Online Exclusive

Older Women and Breast Cancer Screening: Research Synthesis

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Purpose/Objectives: To identify the most beneficial ways to support older women as they make screening decisions using a systematic, epidemiologic, narrative review of research regarding benefits and burdens of breast cancer screening and treatment.

Data Sources: Medical and nursing research databases emphasizing women aged 60 and older.

Data Synthesis: Older women can tolerate screening and treatment, yet they are underserved. The most frequently cited reason to explain this phenomenon is declining health status associated with aging. Research evidence does not support this claim. No evidence clearly describes relationships among health status, aging, and less screening or less aggressive treatment.

Conclusions: Older women experience varied health problems. However, indications that they are less able than their younger counterparts to tolerate screening or treatment for breast cancer do not exist.

Implications for Nursing: Further research in all aspects of breast cancer care in older women is required to define and describe risks and benefits of screening within a context of aging and changing health. Nurses should discuss the risks and benefits of screening with older women.

Key Points . . .

- ➤ Older women, especially those over age 74, are underrepresented in healthcare research.
- ➤ Little is known about the effects of aging on breast cancer screening and treatment patterns.
- ➤ Until stronger research evidence supports public health recommendations for screening in older women, decisions will have to be based on individual needs.

Breast cancer is a leading cause of death in older women, exceeded only by coronary artery disease and lung cancer. The majority of the 211,300 new cases of breast cancer in 2003 occurred in women over age 65 (Smith et al., 2003). The incidence of breast cancer is four times greater in older women compared to younger women (Kimmick & Muss, 1997; Smith et al.). Death rates are more than doubled for women aged 85 (202 deaths per 100,000) compared to women aged 65–74 (98.8 per 100,000) (National Women's Law Center, 2000; Smith et al.). Older women bear the greatest burden from breast cancer, yet they are underserved and understudied (Burns et al., 1996; Devesa & Hunter, 2000; Kimmick & Muss).

Aging of the baby-boomer generation, resulting in a dramatic rise in the proportion of the population that is elderly, increases the importance of identifying means to promote healthy aging and reduce the negative impact of diseases such as breast cancer (Balducci, 2000; Kimmick & Muss, 1997). Factors that influence the way that services are provided for older women appear to be predicated on assumptions that aging, disease, and disability are synonymous. The incidence of chronic comorbid diseases and associated disabilities is indeed high in older populations (Kimmick & Muss). However, aging may not necessarily guarantee disease and disability. Life expectancy is increasing, and the prospect of healthy aging is improving (National Women's Law Center, 2000; Rowe & Kahn, 1998; Smith et al., 2003). Women aged 65 may live for an additional 20–30 years. Although some women may experience multiple health problems and disabilities associated with the aging process, others may be very healthy and active well beyond the age of 65 (Cimprich, 1999; Rowe & Kahn).

Breast cancer screening, which includes annual or biannual mammography for patients aged 40–74, annual clinical breast examinations (CBEs), and monthly breast self-examination, is considered the only universally applicable cancer prevention or control option for breast cancer (U.S. Preventive Services Task Force [USPSTF], 2002). The ultimate benefit of breast cancer screening—reduced mortality—has not been examined in women older than age 74 (Olsen & Gotzsche, 2001; Smith et al., 2003; USPSTF). Therefore, public health recommendations

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regarding breast cancer screening over age 74 are variable and may affect the way that these services are used to promote healthy aging.

Kimmick and Muss (1997) argued that the maximum age limit for screening should be increased from age 74 to age 85 because, in part, women may live at least 10 years beyond the current cutoff age. According to the work of several researchers, screening would provide an important health benefit to older women (Ferrini, Mannino, Ramsdell, & Hill, 2000; Kimmick & Muss; Marwill, Freund, & Barry, 1996). Screening decisions should be based on analysis of screening burdens weighed against each individual's physical and emotional ability to tolerate screening and/or treatment if diagnosed with breast cancer and the potential effect on quality of life, not just mortality (Ferrini et al.; Kimmick & Muss; Marwill et al.; Smith et al., 2003). The purpose of this article is to review research regarding the benefits and burdens of breast cancer screening and treatment that result from screening in older women (i.e., aged 65 and older). The goal of this literature review is to identify the most beneficial ways to support older women as they make screening decisions in the absence of a unified public health recommendation.

