medical feature

Breast cancer in Pennsylvania

Demetrius Albanes, MD

With approximately 2,500 deaths from breast cancer occurring in Pennsylvania during 1984, cancer of this site remains the leading cause of cancer mortality among women in the state, and is surpassed only by cardiovascular disease as a cause of death.[1] Although from the standpoint of individual medical practices the disease may seem uncommon and of minor overall importance, with regard to morbidity and premature loss of life on a community or state-wide level breast cancer is a major public health issue. The Cancer Control Program of the Pennsylvania Department of Health has targeted cancer of this site as one of its major priorities in program planning with regard to reducing cancer mortality in the coming years.

The purpose of this article is to provide an update on breast cancer risk factors, early detection guidelines, current self-reported physician screening practices, and Cancer Control Program initiatives.

Breast cancer risk factors

Several individual characteristics have been shown to affect the risk or probability of developing breast cancer, including some that are amenable to change. Three non-modifiable factors include:

- **Age**—Over 75 percent of the breast cancers occur in *women 50 years old or older.* The incidence rate of breast cancer among women 60-64 years old is over seven times that of women 30-34 years old.
- **Family history**—*First degree relatives* (i.e. sisters, mothers, or daughters) of breast cancer patients have twice the risk of developing the disease compared to women with a negative history, while bilaterality or premenopausal cancer enhances this risk even more.
- **Previous benign breast disease or other cancer**—A history of cancer of the *breast, ovary or endometrium,* as well as *dysplastic fibrocystic disease* of the breast, place a woman at increased risk of subsequent breast cancer.

Considerable differences in breast cancer rates between populations and over time for single populations has also led to the conclusion that there are other social, environmental, or life-style factors that increase a woman's chances of developing breast cancer. These include:

- **Radiation**—Previous exposure to *high levels of radiation* such as chest fluoroscopy or among atomic bomb survivors has resulted in increased breast cancer incidence. Although low dosages (such as from chest x-ray or mammography) theoretically increase risk minimally, various studies have failed to demonstrate excess cancer among recipients of these tests.
- **Age at childbirth**—Women who experience their *first childbirth after age 30* have a slightly increased risk of developing the disease.
- **Body size and diet**—Being *overweight* (or of large frame size) is associted with greater risk of breast cancer among postmenopausal women. Also, there has been some evidence linking *higher dietary fat* consumption to breast cancer, and a diet with 30 percent of calories from fat (compared to current average levels of approximately 40 percent) is currently recommended by the National Academy of Sciences.[2]

Early detection and treatment

Breast cancer is one of the major cancer sites for which early detection is effective in reducing associated morbidity and mortality. However, only 48% of the cancers among whites are localized at the time of diagnosis; 33% among blacks.[3] Although there have been important advances in the successful treatment of this disease, including a reduction in mortality with the use of various adjuvant programs,[4] 10-year survival with localized disease remains almost twice that for regional disease (74% vs. 39%), and many times that for distant or metastatic illness (less than 5%).[3]

Therefore, primary prevention of the illness through reduction of one or more of the modifiable risk factors cited above, and secondary prevention or early detection of the disease (i.e. at a less advanced stage) are critical to any decrease in the number of breast cancer deaths which occur. Periodic breast self-examination (BSE), physical examination (PE), and x-ray mammography (in appropriate age or high risk groups) are the mainstay of early detection efforts, and current guidelines for their use appear in Table 1.

BSE

Even though many women are reluctant to conduct regular BSE, the majority of breast malignancies (7-9 out of 10) are found by women themselves: approximately half by active self-examination and half by chance. Regular (i.e. monthly) use of BSE provides earlier detection of smaller, less advanced lesions; however, less than one third of women practice regular BSE (range 18-35 percent). *Instruction by the physician* as to correct technique as well as clear communication of the importance of regular self-examination are among the most significant factors influencing patient acceptance of BSE, and should be part of every clinical practice.

Physical examination, mammography

Annual screening with physical examination and mammography have

Dr. Albanes is an investigator in the Division of Cancer Prevention and Control of the National Cancer Institute, Bethesda, Maryland, and is currently working with the Cancer Control Section of the Pennsylvania Department of Health.

Table 1: Current Breast Cancer Early Detection Guidelines

	BSE	Physical exam	Mammography		
			Baseline	40-49	≥50
American Cancer Society	monthly	age 20-40, every 3 yrs. > age 40, annual	age 35-40	every 1-2 yrs.	annual
American College of Radiology[8]	monthly	> age 35, annual	< age 40	every 1-2 yrs.	annual
National Cancer Institute[9]	monthly	as physician recommends	none	screening use for high risk women only (see text)	annual

been demonstrated to reduce long-term mortality by approximately one-third in women 50 years of age or older.[5] Furthermore, a shift to detection of tumors 1 cm or smaller and negative nodal status has been shown convincingly in the Breast Cancer Detection and Demonstration Projects of the National Cancer Institute (NCI) and the American Cancer Society (ACS).[6] Other screening trials continue in both Canada and Sweden. Studies such as these have resulted in widespread recommendations (ACR, ACS, NCI) for *annual* breast physical examination and x-ray mammography for all women age 50 and over (Table 1).

