2</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>N2</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T3</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T3</td>
<td>N2</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IIIB</td>
<td>T4</td>
<td>Any N</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>Any T</td>
<td>N3</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IV</td>
<td>Any T</td>
<td>Any N</td>
<td>M1</td>
</tr>
</tbody>
</table>

Appendix B

Swedish Screening
SYSTEM FOR CALLING, REGISTRATION, FOLLOW-UP AND EVALUATION IN A GENERAL MAMMOGRAPHY SCREENING PROGRAMME.
Appendix C

Surgeon Survey
CONSENT FORM

PURPOSE  Breast Cancer is a major public health issue that challenges physicians and patients to diagnose and treat a complex disease that attacks the physical, psychological, social, and sexual aspects of women's lives. This research project will involve selected breast cancer patients and physicians answering questionnaires on their respective attitudes, beliefs and treatments options concerning early stage breast cancers.

PROCEDURE AND PRIVACY  Surgeons and plastic surgeons who diagnose and treat breast cancers and who were on staff at __________ from 1/1991 to 5/1994 will be asked to fill out a consent form and questionnaire. Breast cancer patients who were selected from hospital pathology reports from 1/1991 to 5/1994 fitting the T1 Cancer Staging criteria will be sent a consent form and questionnaire.

All mailings: initial, returns and reminders, will be handled by the __________ Tumor Board Office and staffperson using hospital protocol. Hospital and patient confidentiality procedures will be followed at all times. The Tumor Board staffperson will keep consent forms on file and deliver the returned questionnaires to the researcher in an anonymous manner. Data analysis will be performed and reported only as aggregated (grouped) data.

BENEFITS  From this project, it is hoped that more can be learned about the factors that influence patients and physicians in treating early breast cancers.

PARTICIPATION  Participation in this project is voluntary. Return of this signed consent form and completed questionnaire will indicate your willingness to participate.
CONTACT  This project has been approved by the Human Subjects Committee and the Institutional Review Board of Virginia Tech and (Redacted). If you have further questions contact: M. E. Zelenik, M.D. or M. Loritsch, M.A.Ed., R.T.(R) at (703) 776-4050.

I hereby agree to voluntarily participate in the research project as described above.

________________________  ______________
Signature                  Date

Thank you for participating in health care research.  11/94
November 10, 1994

Dear Surgeon:

As director of the Breast Imaging Center, I am undertaking a study and I would like to ask for your participation. An analysis of our data from 1984 to 1992 is being conducted, under my direction, by my research assistant, Mary Loritsch. Mary has been affiliated with the hospital since 1974, teaches radiography at Virginia Western Community College and will use this study as the basis for her doctoral dissertation at Virginia Tech.

The study will tabulate cross-sectional statistical data and try to obtain a better understanding of the patient/physician decision making process in the early stages of breast cancer treatments.

Please answer the enclosed questionnaire and return it in the envelope provide no later than December 12, 1994. Your answers will be confidential and reported as aggregated data. Thank you for helping to advance our knowledge of breast cancer and I look forward to sharing the results of this study with you in the near future.

Sincerely,

M.E. Zelenik, M.D.
Director, Breast Imaging Center

Mary Loritsch, M.A.Ed., R.T.(R)
Research Assistant
BREAST CANCER SURGEON QUESTIONNAIRE

1. About how many 2cm or smaller (T1) breast cancer patients do you treat each year (not including in situ tumors)?
   ____________________________

2. How many of the above number T1 breast patients opt for "breast conservation" type treatment (e.g., lumpectomy, radiation therapy to remaining breast, axillary node dissection)?

   Breast conservation_____________
   Modified radical______________

3. Do you personally believe that breast conserving therapy for T1 cancer gives the patient the same chance for long term survival? Yes or No (Circle one)

   Comments:______________________________
   ________________________________

4. In a T1 breast cancer patient, do you offer breast conserving/modified radical as equal options (in terms of survival)? Yes or No (Circle one)

   Comments:______________________________
   ________________________________

5. Why do your T1 patients opt for modified radical? (List in order of importance, with 1 = most important. Mark "X", if not applicable.)