Methods and Design

This systematic, epidemiologic, narrative review (Weed, 2000) was undertaken to (a) describe current research that addresses relationships between screening practices and outcomes among older women (aged 65 and older), particularly those older than age 74; (b) describe factors that have been associated with mortality or quality-of-life outcomes related to screening in older women; and (c) compare and contrast the strength of evidence supporting or refuting screening recommendations for older women. These goals should answer the following question: Does sufficient research evidence exist supporting or refuting causal inference regarding benefits of screening in older women (aged 65 and older and especially those older than age 74) for breast cancer that can be translated into just and beneficial public health recommendations?

The review was begun by searching MEDLINE® (medical) and CINAHL® (nursing and allied health) research databases for breast cancer research reports of studies involving women aged 65 and older published from 1990, which allowed time for the effect of Medicare coverage for mammography to be represented in the literature, to 2001. Further literature was identified through analysis of references cited in those studies. Search terms were older women, breast cancer, breast cancer screening, epidemiology, and treatment.

A total of 109 references were identified that addressed breast cancer in older women. Of those, 46 studies either compared older and younger women or described older women's responses to varied breast cancer treatments or screening. The 15 reports that provided the data for this review focused on women older than age 65 and included women older than age 74 in sampling. Research reports were included in the review if the study's purpose was to explain or predict relationships between contextual factors that could mediate or moderate life expectancy outcomes for older women and women's abilities to tolerate breast cancer screening. In some studies, women's ability to tolerate treatment was identified as an intermediate end point for life expectancy; therefore, the inclusion of treatment and treatment outcomes in the review was justified. Studies were excluded if they were not data based or did not address relationships that might influence screening decisions (see Table 1).

Systematic epidemiologic narrative reviews are used to analyze the credibility of causal inferences made in the literature. The review, based on criteria specified by Hill (1965), evaluated the strength of relationships, consistency of the evidence, dose response between the causal agent (screening or screening through treatment) and the outcome (reduced mortality), evidence of a temporal relationship between cause and effect variables, and strength of the research design used in each study (Weed, 2000).

Findings

Although two studies predicted that mortality rates will decline by 26% (Kerlikowske, Grady, Rubin, Sandrock, & Ernster, 1995) or even 30% (Brogdon, 1998) in women aged 40–74, no data-based evidence exists predicting the lifesaving benefit of screening in women over age 74 (Olsen & Gotzsche 2001; USPSTF, 2002).

One group of researchers used decisional analysis modeling to estimate that a moderate fiscal burden would be associated with biennial mammography in women aged 65–79 (Kerlikowske, Salzmann, Phillips, Cauley, & Cummings, 1999). The cost of this screening was lower, $66,000 per year of life saved, if women who were identified as having lower risk for breast cancer based on bone mineral density were not included in biannual screening. However, if all women aged 65–79 were provided biannual mammograms, the cost rose to nearly $118,000 per year of life saved. A confounding issue identified by Kerlikowske et al. (1999) in this cost-benefit analysis was that the minimal benefit in terms of a small increase in life expectancy would be outweighed by the physical burden and cost of treating ductal carcinoma in situ.

Screening and Health Status

Burdens associated with screening or treatment for breast cancer were the focus of most studies in this review. Five studies were found in which older women's declining capabilities for living associated with aging (health status) and a relationship to screening or breast cancer mortality were described (see Table 2). Different measures were used in each study, and data were obtained from preexisting databases or convenience samples of women or data sets. Therefore, consistently comparing studies, a criterion for making causal inferences (Weed, 2000), is difficult. The underlying assumption of the identified studies appears to be that aging itself leads to increased incidence of disease and subsequent death; therefore, no beneficial improvement in life expectancy would be derived from screening for cancer among older women.

