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Fragmented care: a practicing surgeon's response

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Since the introduction of duty hour restrictions by the US Accreditation Council for Graduate Medical Education (ACGME) in 2003, there has been an ongoing debate in the surgical community about the impact on resident education and the quality of patient care.^{1 2} Similar concerns have been raised by surgical educators in European Union nations following the implementation of the European Working Time Directive late in the last century.³ These are not new questions. The term 'resident' derives from the fact that in past times, physicians in training actually lived in the hospital and were immediately available to provide care 24 h a day, 7 days a week. One may imagine the concerns when every other night call was instituted ('You will miss half the good cases!'). Additional expressions of concerns about the quality of care and education were raised when inhouse call was limited to every third night, and later the ACGME implemented, and then further adjusted, common duty hour limits for all specialties. Every time these changes were implemented, surgeons have tried to figure out how to do exactly what they have always done safely, but in fewer hours.

This approach for dealing with reduced hours has served surgical education well in the past. However, the current limits on duty hours for physicians in training worldwide requires a reframing of the approaches for clinical care, competency attainment and physician education. The models of surgical care and education were established during a time when hospital stays were long, preoperative and postoperative care was provided in the inpatient setting, and the percentage of patients who were severely ill was quite small.⁴ Major trauma, except in select areas, was less frequent, and often less severe. Many of the complex surgical procedures currently being performed were not yet available, or even conceived in surgeons' dreams. As a

consequence, the workload, acuity and intensity of service were mild to moderate most of the time. And, most important, few were looking into medical errors and adverse events. Yet, remarkably, every surgeon over 50 years of age vividly remembers falling asleep in the operating room or at the nurses' station in the Emergency Department while reviewing a patient's chart.

Let me fast forward to the current millennium. Patients are admitted to the hospital on the morning of surgery and discharged as soon as possible following the procedure. Readmissions are frequent, but the patients are usually sick. Over the past decades, hospitals have developed into massive intensive care units attached to an emergency department, and many of the patients that made up the bulk of the inpatient census of the past are now receiving their care in the ambulatory setting. The surgical unit in a teaching hospital is a very different place from even 25 years ago, and would be unrecognisable to Dr Halsted, the originator of the modern-day surgical residency 100 years ago.

Approximately 6% of US hospitals are teaching hospitals that train resident physicians.⁵ Surgeons in the other 94% of hospitals go home at the end of the day. A hospitalist is available inhouse to provide routine care, and the surgeon is connected by cell phone for urgent events. Technology has made it possible for most surgeons to provide high-quality care, even in an increasingly complex surgical world. A consequence of the implementation of duty hour limits is that training time is more restricted, and care has become more fragmented. But the solution is NOT to return to the model of the past. The answer lies in identifying new ways to deliver care, better understand the growth and development of surgeons, and a focus on what adds real value in training. A current resident physician's day is inefficient. Many activities are redundant or repetitive, directed

more by tradition than by concern about acquiring competency or the quality of patient care. In most hospitals, there are few decision tools that can be used at the point of care, and individuals rely largely on memory and heuristics.⁶ Computers are used principally for storing massive amounts of information that are rarely used for helping in the complex decision-making processes, or to support continuity of care.⁷

The concerns expressed by Whaler⁸ are genuine, and call for a comprehensive approach to address handovers through education, changes in practice and improved data management through health information technology. But more than just handovers must be on the table. It is time to start afresh, and take a new look at how resident education is conducted, from bottom to top. Particular focus should be placed on adding value to both patient care and resident training. Attention needs to be directed to better coaching and mentoring given the reduced training hours.⁹ Non-value-adding activities should be redesigned or eliminated. Computer systems should be re-engineered to ensure that they are not just data repositories but useful tools to improve decision making and care delivery, and to allow a team of individuals to jointly maintain continuity of care and information.¹⁰ The models for this could borrow liberally from other industries: aviation, space flight ground control, nuclear power plants and banking come immediately to mind as potential models.¹¹ And most importantly, the culture of resident education must change. Quality of patient care must be more explicitly linked to educational competencies, and not just symbolically so.

The quality of residents' professional training must assume greater importance as well. The current clinical practice climate, often 'abetted' by the new residency requirements, can fragment care, introduce frequent handovers, and prevent residents from participating in the continuum of a patient's care. Perhaps future technology will facilitate handovers and transitions, and provide important linkages between the inpatient and ambulatory components of a given patient's care. But at the moment, resident physicians often serve as the 'glue' that holds everything together, and the 'glue' is being pulled in too many directions at the same time. This may mean a refocusing of a programme director's primary responsibility toward assuring an optimum training environment, motivated and capable faculty, and an integrated education curriculum that collectively support the development of competent physicians.

Limits on work hours have had an added unintended negative effect on continuity of care for surgical patients. It is easy for surgical residency training to focus on 'doing operations' and not on the broader goal of providing comprehensive care from initial assessment through treatment, management of complications, if

needed, to postoperative follow-up and convalescence. Consultations, often well justified, can become 'transfers' of preoperative and postoperative responsibility, which may make the resident's day easier, but can seriously fragment both the continuity of care of the patient and the continuum of the resident's educational exposure to patients. Application of 'team training' concepts can convert 'piecework' into 'shared responsibility', but requires a careful thought and a different approach to management of information intended to allow a team to collectively assume responsibility for patients and their continuity of care.¹² Adding explicit feedback to trainees about their non-technical skills can add to the overall needs to grow a systems thinking and surgical leadership. Perhaps, a model of continuity of care vested fully in an individual working long hours—the hallmark of surgical residency decades ago – is not feasible in the current, fast-paced, complex world.¹³ But modern technology, targeted to improve communication, access information and enhance decision making, can create a new form of continuity that enhances both patient care and resident training.¹⁴ Applying proven organisational learning frameworks from other domains, such as high reliability, organisational theory could dramatically improve surgical performance.¹⁵

Many other industries have learned that building in quality from the floor up results in better outcomes, lower costs, fewer mistakes and happier workers. Lessons learned can be adapted and applied to the surgical care 'model': LEAN manufacturing and Six Sigma, for example, can be used to improve the quality of surgical training by enhancing efficiency and safety, and reducing variability.¹⁶ Strengthening communication and continuity are equally important. Dr Wohlauer's call for an explicit curriculum on handovers is a trumpet call that highlights an opportunity to make important changes that should benefit all.

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