Improved Continuity of Care in a Community Teaching Hospital Model

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Hypothesis: We created an ambulatory resident clinic in a community teaching hospital to improve the continuity of care in a surgery residency program.

Design: A retrospective chart review analysis.

Setting: A community hospital, general surgery residency training program, and its ambulatory practice.

Interventions: Providence Hospital, Southfield, Mich, has established a new model, the Surgical Associates of Michigan, which is an association comprising private practice physicians serving as full-time faculty in the Department of Surgery. In addition to clarification of teaching requirements and reimbursement for educational activities, the most dramatic feature is the relocation of private practice offices and the staff surgical office to one central location within the hospital. The proximity of the staff and private surgical offices facilitates closer interaction of attending physicians, residents, and patients.

Main Outcome Measures: Compliance rates of continuity of patient care provided by the same resident, as presented by the Surgery Residency Review Committee, including confirmation of diagnosis, provision of preoperative care, discussion with attending physician, selection and provision of intervention, direction of postoperative care, and postdischarge follow-up.

Results: Since the inception of this arrangement at our institution, surgical residents have seen 229 staff patients and 465 private patients in the offices under supervision. Compliance rate of continuity of care was defined as patient follow-up with the same senior surgical resident who performed an operation or evaluated the patient on initial presentation to the emergency department or offices. We achieved a compliance rate of 92.8% (169/182) in the staff surgical clinics. A compliance rate of 63.5% (205/323) for private general surgical patients and 70.4% (100/142) for vascular surgical patients was obtained. With the establishment of the teaching faculty group and the relocation of offices, we were able to achieve a dramatic improvement in continuity of care.

Conclusions: In addition to fulfilling the Surgery Residency Review Committee requirements, we believe our model facilitates broader education of surgical residents and improves risk management. We recommend further similar studies, greater involvement of primary care specialties in recruiting staff surgical referrals, and implementation of a specialized computer program to continue to improve continuity of care in surgery residency programs.

Arch Surg. 1999;134:555-558

CONTINUITY of care is recognized as an important component of providing quality health care. The benefits of continuity of care include decreased hospital admissions, decreased length of stay, reduced duplication of diagnostic testing, enhanced patient satisfaction, more knowledgeable patients, and improved compliance with selected treatment regimens.1 Historically, continuity of care has been emphasized only in the primary care setting.2 The majority of studies analyzing methods to improve physicians in training experience with continuity of care have been performed in primary care residency programs. Recently, the Surgery Residency Review Committee (SRRC) emphasized that continuity of care should be an essential element in a surgery residency program. The 2 greatest obstacles to improving continuity of care have been lack of a specific definition of continuity of care and lack of adherence to a single structural model.3,4

The SRRC has provided the following definition of continuity of care, composed of 6 elements in which the same surgery resident is involved: (1) determine or confirm a diagnosis, (2) provide preoperative care, (3) discuss the case with the attending physician, (4) select and accomplish the appropriate procedure, (5) direct postoperative care, and (6) follow up after discharge.5,7 Compliance with continuity of care is important at all levels of training but is essential at the senior resident level.2

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PATIENTS AND METHODS

Beginning November 1996, Providence Hospital and Medical Centers, a community-based hospital, established a model for continuity of care for the general surgery residents. The intent of this model is to improve both resident continuity of care at the senior resident level and continuity of supervision by the surgical faculty. The hospital administrative faculty, in concert with the Department of Surgery, established the following plan:

1. Establish a corporate entity to facilitate the private practice surgeon participating as faculty in the residency training program.
2. Develop a contract with the hospital and the established corporate entity to pay faculty specifically for teaching duties and supervision of residents.
3. Establish qualification criteria and an agreed-on job description for the duties of the teaching faculty, who would be members of the corporate entity.
4. Provide a common patient office for teaching faculty that would also house the resident staff.
5. Establish enforcement policies to increase both resident and faculty physician compliance with continuity-of-care endeavors.
6. Relocate participating private practice and full-time salaried surgeons to a common area, with space allocated to the residency ambulatory care practice clinics (staff surgical offices) in a building adjacent and connected to the hospital (Figure 1).
7. Encourage residents to attend several different offices daily, rather than remain in one assigned office, to increase their percentage of patients seen after discharge.

The surgical residency program consists of 3 categorical residents per year and 6 preliminary positions that are distributed among first-, second-, and third-year residents, for an average total of 21 residents per year. More than half of these positions are designated. In addition, there are rotating residents from family practice, obstetrics-gynecology, and orthopedic surgery. There are no physician assistants or other “resident extenders” on any services, including away rotations. The only exception to this rule is the cardiothoracic surgery rotation, which has physician assistants. Each surgical service has 2 nonoperative days per week that are dedicated to attendance at surgical offices and research activities.

During the last 10 years, our parent institution has averaged 10 517 outpatient and 7635 inpatient surgical procedures per year. These figures include surgical subspecialties, such as cardiothoracic, plastic, and otolaryngological procedures. A total of 3975 general surgical procedures were performed last year. Each of our 3 chief residents (fifth year) perform an average of 1037 cases during their 3-year training period. This includes an average of 353 cases in the last year of training. Our institution averages 28 900 inpatient admissions, including 9400 “short stays” or less than 24-hour admissions per year. Outside rotations include trauma and transplant surgery at Wayne State University–affiliated hospitals, Detroit, Mich, during the fourth and third year, respectively. A pediatric surgery rotation is done at University of Michigan–affiliated hospitals, Lansing, during the third year of residency. At both these institutions residents are under direct supervision of full-time teaching faculty without any physician extenders. Our facilities provide all other surgery rotations, including outpatient, plastic, cardiothoracic, pulmonary, vascular, colorectal, and oncologic surgery.

