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ABSTRACT

This paper describes the development and implementation of an evaluation system for a pediatric residency program to meet federal grant monitoring requirements. Continuous communication and collaboration with program participants characterized this naturalistic formative evaluation. Concerns identified through initial interviews of the 15 residents and six faculty members were formulated into evaluation goals in six areas: (1) the ambulatory setting; (2) the inpatient setting; (3) subspecialty support; (4) community involvement; (5) resident evaluation; and (6) teaching evaluation. Focusing on general goals rather than individual performance, evaluation activities to collect both qualitative and quantitative data were chosen for their accuracy and feasibility in collaboration with the faculty. This participatory model provided both an effective means of evaluation and a systematic framework for program change and improvement by faculty, residents and staff. (BS)

A PARTICIPANT MODEL FOR EVALUATING A PRIMARY CARE RESIDENCY PROGRAM

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A Participant Model for Evaluating a Primary Care Residency Program

This paper describes the development and implementation of a system for evaluating a primary care residency program in pediatrics. The effort was instituted because of requirements of a federal grant which demanded monitoring of the residency program. The evaluation design was formative and characterized by early and continued involvement of the faculty and residents.

Background

Many of the traditional methods were not practical for the evaluation of this pediatric training program. Those models which viewed evaluation as a technology for applying measurement science were too restrictive. Any component of the program (e.g., the ambulatory setting, individual resident instruction, faculty teaching) could have provided a basis for a pretest/posttest study. However, the goal of the study required that the entire educational program be monitored; designs to evaluate program components were insufficient to achieve this type of result.

The approach we developed was compatible with the naturalistic evaluation models offered by Lincoln and Guba (1981), Stake (1981), Parlett (1977), and Rippey (1973). We wanted to present qualitative and quantitative information to the participants which would provide a basis for change within the program. We first described the program, attempting to understand how it functioned, and pointed out areas of weakness and strength. As the evaluation system developed and as new areas of investigation were pursued, information was continuously fed back into the program. The evaluators became a part, albeit an independent part, of the program itself.

Methods

The pediatric residency was a primary care training program consisting of 15 residents and six full-time faculty members. The evaluation process was begun by interviewing faculty, residents, and staff. The format of these 30 to 45 minute sessions was loosely structured, but always included the following questions: (1) What are the strengths of the program? (2) What are the weaknesses of the program? (3) How might the evaluation process help you, i.e., what type of information would help you to improve the program and its functioning on a daily basis?

Analysis of the interview data yielded 14 consistent concerns. These were presented to the faculty for written reactions and views on the relative importance of each. By analyzing the reactions, we were able to approach the original 14 concerns with the following six evaluation goals:

1. To determine if the ambulatory setting provided an appropriate model of group practice and an appropriate base for teaching outpatient pediatrics.

2. To determine if the community hospital setting provided an appropriate base for teaching inpatient pediatrics, and to compare the inpatient population to that of a university hospital.

3. To determine subspecialty support in the hospital setting by documenting the number of subspecialty encounters; to determine subspecialty support in the ambulatory clinic by documenting the characteristics of the subspecialty clinics (number, type, attendance, patient profiles); to document available elective rotations.

4. To document resident participation in the community-oriented parts of the residency program.

5. To develop resident evaluation techniques acceptable to the faculty and house staff.

6. To develop a systematic method for determining the quality of the teaching process.

The evaluation goals were not identical to the educational goals of the pediatric training program. The educational goals were a broad outline of an ideal training program in primary care pediatrics. They encompassed many areas, from accurate diagnosis of medical problems to identification of community problems which affect the health of children. The evaluation goals focused on areas which dealt primarily with resident education and teaching. (Had we focused our evaluation efforts on the stated program goals, we would have been overwhelmed with the magnitude of the project and may have focused on data collection in areas which were not directly related to resident education and teaching.) The six evaluation goals reflected the primary concerns of all those involved in the program and provided the basis for our project over a four-year period.

Once our goals were defined, they were matched with specific evaluation activities. At a meeting, the faculty was presented with the six evaluation goals along with tentative evaluation activities. Final activities were chosen by considering the accuracy of the data which might be obtained and the feasibility of implementation. This collaboration led to decisions matching goals with appropriate activities. These are shown in Table 1.

Results

Evolution of this evaluation system had three results: (1) the impact of each evaluation activity, (2) cumulative effects of all activities, and (3) insight into this system of evaluation.

Results of the Evaluation Activities

Among the most valuable of all the activities and one which explored every goal, was a series of periodic, confidential interviews with the faculty, staff, and residents. These occurred at six month intervals, and were structured to include questions about each person's recent experiences. These interviews made it possible to obtain detailed opinions about specific program components. The major concerns from the interviews were abstracted and shared among the faculty,

staff, and residents allowing qualitative assessment of most aspects of the program.