In most studies, the presence of disease was conceptualized and operationalized as health status. The Charlson Index, a measure that predicts life expectancy, was used to describe presence and burden of competing diseases in one study (Kiefe, Funkhouser, Fouad, & May, 1998). In another study (Satariano & Ragland, 1994), a comorbidity index that was not correlated to life expectancy was constructed based on diseases identified when women entered the study. In two studies, women were asked to provide a rating of their current

Table 1. Summary of Reviewed Research

Authors	Target Population	N	Data Sources	Study Design	Variables
Blustein & Weiss, 1998	Non-HMO Medicare recipients, aged 75 or older, with no history of breast cancer	2,352	Face-to-face interviews	Retrospective cohort survey	Age, general health rating, ADL performance, medical history, and mammography history over past two years
Burns et al., 1996	Women aged 65 or older	3 million or more	1990 HCFA Part A and B claims from 10 states and 1990 U.S. census data by zip code	Cohort and descriptive	Age, race, income quintile, visits to primary care provider, and receipt of mammogram
Chang et al., 2001	Aged 50–90 ($\overline{X}$ = 65) and caregiver for an ill family member	52	Telephone interviews and a convenience sample	Cross-sectional, descriptive, and correlational	Caregiver's perceptions of facilitators and barriers, health beliefs and caregiver burdens, and screening participation
Cimprich, 1999	Newly diagnosed with stage I or II disease, in pretreatment, and aged 25–79	74	Standardized validated instruments and a convenience sample	Cross-sectional and descriptive	Physical, cognitive, and affective distress after diagnosis but before treatment stratified by age
Fleming et al., 1999	Aged 67 or older	848	Kentucky cancer registry data merged with Medicare claims	Cross-sectional cohort	Effect of age, comorbidity burden, and breast cancer stage on probability of death
Kerlikowske et al., 1995	Aged 40–74	NA	Randomized controlled trials	Meta-analysis: case control and prospective cohorts; 10-year follow-up	Mammography screening and mortality
Kiefe et al., 1998	Clinic records for women aged 43 or older (focus ages are 50–74)	1,764	Medical records	Retrospective, descriptive, and correlational	Presence of comorbid diseases (Charlson Index), cancer screening (CBE, mammogram, and Pap smear)
Marwill et al., 1996	Internists, obstetricians or gynecologists, family or general practice physicians, and geriatricians	482	Mailed questionnaires that included case-study vignettes	Random sample, cross-sectional, and descriptive	Screening practices, agreement with ACS screening guidelines, and mammography use by patient characteristics
Michielutte et al., 1999	Women aged 60 or older with no history of breast cancer	719	Personal interviews and valid, reliable instruments	Descriptive random sample of clinic attendees	Barriers to and lack of knowledge about screening
Pusic et al., 1999	Aged 30–88	267 (35%–54% response from two hospitals)	Standardized validated quality-of-life questionnaire and random sampling	Cross-sectional survey comparing two cohorts	Quality of life and physical and mental health by three surgical interventions
Riley et al., 1999	Medicare eligible, aged 65 or older, newly diagnosed with early-stage breast cancer	21,972 at diagnosis; 28,608 to analyze modality for screening	SEER registry data	Cross-sectional and descriptive	Treatment patterns by HMO or fee for service by age, race, area of residence, cancer history, year of diagnosis, and education
Satariano & Ragland, 1994	Aged 40–84 identified in one of nine SEER registries	936	Personal interviews two to four months after diagnosis, medical record review, and physician interviews	Survival analysis following two cohorts for three years after diagnosis with invasive breast cancer	Presence of comorbid diseases, physical functioning, health practices, social and economic resources; breast cancer stage at diagnosis; age; and treatment status
Solin et al., 1999	Aged 65 or older with newly diagnosed invasive breast cancer	130	Medical records	Cross-sectional chart review	Eligibility for BCS, mammography history, tumor staging, and treatment
Susann et al., 1999	Aged 80–89 with stage T1 or T2 tumors	91	Medical record review	Cross-sectional and descriptive	Effect of intervention on length of follow-up, adjuvant therapy, recurrence, disease-free interval, length of survival, and cause of death
Yancik et al., 2001	Postmenopausal patients with breast cancer (aged 55–101)	1,800	Age stratified, random sample of SEER tumor registry data and medical charts	Cross-sectional chart reviews	Comorbidity burden by age, tumor stage, initial surgical treatment, and survival 30 months after diagnosis

