

Residents' Perspectives on Patient Safety in University and Community Teaching Hospitals

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Abstract

Background Patient safety is an important concept in resident education. To date, few studies have assessed resident perceptions of patient safety across different specialties.

Objective The study explored residents' views on patient safety across the specialties of internal medicine, general surgery, and diagnostic radiology, focusing on common themes and differences.

Methods In fall 2012, interviews of small groups of senior residents in internal medicine, general surgery, and diagnostic radiology were conducted at 3 academic medical centers and 3 community teaching hospitals in 3 major US metropolitan areas. In total, 33 residents were interviewed. Interviews used interactive discussion to explore multiple facets of patient safety.

Results Residents identified lack of information, common errors, volume and acuity of patients, and inadequate supervision as major risks to patient safety. Specific threats to patient safety included communication problems, transitions of care, information technology interface issues, time constraints, and work flow. Residents disclosed that reporting safety issues was viewed as burdensome and carrying some degree of risk. There was variability as to whether residents would report safety threats they encountered.

Conclusions Residents are aware of threats to patient safety and have a unique perspective compared with other health care professionals. Transitions of care and communication problems were the most common safety threats identified by the residents interviewed.

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Introduction

In 2000, the Institute of Medicine's report *To Err Is Human: Building a Safer Health System*¹ highlighted serious concerns about the safety of patient care in the US health care system. In response, ensuring the safety of patient care became an important objective for resident education, with links to all 6 Accreditation Council for Graduate Medical Education (ACGME) competencies.²⁻⁷ There have been efforts to assess the safety of patient care within and across disciplines.^{3,8,9} When surveys have been

conducted to seek their perspective on the safety of care in teaching settings, residents have reported multiple errors and threats to patient safety, including a lack of procedural training, inadequate sign-outs, teamwork problems, supervision issues, technology interface glitches, and long work hours.¹⁰ To date, no study has used interactive discussion among residents from several specialties to explore their perceptions of patient safety and patient care across specialties.

In fall 2012, the author conducted a study to explore what senior residents in internal medicine, general surgery, and diagnostic radiology view as major threats to patient safety, both collectively and in their specialties, and what they perceive as barriers to safe patient care. The 3 specialties were selected because of their prevalence in university and community teaching hospitals and their regular interactions and opportunities for shared clinical experiences.

Methods

Study sites were selected with advice from ACGME senior vice presidents for hospital-based, medical, and surgical accreditation and the executive directors of the residency review committees for the 3 specialties.

The questions for the interview sessions were developed from a comprehensive review of the literature on patient

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safety and resident education in the medical and medical education literature from 2000 to 2012. Draft questions were reviewed by chairs of 2 residency review committees and experts on patient safety, who offered suggestions for refinement. The resulting draft and interview process were pilot tested at 1 university and 1 community teaching hospital, and revisions were made based on the participants' input. The final interview questions are shown in the BOX. For the study, 1-hour interviews were conducted at 6 institutions (3 university and 3 community teaching hospitals) located in 3 major US metropolitan areas. At each site, 2 peer-identified senior residents from each specialty were asked to participate in the interview.

The study protocol and study materials were approved by the Institutional Review Board at the American Institutes for Research.

Interviews were conducted in an interactive format. Although all 8 study questions were raised, the interviewer used prompts only for clarification purposes and allowed the discussion among participants to progress on its own accord. Interviews were digitally recorded and transcribed, and themes were identified by the investigator. Recordings and transcriptions were reviewed and verified for accuracy by a second ACGME field representative with experience in qualitative interview research. Agreement by both reviewers was required for a theme to be included in the final set of themes. Themes were aggregated into larger categories over multiple iterations of review and categorization, using accepted approaches for content analysis in qualitative research.^{11,12}

Results

Thirty-three residents were interviewed. Scheduling problems prevented 3 general surgery residents from participating in the interviews.

Residents' Perception of Patient Safety and Common Safety Threats

In response to the question "What constitutes patient safety?" residents across the 3 specialties mentioned some form of "do no harm" and emphasized the importance of adhering to standards of care (ie, doing the right thing for the right patient at the right time).

In response to the question about risks to patient safety they had experienced in recent months, interviewees reported many types, including medication errors and general errors (eg, wrong patient, wrong procedure, wrong site) as well as information being not available, lost, or distorted during transitions of care.

