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Use of Process Evaluation to Guide Health Education in Forsyth County's Project to Prevent Cervical Cancer

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This work is funded by the National Cancer Institute, contract NCI–NO1–CN–65034.

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Synopsis

The Forsyth County, NC, Cervical Cancer Prevention Project is a 5-year public health education program designed to increase the proportion of black women in the county who are appropriately screened for cervical cancer. In this paper, the authors report on process evaluation—the procedures used to monitor the intervention and to insure that the target population was reached with a high quality, community-based health education program.

A system that encompasses documentation of program activities, interviews with women in waiting rooms of primary care providers, semiannual interviews with a panel of approximately 100 women from the target population, and telephone followup with participants in direct education workshops was designed and implemented. Through October 1990, more than 2,100 interviews had been conducted. Data from these activities have facilitated continued development and refinement of educational materials, provided guidance for developing new strategies for reaching the target population, and provided continuous feedback to program managers to allow monitoring the impact of all program activities.

THE FORSYTH COUNTY Cervical Cancer Prevention Project (FCP) is a community-based public health education program funded by the National Cancer Institute. Its overall goals are to increase the proportion of black women in the target population, ages 18 and older, who obtain Papanicolaou (Pap) smears on a regular basis (as recommended by their primary care physician), and to increase the proportion who return for followup care when necessary.

The goals of the project are to be reached through implementation of a public health education program that includes two primary components, mass media and direct education. Mass media are intended to raise awareness of the need for regular Pap smears in the community at large; direct education is limited to groups of high-risk women in the target population. A third component of the educational program involves provision of up-to-date information to primary care physicians about screening for cervical cancer. To date, the third component has consisted of publishing articles in a quarterly newsletter for community leaders, health providers, and others, and providing educational materials for physicians' offices. A complete description of these activities will be the subject of a future publication.

In earlier publications, we have presented the overall design of the intervention and evaluation as well as the strategies used in developing the educational program (*1, 2*). These reports have cited process evaluation as a vital component of the program that permits assessment of intervention activities. The purpose of this paper is threefold: to provide a full description of our system of process evaluation, to present interim data collected as part of process evaluation, and to describe how these data have been used to manage the project.

Components of Process Evaluation

Process evaluation is essential to develop and implement effective health education programs (*3–5*). The results from process evaluation can direct changes in the content or direction of an intervention, or both, thereby increasing effectiveness.

Process evaluation encompasses a wide range of data collection activities, all motivated by need for continuous monitoring of the course of intervention. Aimed at improving the intervention, process evaluation monitoring can include such activities as periodic surveys, surveillance of morbidity and mortality, interviews with program participants and nonparticipants, observation of program activities by participants and nonparticipants, and focus groups (*6–10*). In essence, process evaluation focuses on program activities and aims at assessing the actual delivery of the services that are intended to produce change in the persons who are the targets of the program. Properly used, process evaluation provides managers with opportunities to enhance the effectiveness of interventions by identifying problems and areas where change is needed, making changes, and evaluating the immediate impact of the changes.

Ideally, a health education program should never be viewed as being "completely" developed (*11*). Effective, well-managed programs begin with carefully developed activities. But with the experience that they gain from implementation, managers can embark on new developments that can alter the original plans for service delivery. Periods of new development are often followed by plateaus where development slows and changes are relatively minimal. These activities can proceed in an efficient, orderly manner if they are aided by the results of process evaluation.

Process evaluation of the FCP has included the following: (*a*) documentation of program activities, (*b*) collection of data reflecting reactions of the target population to program activities, and (*c*) analysis of findings from data collection and providing feedback to the project managers.

Documentation. The recording of program activities is the foundation of process evaluation. By reviewing records of program activity and comparing these records with objectives, the progress of the intervention can be monitored. Documentation for the FCP has included careful records of the distribution of printed materials to assure coverage of the target population, monitoring the number of participants in each direct education workshop, recording the purpose of each telephone call to the project office requesting information, copying each newspaper article published about the project, and recording the dates and times of each broadcast of radio and television public service announcements. Records documenting program activities are sorted and stored in the project office. Program managers examine monthly trends in these activities to identify problem areas, to correct imbalances in distribution of educational materials, and to relate changes in intervention activities to changes in public awareness of the program.