Both ACS and ACR recommend that baseline mammograms should be obtained for all women prior to age 40. Results from the study by the Health Insurance Plan of Greater New York are less clear concerning the benefit of annual mammography for women 40-49 years old.[5] In contrast to NCI, which recommends screening mammograms among women 40-49 years old for those at high risk only (i.e. personal or family history of breast cancer), both ACS and ACR recommend annual or biennial screening in this age group as well. Acceptance of the above guidelines by the medical community has been slow, however, leading to unnecessary deaths from breast cancer every year.

Physician screening practices

In order to ascertain breast cancer detection practices in Pennsylvania, a questionnaire was sent to 1,032 PMS physicians (general and family practitioners, internists and obstetrician-gynecologists) during February and March of 1986. The majority (65 percent) responded to the survey. Although approximately 90 percent of the physicians conduct breast physical examinations on their adult female patients annually, the breasts of one out of every four women seen are not examined.

With regard to the nondiagnostic use of x-ray mammography in asymptomatic women, Figure 1 demonstrates that for women 40-49 years old, an interval of 3-5 years is the most common practice, while for older women (age 50+), annual exams are the mode. However, *52 percent of the physicians ordered mammograms less frequently than annually* for the older age group of women, and 7 percent do not recommend its nondiagnostic use. Limited frequency of patient visits, high cost of the procedure, and patient refusal were the most common reasons for less frequent mammography.

In addition, only 60 percent of the physicians who believe they provide optimal screening for breast cancer among older women are in fact doing so. When asked why patients refuse to obtain a mammogram, fear of radiation and cost were given as the primary reasons, while one-third of the doctors claimed that refusals rarely occurred.

Three of every four of the doctors believe breast cancer screening efforts should be increased in their geographic areas, with public and physician education, third party payment changes, and state or federal programs given as likely to be most effective toward such a goal.

In comparison, a nationwide survey of physicians recently conducted by the ACS found that only 41% of the sample agreed completely with ACS mammography recommendations, and 95% with recommendations for physical examination.[7] However, only 11% actually followed those guidelines (80% for physical examination). Expense of the test, radiation exposure, and questions concerning regular annual use were the primary reasons for disagreement with the mammography guidelines.