The analysis explored particular safety threats perceived by residents in each of the 3 specialties, and differences between university and community teaching

BOX	INTERVIEW QUESTIONS
	From your perspective as a resident in internal medicine, general surgery, or diagnostic radiology:
	1. What constitutes patient safety?
	2. What constitute risks to patient safety within your specialty?
	3. What are examples of risks to patient safety you have observed in the past few months?
	4. What [physician] [program] [institutional] characteristics/factors contribute to increased risks to patient safety?
	5. How does your [program] [institution] support a culture of patient safety?
	6. What kinds of activities do you participate in within your institution that promote patient safety?
	7. What is your [collective] [individual] role in ensuring/facilitating patient safety?
	8. What can be done [by your specialty] [across your specialties] to improve patient care?

hospitals. Specialty-specific threats to safe care included medication-related issues for internal medicine and procedure-related risks for general surgery. For diagnostic radiology, threats included reactions to contrast, the dose of radiation for patients, magnetic resonance imaging safety, reporting findings to the correct person in a timely manner, and lack of involvement of diagnostic radiology in clinical decisions. There were no significant differences in types of errors, threats to patient safety, or underlying causes between university and community teaching hospitals.

Underlying Causes of Patient Safety Risks in Teaching Settings

Residents identified multiple threats to patient safety in teaching settings common to the 3 specialties and provided examples for each. The threats included communication problems and resulting lack of information, transitions of care, human-technology interface issues, lack of adequate supervision, volume/acuity, and time constraints.

Communication problems and the resulting lack of information or misinformation were encountered between individuals, within and among teams, and between services/specialties. They encompassed miscommunication, lack of communication, inappropriate communication, and not knowing who to call. As 1 general surgery resident commented, "Poor communication results in patient safety issues all of the time, the perception of things being communicated when they are not. Effective communication isn't necessarily an order in the computer or a note in the chart if nobody reads it or sees it."

Examples of lack of information that often resulted from communication problems included residents not knowing the patient or the prior course of care, lack of adequate clinical information provided when requesting a consult or radiologic study, and lack of information

provided when accepting a transfer patient from another department or hospital.

Care transitions, particularly transitions between teams and services, transfers from outside hospitals, and transfers between inpatient to ambulatory settings, were a common area residents perceived as a significant threat to patient safety. Residents commented on the amount of critical information that needs to be transmitted in a brief time period, the large volume of information available on every patient, and sign-out templates that are not accurate or current. Examples of vulnerable situations included times when the resident team who had accepted a patient had gone home and no member of the current team had pertinent information and times when attending-to-attending communications were not shared with the residents. Problems with care transitions also occurred at discharge from the hospital, when unsafe conditions included a lack of current, correct medication lists and problems in the transfer of information to the patient's primary care physician.

Information technology interface and electronic health record issues mentioned by interviewees related to systems not being integrated (eg, inpatient with outpatient, multiple systems within a hospital, different systems across unrelated hospitals, different systems within a particular health system), multiple logins, and some system safeguards that were perceived as distracting.

Lack of adequate supervision was commonly mentioned. Residents were sensitive to the risks associated with providing residents with progressive responsibility and experience while keeping patients safe.

Patient volume and acuity were mentioned as safety threats, particularly in terms of transfers of information between the day team and the night float team, team sign-outs, and the significant amount of information that needs to be considered for high-acuity patients. One general surgery resident noted, "Services where volume is the highest, that is where things will fall through the cracks."

Time constraints were mentioned as another threat to safe patient care. Some of these constraints result from limits on resident hours and lack of time to complete key patient care tasks.

Finally, safety issues are often viewed as additional. As 1 general surgery resident commented, safety issues are not a step in the process functionally but are viewed as a layer on top.

Reporting of Patient Safety Issues/Concerns

Participants offered a wide range of responses regarding reporting of safety issues and residents' roles in this process. Many residents indicated that they felt

comfortable or safe reporting actual safety issues, although a few reported their comfort was attending-dependent. Most residents who had reported a safety issue indicated that they had received direct or indirect feedback on its resolution. In contrast, the process for reporting a near miss was not clear to residents.