Reactions of the target population. Interviews are conducted in a variety of settings to collect data on reactions of the target population to education provided by the FCP. To assess reactions to education via the mass media, women in private and public health primary care clinics are interviewed. These brief interviews collect data to reflect which educational materials and activities have the greatest impact in terms of raising awareness of cervical screening and cervical cancer.

To collect process evaluation information regarding the direct education component of the FCP, all women participating in the workshops are asked to complete a brief questionnaire giving their reactions to the material presented, and a small sample of women (usually 3 or 4 of 20) are interviewed by telephone to estimate the impact of the workshop in terms of the information recalled and action taken. Finally, to collect community impressions about the program, a panel of approximately 100 women are interviewed periodically in their homes to get their views on educational materials and to test ideas about new materials. All the materials were developed by project staff in consultation with a marketing research firm. (The marketing research firm is owned and operated by a black woman.) Prototypes of educational materials were first reviewed by physicians, nurses, and health educators for scientific accuracy and overall design. Members of the panel then reviewed the materials, comparing two or more versions, to gauge appropriateness for the target population.

Periodic reports. Quarterly reports summarizing data derived from interviews and documentation activities (distribution of educational materials, attendance at direct education workshops, and so forth) are reviewed in terms of immediate objectives and long-range goals. Problem areas are identified by the program managers, and changes in specific components of the project are suggested. For example, after review it was determined that leaflets distributed in grocery stores were not reaching low-income women with sufficient frequency, although other women were being reached satisfactorily. After consulting with grocery store managers, it was decided that timing the distribution of educational materials to coincide with receipt of social security and other fixed payments would increase the chance that low-income women would be in the stores when the educational materials were on hand.

Data Collection

Clinic interviews. Interviews with women in clinics' waiting rooms have provided estimates of the effectiveness of printed materials in reaching the target population. In addition to inquiring about educational materials, the interviewers also obtained basic demographic information including age, marital status, and educational level. These interviews have been carried out continuously; they were initiated before the intervention began. Two public health clinics, one private practice office, and a family practice center clinic have been the sites for data collection.

In the clinic interviews, the women were asked open-ended questions dealing with whether they had seen, heard, or read anything about cervical cancer or the Pap smear and, if so, where—to determine if women in the target population have seen FCP information about cervical cancer and the Pap smear in the community. Among women who reported seeing such information, 38 percent ($N = 1,070$) indicated a physician's office, clinic, or health center as the source. Thirty-two percent indicated newspapers, radio, or television as the source, and 10 percent reported that printed material seen in local businesses as their source.

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To investigate the possibility of a differential impact of the materials, changes in the reported sources of information about cervical cancer and the Pap smear before and after the project began were categorized by the age and educational level of the interviewee. These data suggested that the 1- and 2-page leaflets and pamphlets are effective in increasing awareness among women less than age 40 regardless of their level of education. For women older than 40 who were high school graduates, posters and messages from health care providers were identified as effective in increasing awareness. Most important, women older than 40 with less than 12 years' education showed no increase in awareness.

Panel. Women on the panel are asked to evaluate project materials and suggest improvements. Two or more prototypes of new educational materials under development are presented to the women for review. The women are asked for an overall evaluation and what they like and do not like about the materials (for example, images, messages, or both). Finally, they are asked to select preferred images and messages. These data are used to revise and develop new materials.

In addition, the reactions of the panel reflect the general awareness of the presence of FCP materials in the community. As community residents, women on the panel are exposed to all of the educational materials transmitted via the mass media, and they potentially could be participants in the direct education component as well. Simple inquiry about FCP materials in the community provides a partial assessment of the visibility of mass media. A complete report of the infor-

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mation collected in interviews with the panel will be presented in a future publication.

Direct education workshop data. The majority of the direct education workshops are conducted by a female health educator who has a background in public health education. In the previous year, a volunteer medical student and volunteer nurses presented additional workshops. As previously noted, evaluation questionnaires are completed by all workshop participants as a routine practice, and a small sample of attenders are telephoned within 2 weeks. The direct education workshops last from 20 to 45 minutes and usually include from 12 to 25 women. A total of 112 workshops have been conducted in various locations in the target population since the program was implemented (November 1988 through October 1990), and 1,474 black women have attended.

The questionnaire results are used to determine overall satisfaction with the program and to examine trends in characteristics (age, education, previous Pap smears) of women who attend the workshops. The women have also been asked if they intend to get a Pap smear, and if they intend to discuss the workshop with others. Stated intentions are validated by telephone interviews carried out with a sample of women from each workshop.