Cancer Control Program

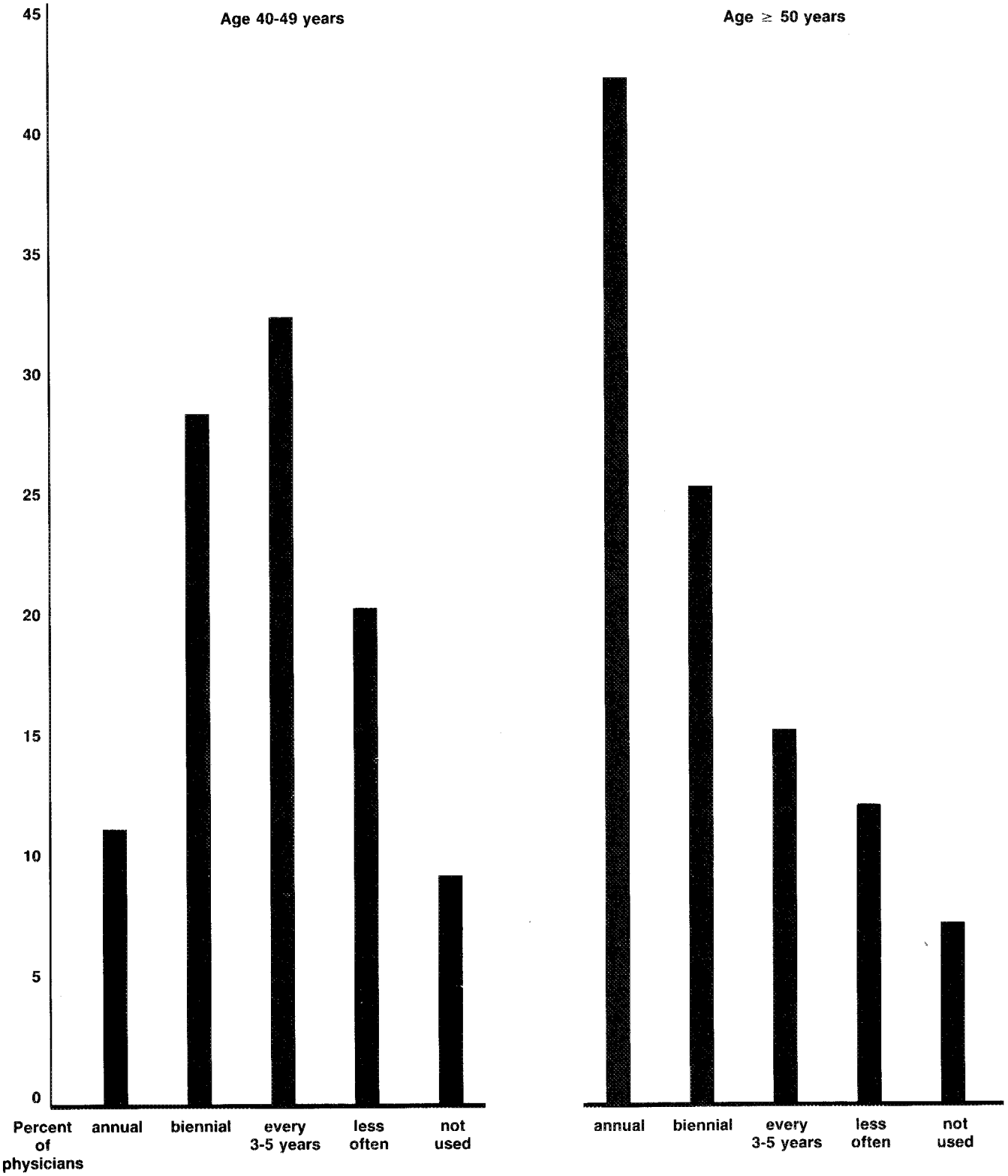
Along with cancers of the lung, cervix, and large bowel, breast cancer has been targeted for state-wide cancer control activity in Pennsylvania. While primary prevention of breast cancer is limited to efforts at reducing modifiable risk factors such as obesity, breast cancer mortality can be decreased through early detection efforts (especially among high risk groups such as women 50 years old and older, or women with a personal or family history of breast cancer), and to some degree, through the use of state-of-the-art treatment modalities.

The *Breast Cancer Detection and Education Project* was begun in 1984 in six areas throughout the state in order to identify high risk women (i.e., positive first-degree family history), promote early detection practices, and initiate active follow-up. Initiatives aimed at further promotion of community-based screening mammography are being planned, and efforts are under way to modify current third-party reimbursement criteria. In addition, the state's cancer registry will continue to serve as an important source of information on incidence and disease stage.

Aside from such programs and efforts at public education (which should also involve physicians), the medical community occupies a critical position with respect to increasing the use of methods of early breast cancer detection. Methods such as combined annual breast physical examination and mammography (in appropriate age groups), and the teaching and reinforcement of breast self-examination techniques to all adult female patients can reduce mortality among women.

Findings from the survey of Pennsylvania primary care physicians suggest that mammography is underused primarily because of misinformation concerning optimal screening frequency, limited patient visits, patient refusal, and cost of the examination. These are impediments to optimum preventive care, and these impediments can and

Figure 1
Frequency of Ordering Mammograms for Asymptomatic Women in Two Age Groups



should be addressed within the medical community. □

References

1. Pennsylvania Department of Health: *Pennsylvania Vital Statistics Annual Report, 1984.* Harrisburg, PA, 1985.
2. Committee on Diet, Nutrition and Cancer, National Research Council: *Diet, Nutrition and Cancer.* Washington, D.C., 1982.
3. U.S. Department of Health and Human Services: *Cancer Patient Survival, Report #5.* NIH Pub. No. 81-992. Bethesda, MD, 1976.
4. **Editorial:** Review of mortality results in randomized trials in early breast cancer. *Lancet,* 2:1205-1209, 1984.
5. **Shapiro, S.; Venet, W; Strax, P.; et al:** Ten - fourteen-year effect of screening on breast cancer mortality. *JNCI,* 69:349-355, 1982.
6. American Cancer Society: The breast cancer detection demonstration projects: five-year summary report. *Ca-A Cancer Journal for Clinicians,* 32:194-225, 1982.
7. American Cancer Society: Survey of physicians' attitudes and practices in early cancer detection. *Ca-A Cancer Journal for Clinicians,* 35:197-213, 1985.
8. American College of Radiology: *Policy Statement: Guidelines for Mammography.* Chicago, Ill., 1982.
9. U.S. Department of Health and Human Services: *Breast Cancer: We're Making Progress Every Day.* NIH Pub. No. 86-2409. Bethesda, MD, 1985.