ACS—American Cancer Society; ADL—activities of daily living; BCS—breast-conserving surgery; CBE—clinical breast examination; HCFA—Health Care Financing Administration; HMO—health maintenance organization; NA—not available; SEER—Surveillance, Epidemiology, and End Results

Table 2. Health Status and Screening Behaviors in Older Women

Authors	Data Sources	Participant Ages	Health Indicator	Functional Status	Screening
Blustein & Weiss, 1998	Longitudinal national survey	47% were aged 75–79, 30% were aged 80–84, and 23% were 85 years or older.	Excellent (41%), good (29%), or fair or poor (30%) health Hypertension (55%) Diabetes mellitus (14%)	Limitations on activities of daily living 50%	ORs for mammogram ($p < 0.05$): oldest age (85+) 0.26; poorest health 0.44, crude 0.41 age adjusted; limitations on activities of daily living 0.57 crude, 0.71 age adjusted; stroke 0.58 crude, 0.63 age adjusted; hip fracture 0.46 crude, 0.60 age adjusted; Alzheimer disease 0.54 crude, 0.55 age adjusted
Burns et al., 1996	Review of HCFA data N ≥ 3,000,000	55% were aged 65–74, 34% were aged 75–84, and 11% were 85 years or older.	Primary care visits per year: none (32%), one (10%), two (9%), three or more (49%)	Not reported	Mammograms/visit ($p < 0.01$): none (6%), one (15%), two (20%), three or more (22%)
Chang et al., 2001	Small (N = 52) convenience sample of caregivers	Mean age was 65 years, range was 50–90 years, and 56% were younger than age 65.	Providing care to spouse or child	Not reported	Mammograms in last year (81%) Burden of care to BSE ($r = -0.33$, $p < 0.05$) to CBE ($r = -0.28$, $p < 0.05$) Referral positively associated with screening
Kiefe et al., 1998	Retrospective chart review of records in university clinic	Mean age was 62 years, and the range was 43–100.	Charlson Index: $\overline{X} = 1.24$ (range = 0–8) Number of clinic visits per year and clinic type	Ambulatory	Mammography and age not significant Decreased mammography and CBE and increased Charlson Index; mammography, disease, and age ($p < 0.05$) Congestive heart failure and age 75+ OR = 0.39 Angina and age 50–74 OR = 0.40 Arthritis and age 75+ OR = 1.90 Gastrointestinal bleeding and age 65–74 OR = 0.72 Ambulatory and mammography OR = 2.5
Michielutte et al., 1999	Cross-sectional interviews and randomly sampled clinic attendees	24% were aged 60–64, 53% were aged 65–74, and 23% were 75 years or older. (N = 719)	Treated for chronic illness (76%) Excellent (14%), very good (29%), good (33%), or fair or poor (25%) health Annual examination (85%)	Not reported	Mammogram and age 60–64 OR = 2.76 65–74 OR = 1.99 Health Fair or poor OR = 1.00 Good or excellent OR = 1.81 Annual examination OR = 2.31

BSE—breast self-examination; CBE—clinical breast examination; HCFA—Health Care Financing Administration; OR—odds ratio

health (Blustein & Weiss, 1998; Michielutte, Dignan, & Smith, 1999). Health was assessed indirectly in the remaining two studies as either visits to a primary healthcare provider (Burns et al., 1996) or the burden of having to care for a chronically ill family member (Chang, Sarna, & Carter, 2001). Functional capacity, the ability to manage activities of daily living (ADL) (Blustein & Weiss) or ambulate (Kiefe et al.), was used as another indirect measure of health status associated with health ratings.

In their study, Kiefe et al. (1998) attempted to correlate life expectancy with health status and screening and found that lower life expectancy was related to declining screening participation for women of all ages. However, odds ratios (ORs) for participating in screening activities changed based on specifically identified diseases without a clear relationship to aging. A consistent and direct relationship would have to be demonstrated to support an argument that aging is correlated to declining health and lowered expectations for longevity (Weed, 2000).

