Prevalence of Mammography Use in a Nursing Home Population

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A cross-sectional study was performed to estimate the utilization of screening mammography in a nursing home population. Included in the study were 139 women over 50 years of age who had been residing in a skilled nursing home in Connecticut for at least 1 year. Charts were reviewed to estimate screening mammography and chest x-ray examination use. Functional status of each subject was assessed by supervisory nurses using set criteria. One of the 139 subjects had received a mammogram, whereas 129 subjects (93%) had received chest x-ray examinations. Average length of stay in the nursing home was 6.5 years. No association was noted between functional status and use of mammography. It was concluded that in this clinical setting mammography appears to be underutilized as a screening test for breast cancer. The comparative data on chest x-ray examination use suggest strategies that may be useful in increasing compliance with current screening recommendations for mammography in the institutional setting. **J Fam Pract 1990; 30:682-685.**

The American Cancer Society and the American College of Physicians recommend an annual screening mammogram for asymptomatic women aged over 50 years.[1,2] Findings on extensive literature review reflect a marked increase in the incidence and aggressiveness of breast cancer with age.[3–5] It has also been demonstrated that periodic screening mammography is effective in detecting disease early and improving outcome.[3–11] Screening recommendations do not mention an upper age limit or suggest how an individual's underlying health or functional status might influence the decision to screen.

Few data are available on the use of preventive health services, such as screening mammography, in the long-term care setting. Terminally ill or severely debilitated nursing home residents may be less likely than others to benefit from screening procedures designed to detect subclinical disease. Early detection of breast cancer may yield little benefit in terms of longevity or functional status, and complications of therapy might outweigh potential benefits. Not all residents in long-term care settings are debilitated or terminally ill, however,[12] and the data cited above clearly demonstrate the benefit of mammographic screening for breast cancer in subjects up to the age of 75 years, and possibly beyond.

This cross-sectional study was designed to evaluate the use of screening mammography in elderly nursing home residents. Two questions were asked: (1) What is the prevelance of screening mammography use in a long-term care setting, and (2) is the utilization of screening mammography associated with residents' functional status?

METHODS

Study Site

The study was conducted at a 360-bed skilled nursing facility in Connecticut with an active medical staff of 22 family physicians and internists. Between 85% and 90% of the nursing home residents were Medicaid recipients. There were no permanent radiology facilities in the nursing home; the majority of chest x-ray films were taken by portable x-ray machines brought to the nursing home. Most radiological examinations were done by a single group of radiologists with offices near the nursing home. A

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TABLE 1. FUNCTIONAL STATUS SCALE

Scale	Mental Function	Physical Function
2 = Good	Alert and aware of surroundings at all times	Ambulatory and skilled in dressing, feeding, and toileting
1 = Fair	Occasionally confused or disoriented	Needs help transferring or walking, but capable of feeding and toileting
0 = Poor	Always confused or disoriented	Total nursing care required

breast cancer detection center owned by a group of local physicians was located within one half-mile of the nursing home.

Selection Of Study Subjects

A list of all women 50 years of age or older who resided at this nursing home on August 31, 1986, and who had been there for at least 1 year was generated by computer. All 139 residents so identified were included in this study.

Data Collection

Each subject's medical record was reviewed, and data were obtained on age, number of years in the nursing home, and whether a mammogram or chest x-ray examination had been done during their nursing home stay. At the time of chart review, the abstractor was blind to the functional status of residents. The functional status of each patient was assessed by asking the supervisory nurse in regular contact with the patient to evaluate the patient's mental and physical status by set criteria (Table 1). The accuracy of such assessments of functional status has been previously assessed.[13]

A random subsample of 10% of nursing home patients (n = 14) was selected to assess the possibility of radiological reports being absent from the nursing home records. Physician offices for these patients and radiological groups providing service to the home were surveyed. The presence of additional reports at these sites were noted.

RESULTS

All 139 nursing home residents who met eligibility criteria for this study were included in the analysis. Mean age of the subjects was 78 years, with a mean stay in the institution of 6.5 years. Both physical and mental function were rated poor in 18% of subjects, while both physical and mental function were rated good in 13% of subjects by the criteria used. The remaining 69% of subjects had mixed ratings on the physical and mental function scales.