Processes were in place at departmental and/or institutional levels to report errors, but residents expressed concern about the degree to which those processes ensured confidentiality or anonymity. Some residents indicated that they would report all errors and safety threats, but others noted that reporting was highly variable, and almost a third of respondents mentioned that they would not report an error committed by another physician. Respondents indicated that chief residents often were the first line for reporting safety issues. Insufficient knowledge about exactly what to report as an error or safety threat was also identified as a barrier for reporting by more junior residents. A diagnostic radiology resident observed, "It is hard to report something that went wrong when you don't know what is right or wrong."

Residents emphasized that patient safety reporting takes time, and that formal reporting processes were viewed as burdensome. An internal medicine resident said, "It takes your initiative to sit down in the middle of being really busy to fill out the incident report . . . But most of the time it is too tedious and takes too much time and then things don't really change later. Most of the time you do the best you can and move forward."

Improving Patient Safety

Residents in the 3 specialties cited multiple examples of programs and institutions supporting patient safety. These included supervision, checks and balances in ordering medications and procedures, local and national quality improvement activities, simulations, internal peer review, morbidity and mortality and other conferences at which errors and unsafe conditions were discussed, and online learning modules. At the same time, residents only infrequently commented on the existence of an overall culture of patient safety, and some noted that institutional culture was seen a barrier to reporting unsafe events. A general surgery resident commented, "Safety things are still seen as a burden, and it is not cool to speak up about them."

Residents viewed their personal role in ensuring/facilitating patient safety to be integrated within these larger institutional efforts. Activities specifically mentioned included support for resident participation in patient safety activities and reporting of events and "near miss" situations. When asked how to improve patient safety in their respective specialties, residents mentioned improving

communications. Technology enhancements were commonly offered as a means for achieving this.

Discussion

This analysis focused on patient safety as perceived by senior residents in 3 specialties. Although the study is limited in scope, the findings echo previous survey findings on residents' perceptions of patient safety threats and offer further support for earlier research results that suggest that the causes of unsafe conditions and adverse events in teaching setting are complex.¹³ Residents are aware of the risks in their learning and work environment, and they see and experience things that others in the institution may not notice. Having a functional, integrated system to improve communication was viewed by all residents as being critical to patient safety and was the patient safety element they perceived to be most lacking at the present time.

A concerning finding for efforts to promote safe care is that residents perceive that there are risks in reporting unsafe conditions and adverse events. This is not unique to residents. Physician reporting of safety threats and adverse events remains quite low, despite more than a decade of efforts to implement and use patient safety reporting systems.¹⁴ To increase reporting, some have advocated for enhancing discussion of error disclosure and adverse event reporting at the early phases of physician education as well as expanding education about safe patient care in teaching hospitals by making it an explicit part of the curriculum.¹⁴ It also is concerning that although long hours and fatigue were mentioned by only a few residents as factors contributing to unsafe care, both were mentioned as barriers to residents taking the time to report an error or safety threat. This may also help explain the difference between residents' intent to report errors and the actual reporting mentioned by participants and found in earlier research.¹⁵

Areas for future research on residents' perspectives germane to enhancing patient safety include closing the gap between intended and actual reporting of errors; research shows that underreporting of adverse events can be reduced with basic education about errors and reporting procedures.¹⁶ Another area entails exploring the practical implications of establishing a true culture of patient safety in teaching institutions, including engaging residents in efforts to improve safety and taking advantage of their unique perspective.¹⁷ Gains in reporting of errors and unsafe conditions, and resident participation in quality and safety improvement efforts, likely will also be achieved through the efforts of the ACGME's Clinical

Learning Environment Review (CLER) program, which provides for regular onsite review of the learning environment and opportunities for sponsoring institutions to demonstrate leadership in patient safety and quality of care. The CLER Pathways to Excellence document released in early 2014 defined expectations for sponsoring institutions pertinent to 2 findings of this study: (1) enhancing resident awareness of error-reporting processes and their role in reporting errors and (2) involving residents in improving patient safety.¹⁸ The Pathways document also includes an expectation that institutions will create a culture of safety that might not have been present yet in the institutions represented in this study conducted in 2012.

Conclusion

Residents have a unique perspective on patient safety, and this report echoes earlier research showing greater complexity in errors and unsafe conditions in teaching settings. Resident involvement in efforts to improve the safety of care, including reporting of adverse events and threats to patient safety, will benefit care in teaching hospitals and in the settings in which graduates will practice after completing training. Patient safety should be evident at all levels of the health care system and should be valued and modeled by all participants, including residents.