Kiefe et al. (1998) identified a statistically significant, yet moderate, relationship between congestive heart failure (CHF) and mammography. That relationship was moderated by older age (OR = 0.41, age 75 or older, $p < 0.05$). The OR predicting mammography for women with CHF aged 50–74 was higher (0.84), but when the sample was restricted to younger women aged 50–64, the OR was nearly equivalent to the oldest group (OR = 0.50). The other significant health status predictor of less mammography in that study occurred in younger women. The presence of angina predicted less mammography for women aged 50–74, and gastric bleeding predicted less screening in women aged 65–74.

Mammography and CBE both declined as the number or burden of chronic illnesses increased, which did not necessarily coincide with increasing age, indicating that health status unrelated to increasing age is associated with less screening (Kiefe et al., 1998). This study employed a cross-sectional retrospective chart review to make predictions, the least robust study design for making causal inferences (Weed, 2000). Therefore, a direct relationship between screening behavior and life expectancy or, more specifically, an interaction among health status, screening, and life expectancy cannot be predicted.

Women older than age 75 who had osteoarthritis, which may have less potential for affecting life expectancy and is one of the more common diseases of aging, were almost twice as likely to have mammograms (Kiefe et al., 1998). Others found that ADL limitations (OR = 0.41), which may be associated with osteoarthritis rather than poorest health (OR = 0.71), predicted decreased use of mammography.

Only 50% of women older than age 75 reported ADL limitations in a study conducted by Blustein and Weiss (1998). Specific conditions influencing ADL capacities were stroke, hip fractures, and Alzheimer disease. No evidence of a correlation between ADL and specific illnesses was reported. More than 70% of the women in this study reported good to excellent health.

The reviewed studies indicate that women who are living with diseases that may potentially influence life expectancy are participating less in breast cancer screening, but no evidence exists to support predictions regarding how those diseases will affect outcomes if older women are diagnosed with breast cancer. The relationship between illness or disease and perceptions of health, which might affect longevity, is not clear. Many older women rate their health as good, which may indicate that they would want to pursue treatment for early-stage cancer if that would allow them some positive health effect. In one study, 75% of women aged 60 and older reported good to excellent health. In that case, 75% of the sample also reported being treated for a chronic illness. Good to excellent health, which was not correlated with presence or absence of chronic illnesses, predicted almost double participation in mammography (OR = 1.81) (Michielutte et al., 1999). Therefore, the specific association among age, health status, and screening participation was neither clearly described nor predicted in the studies reviewed. In addition, no evidence was presented that indicated that screening participation would influence life expectancy negatively or positively for women based on presence or absence of preexisting health problems.

In two studies, increased numbers of visits to family practice or primary care clinics, presumably for management of chronic illness, were positively associated with the use of mammography but not CBE (Burns et al., 1996; Kiefe et al., 1998). This finding implies a negative relationship exists between screening and poor health status as a result of more frequent contact with healthcare providers among those with chronic conditions. Kiefe et al. noted that screening participation was lower in general medicine clinics compared to family practice clinics. No evidence indicated whether participation was related to physician referral patterns or factors inherent in women (Kiefe et al.).

Chang et al. (2001) found that 81% of women who were acting as primary caregivers for an ill family member reported that they had a mammogram in the past year. The women who reported screening in this small convenience sample (N = 52) tended to be better educated, have insurance, and report lower burdens associated with caring for the ill family member. Many (85%) received a referral for mammography. Marwill et al. (1996) found that physicians were more likely to order mammograms for women who were living at home regardless of their current health status or potential life expectancy. However, these studies do not add to knowledge about the benefits or burdens of screening for older women or the factors that may affect screening decisions.

Blustein and Weiss (1998) concluded that mammography is not being used appropriately in older women based on correlations between low screening rates and reported favorable perceptions about health. The high percentage of women who rated their health as good and had low rates of ADL limitations indicates that many women would be good candidates for screening. The evidence suggests that, although breast cancer risk increases with age, screening declines and health status or functional capacity solely attributed to aging do not appear to be the only factors influencing declining screening participation. These reviewed studies do not indicate what the ultimate impact of screening might be for any group of older women.