Anderson et al present, to our knowledge, the only study to date that closely analyzes compliance rates of surgery residents with each of the 6 phases of patient care. This study takes place in a university-based residency program. Although the compliance rates with each of the 6 components separately is higher, residents were able to complete all phases of care with the same patient in only 23.7% of cases. Involvement of the same resident with
The Surgical Association of Michigan (SAM) is the corporate name selected by the Department of Surgery and contracted as a teaching group by the hospital to supervise and teach in the residency training program. The SAM is composed of 16 teaching faculty members, including 10 general surgeons, 3 vascular surgeons, 1 thoracic surgeon, 1 colorectal surgeon, and 1 transplant surgeon. The faculty members of SAM supervise the staff surgical offices at all times. The residents also rotate to the private offices of the practicing surgeons who are faculty and members of SAM.

To coordinate the office practices of the faculty with the residents’ time to participate in the office, the faculty are divided into 2 private service teams. Residents rotate on each of these team services and are able to see both preoperative and postdischarge patients in the private office together with the private practice faculty. Scheduling of the team service assignment permits the resident to arrange the postoperative patient office visit on a day the resident can be available for the private practice faculty office. Since the resident is assigned to the private practice faculty office, he or she also sees new patients with the faculty private practitioner and follows up these patients on the team service if admitted to the hospital. We have altered the resident office attendance requirements such that residents are encouraged to visit as many different offices as possible each day. The resident is encouraged to spend only a short time in any given office if this facilitates the greatest percentage of follow-up with the patients on whom that resident has performed an operation. Proximity of the staff and private surgical offices afforded by the relocation facilitates visiting a number of clinics in the most efficient manner (Figure 1). This structure is the basis for the continuity of supervision and continuity of care at Providence Hospital.

In the first 9 months of this curriculum at Providence Hospital, 229 patients were seen in the staff surgery offices by senior residents. These included 167 patients referred from the emergency department and 89 patients referred from other specialty care resident ambulatory care practice offices. Of the 167 patients seen by the residents in the emergency department as staff patients, 27 did not return for follow-up. Of the 140 patients who did return for follow-up, 106 were followed up in the staff surgical offices but did not have any surgical procedures. A total of 102 of 106 patients managed nonoperatively were seen by the same resident, for a continuity-of-care rate of 96%. The 27 nonreturning patients were counted in this first calculation as a break in continuity of care. Of 34 patients who went to the operating room from the emergency department, 28 (82%) were seen for follow-up in the staff surgical office by the same senior resident who evaluated the patient initially and who performed the operation. Of the 89 patients who were directly referred to the clinic by other specialty clinics, 47 were nonsurgical patients and 42 underwent elective surgical procedures. The 47 nonsurgical patients were not included in continuity-of-care calculations since they were not required to return for a follow-up visit. Of the 42 patients who underwent elective surgical procedures, 39 were seen by the same operating resident for a continuity-of-care rate of 93% (Figure 2). Compilation of all the data from Figure 2 reveals an overall rate of complete continuity of care of 93% (169 of 182 possible patients seen) in the staff surgical offices (Figure 3). A total of 463 patients were seen in the private attending surgeon’s office by the senior resident during the 9 months of our study. A total of 142 patients were seen in the vascular surgery private offices before the operation. Of these, 100 patients (70%) were followed up by the same operating senior resident. A total of 323 patients were seen in the general surgery faculty offices, which includes colorectal, thoracic, and oncology patients in addition to general surgical patients. A total of 205 of 323 patients were followed up by the same resident after surgery and seen preoperatively in the surgeon faculty offices. A total of 142 patients were seen preoperatively in the vascular surgery private attending
offices. Of these, 100 patients were evaluated preoperatively and postoperatively in the private surgical offices for a continuity-of-care rate of 63% (Figure 4).

**COMMENT**

We believe this study demonstrates successful use of a model designed to improve continuity of care in surgery residency programs, with some limitations. The greatest limitation of this study is the lack of a control group. Like many surgery residency programs, our program allotted minimal attention to the details of continuity of care. Our efforts at tracking patient and resident follow-up before our model lack consistent documentation. However, we believe implementation of our model has facilitated dramatic improvement in continuity of care among senior surgical residents. Although we have no previous rate of continuity of care recorded, the consensus among residents and faculty in our institution is that residents are gaining much more exposure to all phases of management of the surgical patient. Undoubtedly, this broadened education produces a surgeon better equipped to deal with a multitude of surgical management decisions.

This model facilitates fulfillment of SRRC recommendations in a quantifiable manner. Studies examining the implementation of this model in other community-based as well as university-based surgery residency programs need to be performed to determine whether this or a similar model is a candidate for the single structural model sought by the SRRC to improve continuity of care. This model may at least serve as a template on which to make improvements on the path to creating a yardstick to compare all surgery residency programs' compliance with continuity of care.

During our study we noted that although all of our primary care residency programs have residency-run ambulatory care practices, there were minimal referrals between the primary care and surgical resident staff practices. Encouragement of greater consultation and referrals among the residency staff in the ambulatory arena would both increase the volume of patients encountered and grant experiences in referral patterns for residents of all specialties.

**REFERENCES**