Education of Rural Physicians About Breast Cancer Through an Oncology Outreach Program

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Synopsis

In 1990, the Rural Illinois Cancer Consortium initiated an intervention in the management of breast cancer for all rural hospitals. Regional data from a 12-county area were used to identify issues and develop an intervention emphasis. The data suggested two management issues: eliminate unilateral diagnostic mammography and increase the number of patients that have their tumor staged.

The intervention involved seminars to provide feedback to physicians on management of breast cancer patients in the region. A series of personalized mailings emphasizing the intervention message were also deployed. Although data are not yet available to measure the intervention impact, immediate feedback on the interventions was sought through a physician survey and several process measures. The immediate feedback measures were assessed. These measures were the penetration of the rural hospital seminars, physician behavior self-reported by mail survey, and number of inquiries to the Physician Data Query.

Each of the nine hospitals held a seminar, and 39 percent of the rural physicians treating breast cancer patients attended. Survey data showed physician behavior change in the desired direction, compared with data from the baseline medical record audit conducted in 1986–87.

Intervention feedback was useful in defining the implementation success of the interventions. The outcome evaluation, based on medical record audits, is in progress.

DISSEMINATION of new medical information is a complex process. Variations in technology transfer can be dependent upon a variety of factors including geography, medical specialty, local medical organization, and the physician's age, among others (*1–3*). Successful change in physician behavior depends upon the process medium to disseminate information, and the ability of the trainer to relate the message in a manner that considers the physician's beliefs, ego, and interest (*4*). An assessment of the process can provide early feedback on how successfully the desired information reached the target audience, even though an assessment of the effect of the new information may take longer to evaluate. This paper describes the feedback from a rural physician intervention program to promote state-of-the-art breast cancer diagnosis and treatment.

Background

The Rural Illinois Cancer Consortium (RICC) was designed by an urban regional cancer center to be a collaboration between its oncology staff and five of nine rural hospitals. RICC was begun in 1987 with the purpose of improving access to state-of-the-art cancer care by providing it in the patients' community hospital. This intervention model would bring specialized expertise required for cancer care to patients in rural areas through a vehicle that would also maintain the small community hospital as the primary source of that care. This model attempted to improve the rapport and trust between urban and rural practitioners.

In 1988, the National Cancer Institute (NCI) funded the Illinois Department of Public Health to develop an intervention program using local 1986–87 data on access to state-of-the-art breast cancer management, including diagnostic and prognostic tests and procedures and treatment (*5*). Using these funds, we designed an intervention to improve access to state-of-the-art breast cancer management and treatment through this newly initiated outreach vehicle, RICC. The program used the 1986–87 data about local breast cancer management practices both to engage physicians' interest and to identify local problems that would benefit from and be responsive to intervention (*6–12*).

The importance of local data to interest and engage communities in a project using an audit with feedback approach was selected as the intervention strategy. In addition, fragmented health care systems can inadvertently create barriers to comprehensive patient care, and limited resources often perpetuate these barriers (*13*). The management of a breast cancer patient often involves several different physicians and experts from a variety of disciplines, including oncology, surgery, radiation therapy, and a personal physician.

In rural areas, particularly, access to all necessary modalities sometimes involves visits to multiple facilities in multiple localities (for example, to access radiation therapy). Physician tickler and other types of office reminder systems, including flow sheets, checklists, chart stickers, or audits with feedback have shown varying degrees of success in overcoming these barriers to care (*6–10,13*).

This large population-based study encompassed medical record audits and physician followup of breast cancer patients diagnosed from 1986 through 1991 in a 12-county area (10 rural counties and 2 contiguous urban counties in central Illinois). The first 2 years provided the baseline and the audit information to be used in the interventions. The last 2 years will measure the impact of the breast cancer intervention by comparing the changes in breast cancer management practices over the 6-year period.

Originally, a case-comparison design was planned with all patients diagnosed in a hospital affiliated with the RICC Program being in the case group and all patients diagnosed in all other hospitals being assigned to the comparison group. However, the baseline data raised ethical concerns about withholding the intervention from control subjects, due to the low prevalence of state-of-the-art therapy, and diagnostic (for example, recommendations for bilateral mammography) and prognostic (example, tumor staging) tests as described subsequently. Thus the case-comparison design was modified to a time series design with data points for all 6 years of the study period, 1986–91, so that the intervention could be extended to all rural facilities.

The baseline data suggested that about half the rural women received state-of-the-art management for their breast cancer. Major reasons for this low proportion were that only 38 percent of the rural patients versus 50 percent of urban patients received bilateral diagnostic mammography and that sufficient information in the medical record to stage the tumor was present for only 69 percent of the rural patients versus 95 percent of the urban patients (*13*).