   _____ 5.1 You tell them the experience (and numbers) with modified radical is stronger and better ("gold standard").

   _____ 5.2 Patient wants more radical surgery in order to feel like "everything has been done".

   _____ 5.3 You caution patient that cosmetic result after radiation therapy is not optimal.

   _____ 5.4 Patients feel six weeks of radiation therapy is too inconvenient ("let’s get it all done now").
5.5 Other reasons?
Comments:

6. How many patients, after discussion, want you to make the final decision? 

7. How many patients that opt for modified radical (in your practice) get breast reconstruction? 

8. How many of your breast cancer patients get second opinions? 

9. When did you graduate from medical school? 

10. Where did you do your residency? 

11. How long have you been in practice? 

12. What is your gender? 

13. What is your age? 

Thank You
Appendix D

Patient Survey
CONSENT FORM

PURPOSE Breast Cancer is a major public health issue that challenges physicians and patients to diagnose and treat a complex disease that attacks the physical, psychological, social, and sexual aspects of women's lives. This research project will involve selected breast cancer patients and physicians answering questionnaires on their respective attitudes, beliefs and treatments options concerning early stage breast cancers.

PROCEDURE AND PRIVACY Surgeons and plastic surgeons who diagnose and treat breast cancers and who were on staff at [Redacted] from 1/1991 to 5/1994 will be asked to fill out a consent form and questionnaire. Breast cancer patients who were selected from hospital pathology reports from 1/1991 to 5/1994 fitting the T1 Cancer Staging criteria will be sent a consent form and questionnaire.

All mailings: initial, returns and reminders, will be handled by the [Redacted] Tumor Board Office and staffperson using hospital protocol. Hospital and patient confidentiality procedures will be followed at all times. The Tumor Board staffperson will keep consent forms on file and deliver the returned questionnaires to the researcher in an anonymous manner. Data analysis will be performed and reported only as aggregated (grouped) data.

BENEFITS From this project, it is hoped that more can be learned about the factors that influence patients and physicians in treating early breast cancers.

PARTICIPATION Participation in this project is voluntary. Return of this signed consent form and completed questionnaire will indicate your willingness to participate.
This project has been approved by the Human Subjects Committee and the Institutional Review Board of Virginia Tech and [redacted]. If you have further questions contact: M. E. Zelenik, M.D. or M. Loritsch, M.A.Ed., R.T.(R) at [redacted]: (703)776-4050.

I hereby agree to voluntarily participate in the research project as described above.

______________________________  __________________
Signature                        Date

Thank you for participating in health care research.  11/94
November 10, 1994

Dear Patient:

As director of the Breast Imaging Center, I am undertaking a study and I would like to ask for your participation. An analysis of our data from 1984 to 1992 is being conducted, under my direction, by my research assistant, Mary Loritsch. Mary has been affiliated with Lewis-Gale since 1974, teaches radiography at Virginia Western Community College and will use this study as the basis for her doctoral dissertation at Virginia Tech.

The study will tabulate cross-sectional statistical data and try to obtain a better understanding of the patient/physician decision making process in the early stages of breast cancer treatments.

Please answer the enclosed questionnaire and return it in the envelope provided no later than December 12, 1994. All of your answers will be confidential and only reported as group data. Thank you for helping to advance our knowledge of breast cancer.

Sincerely,

M.E. Zelenik, M.D.
Director, Breast Imaging Center

Mary Loritsch, M.A.Ed., R.T. (R)
Research Assistant
PATIENT QUESTIONNAIRE

1. How was your breast cancer initially found? (Put an "X" by your answer.)
   ___ 1.1. breast self-examination by you
   ___ 1.2. screening mammogram
   ___ 1.3. clinical examination by a physician
   ___ 1.4. surgical biopsy
   ___ 1.5. needle aspiration

Comment: ____________________________________________________________
______________________________________________________________

2. What surgeon treated you?________________________________________

3. Were you referred to the surgeon? Yes_____ or No_____ 
   If you answered yes, please indicate who referred you__________________________

4. After you were told you had breast cancer, did you get a second opinion? Yes______ or No______

5. Place an "X" by the breast cancer treatment performed: (Please mark all that apply)
   ___ 5.1. radical mastectomy
   ___ 5.2. modified radical mastectomy
   ___ 5.3. modified radical mastectomy with chemo or hormonal therapy
   ___ 5.4. conservative lumpectomy
   ___ 5.5. conservative lumpectomy with radiation, chemo or hormonal therapy
   ___ 5.6. reconstruction after surgery
   ___ 5.7. no reconstruction but use breast prothesis
   ___ 5.8. Other: Please explain__________________________
   _____________________________________________________________

106
6. Were you given a choice of treatment options?  
Yes_______or No_______

Comment:________________________________________________________
________________________________________________________

7. Did your surgeon present treatment information in a clear and impartial manner?  
Yes_________or No____________

Comment:________________________________________________________
________________________________________________________

8. Indicate your answer(s) by placing an "X" by any of the following sources your surgeon gave or offered you to consider in deciding upon your treatment.