From the abstracted interview material, we compiled a list of changes which had been suggested in the interviews. The list was divided into three sections: (1) those changes which would require a major organizational effort, e.g, the development of an adolescent medicine clinic and rotation, (2) limited changes or assignments requiring an individual, usually a faculty member, to execute them, e.g., writing a list of goals and objectives for a patient education group, and (3) Those changes which needed only a place in the schedule, e.g., resident presentation from their elective rotations. This list of specific changes from an outside objective source promoted change within the program.

Goal #1: Ambulatory Setting. In the ambulatory setting, long term doctor-patient continuity was examined by tracking newborns and their primary caregiver from an initial visit at two weeks of age through their two year check-up. It was possible to determine the overall continuity for the entire clinic, individual residents and group practices.

The telephone survey of patient satisfaction was done by recruiting patients who appeared at the outpatient facility over a three-day period, and then randomly selecting participants from this sample. Over 90% of the people polled indicated complete satisfaction with the care received, so this activity was not repeated.

A survey of end-of-the-day summaries of patient visits allowed analysis of presenting diagnoses. These summaries over several weeks substantiated the high number of patients with primary care problems.

Goal #2: Inpatient Setting. On the inpatient setting, the scores on the American Board of Pediatrics In-Training Exam provided data on individual and cumulative resident performance. Anal. s by subspecialties provided information on areas of strength and weakness, and afforded a basis for adjusting the curriculum. The analysis of discharge diagnoses provided data on the reason for hospital admissions. Like the end-of-the-day summaries in the ambulatory setting, this activity documented the program's ability to provide adequate numbers of primary care patients. Comparison of these discharge diagnoses with those from a university hospital, where the numbers of tertiary medical problems were high, demonstrated the primary care emphasis of the inpatient setting.

Goal #3: Subspecialty Support. In the area of subspecialty support, analysis of the In-training Exam by subspecialty provided information on strengths and weaknesses of the program and individual resident performance. This allowed adjustments in the program where all the residents demonstrated weakness, and allowed individuals to change their elective rotations and outpatient experience to address personal deficiencies.

The documentation of clinical conferences and subspecialty clinics was a quantitative exercise which substantiated that all important subspecialty areas were adequately covered by didactic sessions or outpatient clinics. The documentation of calls to subspecialists was impossible to complete because it relied heavily on continual logging of telephone calls by the resident staff.

Goal #4: Community Involvement. The interviews assessed resident opinions

on a variety of problems related to medical, social, and behavioral issues within the community educational experience. In addition, two different questionnaires were used to gauge residents' attitudes and opinions about participation in the community program. Direct observation during the school rotation allowed description of this program and its effect on residents and the schools involved.

Goal #5: Resident Evaluation. Resident evaluation was approached from several directions. In addition to the In-Training Exam, which was used to assess each resident's overall and subspecialty performance, a monthly evaluation form was completed by a faculty member who had significant educational contact with each resident. With written comments from the end of these forms, a summary of the year's evaluations was prepared for each resident. Chart audits, two each on the inpatient and outpatient service, were required. This system of audit was designed to assess the abilty of the resident to synthesize the history and physical exam into a problem list.

Goal #6: Evaluation of Teaching and Curriculum. Evaluation of teaching and curriculum was done in three ways. A questionnaire was sent to graduates and proved a wonderful impetus for program change. The questionnaire was comprehensive, covering all the components of the curriculum and all the possible subspecialty areas. Ample space for comments was provided, and most of the graduates took advantage of this to explain the reasons for their answers. The results of this questionnaire showed that some areas which were thought to be only marginally important (e.g., minor suturing and surgery, outpatient orthopedics, dental medicine) were an important component of everyday pediatrics. Although it is not possible to cover all areas in depth in a three year training program, this information suggested more relevant elective and conference topics in a program committed to primary care.

Yearly evaluations were completed by the residents for each faculty member. The forms were completed confidentially and resident anonymity was guaranteed. The comments on the form were summarized. None of the faculty had ever participated in a program where their teaching was assessed. Initially, this was very difficult, but from subsesquent interviews and evaluations it was possible to determine that the faculty had made changes in their teaching styles. The resident's perception of the quality of teaching and the availability of the faculty improved from year to year.

A curriculum questionnaire was completed by all the residents at the end of each year. Using a scale of one to four, the residents rated all aspects of their curriculum, faculty involvement, and clinical supervision. Quantifiable data was obtained on all aspects of the program.

Cumulative Effects

Perhaps the most important result of the evaluation process was the cumulative effect of the separate evaluation activities. Before the evaluation began, any impetus for change was on an ad hoc basis, if it ocurred at all. The changes that did occur began because of intense resident or faculty dissatisfaction. Our evaluation process allowed a systematic and thorough procedure for identifying and exploring problems from multiple perspectives. The program became more open, and less resistant to change.