A sample of the workshops are attended by another member of the project staff who is not involved in implementing the intervention. This black woman also conducts all followup telephone interviews and makes recommendations for modifications in the workshop.

The followup telephone interviews included guided, open-ended questions intended (*a*) to determine lasting impressions about the quality of the workshop, (*b*) to discuss barriers to attending the workshop, (*c*) to determine if the women who attended have shared the workshop materials with other women, and (*d*) to determine if the women have taken action based on what they learned in the workshop.

Overall, approximately 79 percent of the women have rated the direct education workshop as very good; 19 percent, as good. Nearly one-third of the participants indicated that they intend to obtain a Pap smear as a result of what they learned.

During the workshop, women are encouraged to share the information with others, and they are provided with a postage-paid card to request additional educational materials. In followup telephone interviews, more than 50 percent of the women reported that they shared information that they received in the workshop with other women. An average of 2.6 women were contacted per workshop participant, which would yield approximately 1,800 women contacted. Even if only half of the reported number of women were contacted, this number would represent a potentially significant diffusion of the direct education activities.

Impact of Process Evaluation

Process evaluation of FCP activities have resulted in a number of modifications in the program. Examples include

1. Patterns of distribution of educational materials were adjusted to increase contact with older women with less than 12 years of education. Based largely on the results of clinic interviews, distribution of materials through grocery stores was increased, and a direct mail campaign to low-income neighborhoods was developed (*12*).
2. Initial development of educational materials was guided by community analysis and focus groups (*2*). Among the materials developed were two poster designs—one with a light background and the other with a dark. Focus group discussions had indicated that younger women preferred the dark background and older women, the light. These preferences had led to production of two distinct sets of posters with light and dark backgrounds. After implementation, however, results from the clinic and panel interviews revealed that the posters with the dark background communicated a negative message. The posters with the light background were seen positively, even though both sets of posters had the same messages. The dark posters were withdrawn from circulation and replaced with the versions with the light background.
3. Process evaluation of the direct education workshop identified several areas needing modification. First, distributing educational materials during the workshop disrupted the presentation. Second, poor eyesight and hearing, common among older attenders, led to difficulties in communication. Third, many attenders wanted information on breast and other types of cancers included in the presentation.

These issues were addressed by (*a*) altering the presentation so that important information was presented first followed by distribution of materials to reinforce messages presented, (*b*) insuring that those with hearing

and eyesight limitations were seated close to the presenter, and (*c*) including literature about breast and other cancers in the package of information distributed to all workshop attenders.

Discussion

Ongoing evaluation as the intervention is carried out is the most basic goal of process evaluation. These data make it possible to alter the program while it is in operation and improve service to the target population. For example, as noted previously, analysis of process evaluation data midway through the project revealed that one type of poster was perceived negatively. Although this poster was developed to appeal to the younger women—and had been critiqued by focus groups—it had an undesirable impact on the overall target population. Without interim data, we would have continued to distribute the poster—perhaps alienating rather than attracting women to information about cervical cancer prevention.

Data from process evaluation can also be directly linked with the persons who provide specific services. Since this orientation focuses on reactions of the target population, trouble spots in the communications between project personnel and the target population can be identified quickly and remedies developed. When this type of information can be indexed to specific people performing specific tasks, feedback can be delivered with great efficiency. Most important, the information needed to give personal reinforcement can be identified easily.

Process evaluation has been a vital component of the project. Although it is expensive in personnel and time, the value of the data collected justifies the cost. For the first 2 years, process evaluation for the FCP is estimated to have cost approximately $35,000 yearly. Subsequent yearly costs have been reduced to approximately $15,000 as procedures have been systematized. This sum represents 7 percent of the total annual direct costs of the project. Establishing and maintaining balanced development of the intervention, implementation, and evaluation are important and difficult tasks for all community-based projects, and they are assisted by the data collected via process evaluation.

Although the specifics of process evaluation will differ for each project, the essential elements follow:

- documentation of project activities and evaluation of accomplishments toward reaching short-term objectives,
- observation and critique of educational activities by persons not directly concerned with implementation of the intervention,
- systematic checks with randomly selected samples of the target population to estimate the extent to which (*a*) project messages and activities reach the intended targets, (*b*) project messages are understood, and (*c*) the target population perceives themselves as being able to make the changes recommended,
- clear channels for communicating feedback from process evaluation to project managers.

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