___8.1. American Cancer Society information or data
___8.2. other statistical data on breast cancer treatments
___8.3. informational videos on breast cancer
___8.4. talk with breast cancer patients
___8.5. visits with local support groups
___8.6. national breast cancer support groups
___8.7. written information and or books
___8.8. consultation with a radiation and or medical oncologist
___8.9. none of the above
___8.10. other, Please specify:____________________

9. Do you personally believe that for some early detected T1 breast cancers, conservation (lumpectomy plus radiation therapy) treatment is equal to mastectomy in terms of long range survival?  
Yes______ or No______
10. Do you believe that breast cancer patients choose mastectomy surgery rather than conservation treatment options in order to feel safer and that "everything has been done"?

Yes_________ or No_________

Comment:______________________________________________________________________________________________

11. After discussing treatment options with your surgeon, did you want the surgeon to make the final decision or choice for you?

Yes_________ or No_________

Comment:______________________________________________________________________________________________

12. Since your initial diagnosis and treatment, have you experienced any breast cancer recurrence?

Yes______ or No______
If yes, please explain:________________________________________________________________________________________

13. Of the treatment you chose, did you experience any disfigurement?

_____13.1. slight to none

_____13.2. less than anticipated

_____13.3. more than anticipated

14. Do you feel that you were given enough time and medical information, including treatment options for you to make an informed, appropriate decision about your breast cancer treatment?

Yes_________ or No_________

Comment:______________________________________________________________________________________________
15. A. Overall, are you satisfied with your treatment choice?
Yes________ or No________

B. If asked to make the decision again, would you choose the same treatment?
Yes________ or No________

16. What is your age?____________________________________

17. Please indicate the highest level of education you have obtained:

____ 17.1. Grade school
____ 17.2. High school
____ 17.3. Trade or Professional Certificate
____ 17.4. College degree-Associate or Bachelor
____ 17.5. Graduate degree-Master or Doctorate

Thank You
VITA

NAME: Mary Brewer Loritsch, Ed.D., R.T.(R)

ADDRESS: 1902 Stone Mill Drive
Salem, Virginia 24153

EDUCATION:

1995 VPI & State University
Blacksburg, Virginia
Ed.D., Curriculum and Instruction
Specialization: Community Health

1983 VPI & State University
Blacksburg, Virginia
M.A.Ed., Curriculum and Instruction

1974 Virginia Western Community College
Roanoke, Virginia
A.A.S., Radiologic Technology

1972 Radford University
Radford, Virginia
B.S., English & Psychology

EXPERIENCE:

1977 to present Associate Professor-Radiography
Virginia Western Community College
Roanoke, Virginia

1974 Radiologic Technologist-Surgery & Portables
Lewis-Gale Hospital, Inc.
Salem, Virginia

1966 Medical Assistant
Dr. Thomas Sappington
Washington, D.C.

PROFESSIONAL ORGANIZATIONS:

American Registry of Radiologic Technologists
registered 1/1975, # 107884
American Society of Radiologic Technologists
Virginia Society of Radiologic Technologists
Appalachian District of The Virginia Society of Radiologic Technologists
Region IX Conference of Radiologic Technologists
Association of Educators in Radiologic Sciences
Virginia Community College Association
Phi Delta Kappa

PROFESSIONAL ACTIVITIES

Appalachian District-President-1975-76
   Entertainment, Public Relations and
   Board of Directors

Virginia Society of Radiologic Technologists
   Chairman, Public Relations 1976-82
   Student Seminar Co-Chairman 1976-81, presented three
   seminars
   Vice-President 1979-80
   President-Elect 1982-83
   President 1983-84
   Vice-Chairman, Board of Directors 1984-85
   Chairman, Board of Directors 1985-86
   Editorial Advisory Board 1981-83
   Chairman, Education Committee 1986-1992
   Alternate Delegate to the ASRT, attended 1987 meeting
   as Delegate
   Delegate to ASRT 1988-1991
   1989 Annual Educational Meeting Co-Chair
   Southeastern Conference-Program Chairman for VSRT-Jan
   1980
   Region IX representative