Evaluation Results

There were results for the evaluation process itself. By approaching evaluation with an open mind and by gaining cooperation from all sides, it was possible to develop a system which was effective without being judgmental or threatening. The evaluation effort was done with the program participants, not to them or for them. It was possible for all to keep their autonomy, but work in mutually constructive ways. We were able to put a lot of potent, emotionally-laden information into the hands of the program participants without destroying personal or professional relationships. In addition, the evaluation effort enhanced communication among participants setting a precedent for faculty retreats and formal faculty-resident conferences where grievences and new ideas were discussed.

Discussion

The evaluation process evolved continuously. As the project developed, some issues persisted, some emerged, some faded. Our decision was to concentrate on areas where change and improvement were most likely. For example, some aspects of the program seemed destined to remain stable from year to year (such as the high level of patient satisfaction or the low percentage of long term resident-patient continuity). All agreed that continued efforts in these areas would be unproductive. Moreover, some evaluation activities could not be implemented. For instance, residents found it impossible to record consistently all their calls to subspecialist on the inpatient service, so this activity was discontinued with faculty approval. The faculty remained actively involved in decisions to abandon or develop lines of inquiry.

We used many different approaches to data collection attempting to strike a balance between quantitative and qualitative processes. Quantitative data were important in determining the basic structure of the program, qualitative in assessing faculty and resident perceptions about the program's content and its functioning. The two methods of data collection allowed us to crosscheck the reliabilty of each as the evaluation process developed.

Often qualitative data provided more insight than the quantitative studies. The interviews uncovered specific concerns about teaching which often resulted in changes. For example, one series of interviews highlighted the problem caused by a lack of specific rules regarding attending rounds. Faculty and residents did not know what was expected of them or of each other. Residents complained that many attending rounds became lectures on specialty areas and did not relate to patients on the floor. On the other hand, the attending physicians felt this was the time to teach their specialty because there were other opportunities for the residents to learn inpatient pediatrics. The attendings and the residents had totally different expectations. Appreciation of this conflict resulted in the creation of a manual outlining the responsibilities not only of attending rounds but also of each level of resident training and each faculty position. The following year we documented the faculty and resident reactions to the responsibilities outlined in that manual.

This approach to evaluation was designed to assess general goals rather than specific areas of individual performance. For example, we were able to document the failure of the program to include adequate teaching of emergency pediatric procedures. After establishing a monthly conference, we concluded that residents were generally more confident in their abilities to handle these

emergencies. Measurement of specific competencies was beyond our resources, although this evaluation model does not preclude incorporation of such measurements.

The evaluators performed dual roles. We attempted to become knowledgeable and influential insiders, and at the same time we were careful to preserve our independence. Over a relatively short period of time, we gained the confidence of the residents, faculty, and staff. We learned to understand the subtleties of the program which explained how and why the program functioned as it did. We could stand back, verify information, and present it in ways that were not threatening and allowed changes to occur without animosity.

An advantage of this type of evaluation is that it can be carried out with limited resources. During this four year project, an evaluation director worked 10% time and a research assistant worked 50% time. With this limited staff, we provided the program with descriptive and quantifiable data which were valuable in identifying strengths and weaknesses, and providing a basis for change.

Conclusion

The essence of our approach was communication. The faculty and residents were involved at all times. This collaboration was important because it directed the effort toward areas where changes were most likely. We facilitated interactions among program participants, providing a systematic and impartial source of data about specific problem areas. This approach to evaluation made the participants realize that there were ways of instituting change when weaknesses were identified. Conversely, when strengths were documented, they provide a base on which the program could develop.

This participatory model provided both an effective means of program evaluation and a framework within which faculty, residents, and staff could shape their program. We believe this approach can be generalized beyond residency training into other areas, such as nurses' training or an elementary school system. Three results of this type of program evaluation--involvement of program participants, continuous change for the better, and facilitated communication--would be welcome in a variety of settings.

Table 1: Evaluation Goals and Activities

Goal Number	Activities
1 Ambulatory Setting	A. Analysis of long term resident-patient continuity B. Satisfaction survey of a random sample of patients C. A survey of reasons for patient visits
2 Inpatient Setting	A. Analysis of general pediatric knowledge using the American Board of Pediatrics In-Training Exam B. Comparison of discharge diagnosis with a university-based pediatric residency training program
3 Subspecialty Support	A. Analysis of the American Board of Pediatrics In-Training Exam by subspecialty B. Clinical conference, elective, and subspecialty clinic documentation C. Interviews with residents on elective and subspecialty exposure
4 Community Involvment	A. Resident questionnaire: attitudes and opinions on medical and behavioral-developmental issues B. Resident questionnaire: school rotation C. Direct observation of school and community rotation D. Resident evaluation of neurodevelopmental rotation.
5 Resident Evaluation	A. American Board of Pediatrics In-training Exam Analysis B. Monthly Resident Evaluation by Faculty C. Chart Audits
6 Teaching Evaluation	A. Yearly faculty evaluation by residents B. Survey of graduates regarding program C. Resident questionnaire: curriculum evaluation

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