One subject had a mammogram during her stay at the nursing home, for a utilization rate of 0.001 mammograms per subject-year as calculated over the entire nursing home stay of the 139 subjects. Among the same 139 subjects, 79 (57%) had had a chest x-ray examination in the previous year and 129 (93%) had had a chest x-ray examination during their nursing home stay, a utilization rate of 0.143 chest x-ray examinations per subject-year as calculated over the entire nursing home stay. The likelihood of receiving a chest x-ray examination was thus 143 times greater than the likelihood of receiving a mammogram. This estimate is conservative, since some subjects had more than one chest x-ray examination in the nursing home. While the indication for these chest x-ray examinations was not recorded, it was policy in this nursing home that each resident have an annual chest x-ray examination to screen for pulmonary tuberculosis.

No additional mammogram reports were found for the 14 patients in the subsample studied to assess measurement error. There were 43 radiological reports on the nursing home records of these patients, and an additional 5 reports were discovered in the physicians' and radiological groups' offices. These included two additional reports for both chest and abdominal x-ray examinations and one for a hip x-ray film.

DISCUSSION

The data reported here demonstrate that in one skilled nursing home the rate of use of mammography was 0.001 examinations per female resident per year, far below what one would expect based upon current recommendations. Many factors may contribute to this low rate. Perhaps physicians do not think a preventive health measure is indicated in sick or debilitated patients. The 13% of subjects with good functional status, however, were no more likely to have screening mammography than the 18% with poor functional status. Thus, these data suggest that poor functional status is probably not the major reason for reluctance to obtain mammography. Nevertheless, physicians may be underestimating the health status of some nursing home residents or stereotyping nursing home patients as debilitated.

That study subjects were much more likely to have a chest x-ray examination than a mammogram during their nursing home stay is noteworthy. Factors that might account for frequent use of chest x-ray examinations include

easier access to chest x-ray equipment (portable units that come to bedside), standing orders for periodic chest x-ray examinations unless the physician orders otherwise, insurance coverage for chest x-ray examinations but not for mammograms, lower charges for chest x-ray examinations, and differences in attitudes or knowledge about chest x-rays and mammograms among both patients and physicians. Early detection of active pulmonary tuberculosis by chest x-ray examination benefits not only the patient tested, but other patients and staff as well, whereas early detection of breast cancer benefits only the patient tested. Perhaps nursing home staff are more highly motivated to screen their residents for conditions that could have an impact on staff health. Future research could explore these factors with the goal of increasing the appropriate use of screening mammography.

The generalizability of the findings of this study is limited. The study population is drawn from residents of only one skilled nursing home in Connecticut, and subjects had to be residents of the facility for at least 1 year to be eligible for inclusion. Thus, results cannot be extrapolated without studying other populations. Misclassification of the functional status of study subjects is also possible. To minimize this problem, the nurses who rated patients' functional status were given explicit instructions on how to do the ratings. The functional status classifications used were simple and have good face validity, and a similar scheme has been successfully used.[13] Formal psychometric testing of this particular classification scheme has not been done. Another limitation of the study is the lack of data on the impact of physician attitudes or knowledge, patient attitudes or knowledge, insurance coverage, or education and socioeconomic level on screening mammography in this population. It is possible that this study underestimates the actual use of mammography of the study subjects. Efforts to assess the extent of such possible measurement error suggest, however, that it is very small for both mammograms and chest x-ray examinations.

Despite the limitations noted, the findings of this study are important. The data show that one important preventive measure is sadly neglected while another is frequently used. Why are these two preventive measures being used so differently? What specific strategies may influence physician and patient decisions about using such screening tests? As evidence is presented to evaluate further the potential impact of mammographic screening on the health of the elderly, attention should be directed to understanding how physicians consider factors such as functional status and comorbidity in making decisions about screening.

In approaching these questions, an ethnographic-style exploration of physician- and patient-related attitudes and other factors that influence utilization of screening mammography may prove useful. Unless such qualitative data are available to help interpret and guide quantitative studies, there is a substantial risk of coming up with suboptimal results. Indeed, many studies have shown that preventive strategies that are intuitively attractive to health care professionals may have only fair to poor results when tested empirically.[14–22] Rather than approaching utilization questions with a series of costly studies based on intuitive appeal, it might be strategic to obtain qualitative data that could provide an empiric basis for subsequent research. In the long run, this dual research strategy may be the best approach in the effort to achieve well-defined national goals in cancer control.[23]

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