Region IX Conference of ASRT
   Chairman, 1986-90

American Society of Radiologic Technologists
   Public Relations Representative
   Commission on Professional Practice member-appointed
   1991

Virginia Western Community College
   Title IX Coordinator
   Representative for the Virginia Identification Program
   for the Advancement of Women in Higher Education
   Administration
   Public Information Committee, member and chairman
   Curriculum Committee
   Commencement Committee, chairman
   International Educational Committee

111
Educational Partnership Coordinator-James Madison
Middle School and Virginia Western Community College

Educational Partnership Advisory Committee, Roanoke City Schools
Coordinate Recruitment for College, Career Days

HONORS:

Phi Theta Kappa-National Honor Society for Junior Colleges
Who's Who Among Students in American Junior Colleges
Cum Laude graduate-Virginia Western Community College
Nominated in 1985 and 1986 for an Outstanding Alumnus Award
from Radford University

CIVIC ACTIVITIES:

New Hope Presbyterian Church
Choir Member
Sunday School Teacher
Night Circle Member
Youth Director 1986-87

South Salem Elementary School
PTA member 1983-92
PTA Executive Committee 1989-91
Chairman, Newsletter and Publicity 1989-91
Room Mother Chairman

Andrew Lewis Middle School
PTA 1989-to present

Salem High School
PTA 1992-to present

Salem High School Band Boosters
Publicity and Public Relations Chairman-1992-to present
International Drum Corp Program Publicity Chairman-
1993-to present

American Cancer Society
Volunteer and Committee Member-Hot Spice and Ice Event,
Roanoke, VA

North Carolina Society of Radiologic Technologists, Inc.
Judge for their Student Scientific Essay Competition,
1987,88,90,94,95

112
PRESENTATIONS:

1st place award in the Junior Student Division at local and state competitions 1973:
"Non-Verbal Communication Factors Related to Radiologic Technology"

2nd place award in the Senior Student Division at local and state competitions 1974:
"The Educational Quest For Knowledge in Radiologic Technology"

2nd place award in the Staff Division at local and state competitions 1983:
"Community College Allied Health Faculty: Is There An Identity Crisis?"

Staff Division presentation at state meeting, 1994:
"Breast Cancer and Prophylactic Mastectomy"

I am a member of the Virginia Western Community College Speaker's Bureau and have spoken to civic and school groups on aspects of recruitment and Virginia Western offerings along with topics such as; What is College like?, and various topics of health care. One feature that I offer is to tailor a presentation to a specific science class topic. For example: when a class was studying atomic energy, I was asked to present a lecture on the history and discovery of medical radiation.

"Health Care Communication: Are You a Competent and Professional Communicator?"
"Testing: Do we ask the right questions?"
"Magnetic Resonance Imaging"
"Recruitment and Retention in the VWCC Radiologic Technology Program"
"Health Care Professionalism"
"Continuing Education for Radiologic Technologists"
"The History of X-rays"
"What a Professional Society-The V.S.R.T. and The A.S.R.T.-Can Do For You"
"An Interviewing Process for Accepting Students Into a Radiologic Technology Program"
"Patient Care for Radiographers"
"AIDS and the Radiographer"

September 20, 1993-"Swedish Healthcare"-to an undergraduate class of community health students at Virginia Tech.
October 14, 1993 - "Cohort Theory and Analysis in Epidemiology" to a graduate level Epidemiology class at Virginia Tech.

November 9, 1993 - "A Look At Swedish Mammography" to Appalachian Society Roanoke Valley District Mammographers.

April 23, 1994 - "From Salem to Stockholm: A Personal View of Swedish Imaging and Healthcare" at VSRT Annual Meeting

May 23, 1994 - "Medical Imaging and Radiography" to nursing students at Salem High School, Salem, VA.

October 19, 1994 - "From VWCC to Stockholm: A personal View of Swedish Imaging, Healthcare, and Social Economy" International Faculty Lecture to Virginia Western general audience.

Mary Brewer Loritsch