Breast Cancer Treatment Effects in Older Women

Kerlikowske et al. (1999) argued that the personal and financial cost of treating ductal carcinoma in situ, a potentially indolent form of breast cancer, would increase the burden of screening beyond its potential benefit in older populations. The apparent underlying assumption in this argument is that older women are less able than their younger counterparts to tolerate treatment and should avoid early-detection strategies. The interaction between comorbid diseases and treatment for breast cancer is indeed a consideration for evaluating public health recommendations for screening, but this should be done in relationship to the ultimate outcome, mortality from breast cancer (Johnson, 2000; Kimmick, 2000).

Satariano and Ragland (1994) reported that age and the existence of comorbid conditions were related to either treatment trends or mortality outcomes. In this study, older women received less aggressive treatment (both surgical treatment and postoperative adjuvant therapy) than their younger counterparts. However, factors that may have contributed to this trend were not described. The primary outcome measure for the study was the three-year mortality rate (i.e., mortality was tracked in the population for three years after they entered the study). Comorbidity was linked to deaths attributed to causes other than breast cancer. However, adjustment was made for age prior to reporting this finding; this indicates that comorbidity was an independent predictor of death rather than a covariant with age. Deaths among the oldest study participants (those aged 75–84) were attributed less frequently to breast cancer (50% of cases) when compared to the youngest cohort (63% aged 40–54). However, Satariano and Ragland made no attempt to validate the accuracy of death certificates, a factor that could confound any conclusions drawn from this finding when women in the study may have had multiple competing diseases. Therefore, this study did not clarify any relationships between aging and the impact that coexisting diseases may have on breast cancer mortality.

Six other studies were found in which breast cancer treatment was identified as the end point (Fleming, Rastogi, Dmitrienko, & Johnson, 1999; Pusic et al., 1999; Riley, Potosky, Klabunde, Warren, & Ballard-Barbash, 1999; Solin, Schultz, Hanchak, & Kessler, 1999; Susann et al., 1999; Yancik et al., 2001). Secondary analysis of national databases, chart reviews, or survey questionnaires was used for data collection. Each study measured different treatment and outcome variables. Therefore, causal inferences regarding relationships between screening participation and the end points measured in those studies are difficult to make.

A correlation was found between screening and eligibility for less invasive breast-conserving surgery related to early-stage tumors among a small sample of older women enrolled in a health maintenance organization (HMO). Of the women who had undergone routine mammography, 79% were eligible for breast-conserving surgery based on the early histologic stage of the tumor. Only 48% of those in the unscreened group were diagnosed with early-stage disease (Solin et al., 1999). Similar patterns were found in another study in which less aggressive therapy was associated with increasing age, whereas presence of comorbid diseases did not significantly affect treatment patterns (Yancik et al., 2001).

A higher incidence of late-stage diagnosis was found to occur in fee-for-service clinics (11%) compared to HMOs (8%) where greater emphasis is placed on health-promotion programs (Riley et al., 1999). These findings provide more evidence indicating that screening might reduce mortality or treatment burden to older women by decreasing the percentage of late-stage diagnosis. However, no direct evidence of a correlation between screening and cancer stage exists.

Women older than age 67 and newly diagnosed with breast cancer had no (37%) or only one (32%) comorbid condition. Those with the highest burden associated with comorbid conditions were two times more likely to die within one year following diagnosis of breast cancer. As disease burden increased, one-year survival decreased. However, worsening cancer stage also affected one-year survival. In addition, patients with early-stage breast cancer aged 85 or older demonstrated similar one-year survival to that predicted for younger populations (Fleming et al., 1999). These results indicate that early-stage disease is survivable in even the oldest women who are relatively healthy.

Little difference was found among groups of older women (aged 80–89) diagnosed with early-stage (T1 or T2) tumors comparing effect of minimal and more aggressive treatment. About 10% of each group died from breast cancer, but most of these octogenarians survived the entire 10-year duration of the study (Susann et al., 1999). Existence of comorbid conditions that would allow for more specific comparison to other populations or analysis of the interaction of general health and breast cancer outcomes was not provided.