All diagnostic and prognostic tests and stage-appropriate treatment options for state-of-the-art breast cancer management were presented in the interventions. However, increasing bilateral diagnostic mammography and tumor staging were emphasized because of their low prevalence, the higher prevalence of these practices in neighboring urban areas, and their importance in decisions for subsequent prognostic tests and selection of appropriate treatment options.

All female breast-cancer patients residing in the study counties were identified using the Illinois State Cancer Registry. The rural counties had a population density of less than 100 persons per square mile, and two urban counties had a population density of about 210 persons per square mile. Each urban county had one city of approximately 100,000 persons. An average of 360 patients were enrolled into the study each year from the 12 counties.

Method

Intervention. In November 1989, the State Director of Public Health sent rural physicians a letter with information on the Physician Data Query (PDQ), where PDQ could be accessed locally, a current PDQ for breast cancer, and a series of breast cancer brochures developed by the NCI for physicians and patients. The PDQ is a NCI service providing detailed information on the most current and accepted standards for state-of-the-art treatment alternatives for cancer patients based on the stage of disease and other diagnostic information. PDQ standards for all years of the study are that all breast cancer patients receive a bilateral diagnostic mammogram and that all have their tumors staged.

The program abstracter made personal visits to all rural hospitals and provided them with NCI booklets for waiting rooms and libraries. Medical record departments were visited to drop off Tumor Node Metastasis (TNM) staging worksheets with instructions to provide them to the person who made up charts at hospital admission as none of the rural

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hospitals operate a cancer program. Each hospital was contacted to schedule a 1-hour seminar at the hospital for all medical and nursing staff. The contact person was told that information about management practices of rural breast cancer patients in the region would be presented by the Medical Director of the Regional Cancer Center (JGK). The format of the seminar was a 30-minute slide presentation with the remaining time available to respond to questions.

At the seminar, materials were disseminated to encourage and facilitate tumor staging and bilateral mammography. These included reminder mammography stickers, staging worksheets, and a one-page guideline for management of the breast cancer patient. Other distributed materials were a decision tree presenting equivalent treatment alternatives for each disease stage, a copy of the PDQ, and a patient information sheet on mammography. Based on suggestions from the physicians, we contacted radiology departments at all hospitals after the seminars to encourage them to verify all physician orders for a unilateral mammographic examination and to state the importance of bilateral mammography in ruling out synchronous disease in the opposite breast.

Intervention feedback.

1. *Rural hospital seminars*: In 1989, the nine rural hospitals were contacted about holding a seminar; five hospitals were affiliated with RICC and four were not. Sign-in sheets were used, and the number of physicians attending, who also managed breast cancer patients during the first 4 years of the study, was assessed.

2. *Physician survey*: A one-page survey was mailed in 1992 to 84 rural physicians who had seen a breast cancer patient from the study area to assess how they would treat two hypothetical breast cancer patients. One physician with breast cancer patients who had retired before the survey was conducted was not included. These rural physicians comprised surgeons, general and family practitioners, and internists. Their responses gave us more immediate feedback on the impact of the interventions than we could obtain from audits of the medical records because of the 2-year time lag in completing the audits.

The first case history described a 59-year-old patient in good health with no preexisting medical conditions. She presented with a pea-sized lump in the upper inner quadrant of the right breast; no axillary nodes and no lumps in the left breast were palpated. The physicians were asked to select the next management step for this patient. The options were either to order a bilateral mammogram, a unilateral mammogram of the right breast or the left breast, to schedule surgery, or to describe some other action. The PDQ recommended that the action would be to order a bilateral mammogram.

The second case history was of a 52-year-old postmenopausal woman, 1 day post-op for a total mastectomy with axillary node dissection for ductal carcinoma. Otherwise she was healthy with no preexisting medical conditions. Her tumor was 2.5 centimeters (cm), surgical margins free of disease, hormone receptor assays positive, and one of seven nodes positive with no evidence of distant metastasis. The physician was asked whether he or she would recommend any of the following adjuvant therapies: hormone therapy, chemotherapy, radiation therapy, or any other therapy. The PDQ recommends hormone therapy as necessary treatment and chemotherapy as optional treatment for this patient.

3. *PDQ access*: PDQ information and breast cancer guidelines were provided to area physicians on two occasions. In addition, public access to PDQ information was available locally through five hospital or medical school libraries and also through the 1–800–4–CANCER number. We conducted surveys of these locations in 1989 and 1991 to obtain the number of requests for cancer information. Three of the local libraries kept records on the number and nature of the requests. The 1–800–4–CANCER service was used by physicians at one hospital, but these data were not maintained by local geography and, therefore, could not be used. Due to the incompleteness of the records, it was not possible to evaluate this part of the intervention.

Results

Rural hospital seminars. All nine hospitals agreed to hold a seminar on breast cancer management and 86 physicians attended. Thirty-three of the physicians had treated breast cancer patients during the first 4 years of the study, which was 39 percent of the 84 rural physicians managing patients with this disease and 38 percent of the 86 physicians attending the seminars in 1989.