References

- 1 Kohn LT, Corrigan JM, Donaldson MS, eds. *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academy Press; 2000.
- 2 Voss JD, May NB, Lyman JA, Schectman JM, Wolf AM, Nadkarni MM, et al. Changing conversations: teaching safety and quality in residency training. *Acad Med*. 2008;83(11):1080–1087.
- 3 Rogers RS, Pronovost P, Isaac T, Schoenfeld A, Leape L, Iezzoni LI, et al. Systematically seeking clinicians' insights to identify new safety measures for intensive care units and general surgery services. *Am J Med Qual*. 2010;25(5):359–364.
- 4 Nabors C, Peterson SJ, Weems R, Forman L, Mumtaz A, Goldberg R, et al. A multidisciplinary approach for teaching systems-based practice to internal medicine residents. *J Grad Med Educ*. 2011;3(1):75–80.
- 5 Schleyer AM, Best JA, McIntyre LK, Ehrmantraut R, Calver P, Goss JR. Improving resident engagement in quality improvement and patient safety initiatives at the bedside: the Advocate for Clinical Education (ACE). *Am J Med Qual*. 2013;28(3):243–249.
- 6 Tapia NM, Milewicz A, Whitney SE, Liang MK, Braxton CC. Identifying and eliminating deficiencies in the general surgery resident core competency curriculum. *JAMA Surg*. 2014 April 2. doi: 10.1001/jamasurg.2013.4406. Epub ahead of print.
- 7 Relyea-Chew A, Talner LB. A dedicated general competencies curriculum for radiology residents development and implementation. *Acad Radiol*. 2011;18(5):650–654.
- 8 Harish J, Sheth H, Verrico M, Perera S, Bump G, Simak D, et al. Assessing patient safety culture of internal medicine house staff in an academic teaching hospital. *J Grad Med Educ*. 2009;1(1):139–145.
- 9 Frankel A, Gandhi TK, Bates DW. Improving patient safety across a large integrated health care delivery system. *Int J Qual Health Care*. 2003;5(suppl 1):131–140.
- 10 Sorokin R, Riggio JM, Moleski S, Sullivan J. Physicians-in-training attitudes on patient safety: 2003 to 2008. *J Patient Saf*. 2011;7(3):133–138.

- 11 Mayring P. Qualitative content analysis. *Forum: Qualitative Social Research*. 2000;1(2). <http://www.qualitative-research.net/index.php/fqs/article/view/1089/2385>. Accessed July 18, 2014.
- 12 Hsieh HF, Shannon SE. Three approaches to content analysis. *Qual Health Res*. 2005;15(9):1277–1288.
- 13 Singh H, Thomas EJ, Petersen LA, Studdert DM. Medical errors involving trainees: a study of closed malpractice claims from 5 insurers. *Arch Intern Med*. 2007;167(19):2030–2036.
- 14 Nguyen QT, Weinberg J, Hilborne LH. Physician event reporting: training the next generation of physicians. In: Henriksen K, Battles JB, Marks ES, Lewin DI, eds. *Advances in Patient Safety: From Research to Implementation (Volume 4: Programs, Tools, and Products)*. Rockville, MD: Agency for Healthcare Research and Quality; 2005.
- 15 Kaldjian LC, Jones EW, Wu BJ, Forman-Hoffman VL, Levi BH, Rosenthal GE. Reporting medical errors to improve patient safety: a survey of physicians in teaching hospitals. *Arch Intern Med*. 2008;168(1):40–46.
- 16 Logio LS, Ramanujam R. Medical trainees' formal and informal incident reporting across a five-hospital academic medical center. *Jt Comm J Qual Patient Saf*. 2010;36(1):36–42.
- 17 Weiss KB, Wagner R, Bagian JP, Newton RC, Patow CA, Nasca TJ. Advances in the ACGME Clinical Learning Environment Review (CLER) program. *J Grad Med Educ*. 2013;5(4):718–721.
- 18 Clinical Learning Environment Review. Pathways to Excellence. Accreditation Council for Graduate Medical Education, Chicago IL. January 2014. http://www.acgme.org/acgmeweb/Portals/o/PDFs/CLER/CLER_Brochure.pdf. Accessed April 26, 2014.