Two studies addressed quality of life; however, the researchers used age 55 rather than 65 as the cutoff point for defining older age. Women younger than age 55 who underwent mastectomy without reconstruction experienced greater illness intrusiveness and poorer quality of life than women age 55 and older (Pusic et al., 1999). Cimprich (1999) found that women aged 55 and older who were awaiting treatment for newly diagnosed cancer were more resilient than younger women. The older women were more able to tolerate diagnostic procedures and treatment decisions. They reported less distress, were more able to sleep, and experienced fewer mood disturbances, fewer problems with fatigue, and less difficulty concentrating than younger women with comparable physical conditions and similar diagnoses.

Discussion and Conclusions

The data from this review indicate a pattern of less treatment for older women without actual correlation with the presence of preexisting diseases or disabilities. Furthermore, the data indicate that older women tolerate treatment at least as well as younger women. One study that addressed the burden of comorbid conditions did not specifically evaluate the impact of treatment. However, as women age, their risk of death from all causes increases; if they are diagnosed with late-stage breast cancer, their potential for death from breast cancer is increased regardless of the presence of comorbid health problems (Fleming et al., 1999).

Early diagnosis associated with screening may be beneficial. If screened and treated for early-stage breast cancer, older women who already are suffering from other conditions may be spared the horrors of dying from breast cancer.

The findings regarding screening practices among older women and life expectancy or quality-of-life outcomes are equivocal. Very little research has been conducted with older women. Factors associated with aging that may affect mortality or quality-of-life outcomes relative to screening have not been defined or described in a way that facilitates development of public health recommendations for older women. Most studies identified for this review used cross-sectional or retrospective designs, which are the weakest epidemiologic designs for making causal inference. Furthermore, the predictive power of these studies was limited by use of varied intermediate end points rather than breast cancer mortality.

Further research in all aspects of breast cancer in older women is required to define and describe the risks and benefits of screening within a context of aging and changing health before scientifically based public health recommendations can be made. All epidemiologic studies addressing breast cancer screening must include representative samples of women older than age 74.

Although no evidence exists that screening may affect overall life expectancy, evidence confirms that health status is heterogeneous in this population and that many older women could tolerate screening and treatment. In view of the natural decline in life expectancy occurring simultaneously with aging, quality of life should be an end point evaluated in breast cancer studies with older women, most especially when evaluating the cost and benefits of screening or treatment. The costs (fiscal and quality of life) of treatment for late-stage cancer also should be factored into these studies (Balducci, 2000). More robust research designs will have to be employed if scientists are to provide evidence indicating a relationship between screening and any health outcome associated with breast cancer (Weed, 2000).

Nurses are in a position to interact with older women in multiple settings outside of medical offices. This offers nurses a unique opportunity to talk to older women about breast cancer and to support them through a process of making independent decisions about their personal health and the potential benefits or burdens of breast cancer screening. Rowe and Kahn (1998) predicted that, in general, most older people successfully will manage the aging process, with fewer physical impairments and greater connections to active life. Many older people are not frail; they are functionally and cognitively able to tolerate screening and treatment for early-stage breast cancer (Rowe & Kahn). Nothing was found in the literature review to refute this argument; therefore, no evidence contraindicates strong nursing interventions to support independent screening decisions in a population of women where the burden from breast cancer is demonstrably higher than in younger populations.

Evidence used to make generalizations about a single best practice approach to care for older women is insufficient. Recommending universal annual screening for women aged 75–

79 or older is premature until further research clearly demonstrates relationships among all contextual factors, such as the presence of comorbid diseases, individual ability to tolerate screening or treatments, and the impact of screening or treatment on quality of life and the ultimate end point, mortality. Until then, each woman's right to participate in screening or treatment should be ensured through shared, informed, autonomous decision making.

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For more information . . .

- Breast Cancer Action
  www.bcaction.org
- National Breast Cancer Awareness Month
  www.nbcam.org/index.cfm
- Breast Cancer Care
  www.breastcancercare.org.uk

Links can be found using www.ons.org.