In two seminars, physicians confirmed that unilateral diagnostic mammography was practiced, lending support to our baseline findings. A month later, a newsletter from the State health department, featuring results from the baseline period that again reinforced the importance of bilateral mammography and tumor staging, was also sent to these physicians.

Physician survey. Responses were received from 38 of 84 physicians caring for breast cancer patients, a response rate of 45 percent. Fifteen of the respondents had also attended the rural hospital seminars. In the first hypothetical case history, 92 percent of the physicians stated their next step for the patient with a palpable mass would be to request a bilateral diagnostic mammogram—the most appropriate response.

In the second hypothetical case history, 50 percent of the 38 physicians reported they would recommend chemotherapy, 76 percent would recommend hormone therapy, and 32 percent would recommend radiation. Compared with the baseline audit data (1986-87) of the medical records for the patients with similar disease characteristics, 25 percent received chemotherapy; 60 percent, hormone therapy; and 37 percent, radiation therapy (*14*).

We examined the potential bias that intervention participants were more likely to consist of physicians who were compliant with state-of-the-art guidelines at the baseline. The rural patients were grouped by whether their physician participated in the seminar, by whether their physician responded to the survey, and by whether they both responded to the survey and participated in the seminar. Generally, more rural patients were seen by survey respondents (61 percent) than nonrespondents. Seminar participants saw fewer patients (41 percent) than nonparticipants, and physicians who were both respondents and participants saw 38 percent of the rural patients.

Data from the 1986–87 baseline medical record audit and the 1992 survey were compared. These were (*a*) the patient had a bilateral mammogram (comparable to Case History No. 1) and (*b*) patients with the same disease characteristics as those in Case History No. 2 received state-of-the-art treatment. Although the survey did not measure tumor staging, this variable was also assessed between participants since it was emphasized in all parts of the intervention.

The table summarizes these comparisons. The proportion of patients with information about tumor staging did not differ between participants and nonparticipants in any of the three groups. However, patients of survey respondents and seminar participants were significantly more likely to have a bilateral mammogram at the baseline audit.

Proportion of patients with selected breast cancer management characteristic at the baseline by physician's participation in seminar and survey response

	Tumor Node Metastasis Stage Components in medical record (N=149)		*Had bilateral mammography (N=149)*		*State-of-the-art treatment, if stage 2 patient (N=15)*	
Category	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
MD's seminar:						
Participant....	65	70	65	[1]53	9	0
No	84	68	84	32	6	0
MD's survey:						
Respondent ..	91	70	91	42	9	0
No	58	67	58	33	6	0
Physician's seminar and survey:						
Yes	58	71	58	[2]48	9	0
No	91	68	91	32	6	0

[1] χ^2 test, $P<.10$, 2 degrees of freedom.
[2] χ^2 test, $P<.05$, 2 degrees of freedom.

Despite this difference, this state-of-the-art diagnostic test was mournfully low among all rural patients. Finally, none of the rural patients with a TNM stage 2 disease (generally, lump size less than 5 cm, some nodel involvement, and no metastasis) received state-of-the-art therapy at the baseline, thus no differences were evident between physician participants and nonparticipants.

Discussion

This data-based intervention to improve access to state-of-the-art breast cancer management for rural women combined the strengths of an innovative oncology outreach program with the strengths of a State health department's central cancer registry. Health department staff used the population-based incidence data, supplemented by the hospital medical record audit and the physician survey, to produce detailed information on local breast cancer management practices. They also designed and implemented program evaluation measures. The outreach program staff used the local data to develop educational seminars and mailings about state-of-the-art breast cancer management practices.

The advantage of this data base approach was that we were successful in generating local interest in our breast cancer program. We reached all facilities and a sizable proportion of physicians treating breast cancer patients. The disadvantage was the time lag in using local baseline data to develop the interventions.

The 1986–87 baseline data were collected and analyzed in 1989 and used in planning the interventions that began in late 1989. Chart audits of 1988-89 cases, which were in progress in 1990 (the year of the intervention), revealed that significant changes in the targeted practices of tumor staging and bilateral diagnostic mammography had already occurred. Despite this unanticipated preintervention behavior change, no local management data were available at the onset of the study, and thus, they were deemed important to intervention success.

In conclusion, the immediate feedback following the intervention has modified our expectations for the magnitude of success attributable to the intervention, in light of the interim changes in key physician practices. However, there was still room for improvement in all breast cancer management practices, and physicians participating in the most intensive part of the intervention (the seminars) were not already following all state-of-the-art breast cancer guidelines. Since the study design includes continuous ascertainment of data relevant to the research question, the outcome analyses will be able to separate the timing and degree of change over the 6-year period.

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