Improved Continuity of Care in a Community Teaching Hospital Model

Vijay Mittal, MD; Whitney David, MD; Shun Young, MD; Alasdair McKendrick, MD; Thomas Gentile, Jr, MSA; Robert Casalou, MPH

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.

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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
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 7,635 inpatient surgical procedures per year. These figures include surgical subspecialties, such as cardiothoracic, plastic, and otorhinolaryngological procedures. A total of 3,975 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 335 cases in the last year of training. Our institution averages 28,900 inpatient admissions, including 9,400 “short stays” or less than 23-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 private practice 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.

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The third surgical service is the resident staff service, which is assigned to a senior resident and is supervised by an SAM member. The patients on the staff service are seen preoperatively and postoperatively in the staff surgical offices. Patients are also referred to the staff service from the emergency department and from other specialty resident ambulatory care practices. The staff service includes multiple trauma and other general surgical patients with acute conditions who are managed primarily by the senior resident through all phases of care under faculty supervision. The residents on the staff surgical service perform a variety of procedures, including exploratory laparotomies, laparoscopic cholecystectomies, appendectomies, mastectomies, breast biopsies, herniorrhaphies, colectomies, and gastric and esophageal operations.

Diligent record keeping was maintained by creating surgical office logs to be filled out by each resident. We created a clerical position dedicated specifically to updating patients’ medical records with the name of the resident involved with each step of their care. Finally, residents received repeated written and verbal reminders to follow up with patients and maintain their office and operative logs. Faculty aided compliance by allowing residents to attend various clinics as needed and in some cases notifying residents when patients they operated on would be coming to the clinic.

Our study monitors the experiences of the senior residents during the first 9 months since the inception of our model. We defined continuity of care as the same senior surgical resident having been involved with the same patient through all 6 phases of patient care as previously defined by the SRRC. We suspect our compliance rate with continuity of care before the implementation of our model fell way below the 23.7% rate discussed by Anderson et al. However, we had no prior formal record-keeping system and thus no control group with which to generate a statistical analysis.

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 465 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...
Although we examined only senior residents in this study, we suspect that, similar to many programs, continuity-of-care rates are decreased among junior residents. This is likely due to arrangement of call schedules and increased rotations outside the main hospital. Patient perception of continuity of care was not addressed in this study. This important issue may best be addressed by a separate study comparing patient perception to physician perception.

Finally, despite our diligent record-keeping efforts, our system lacks efficiency. Most of our record keeping is done by hand or with the aid of standard data processing computer programs. To maintain thorough documentation and increased accuracy, we are in the process of implementing a specialized computer program. The ideal program would be linked to residents' operative logs, allow patient information to be accessed by a number of different pathways, reveal patients' follow-up schedule in advance, and provide a patient notification system.

Reprints: Vijay Mittal, MD, Providence Hospital and Medical Centers, 16001 W Nine Mile Rd, Southfield, MI 48075 (e-mail: VMITTAL@providence-hospital.org).

REFERENCES