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# Education

# A NOVEL PROGRAM TO IMPROVE PATIENT SAFETY BY INTEGRATING PEER REVIEW INTO THE EMERGENCY MEDICINE RESIDENCY CURRICULUM

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☐ **Abstract—Background: Evaluating the quality of care as part of a quality improvement process is required in many clinical environments by accrediting bodies. It produces metrics used to evaluate department and individual provider performance, provides outcomes-based feedback to clinicians, and identifies ways to reduce error. Discussion: To improve patient safety and train our residents to perform peer review, we expanded our quality assurance program from a narrow, administrative process carried out by a small number of attendings to an educationally focused activity of much greater scope incorporating all residents on a monthly basis. We developed an explicit system by which residents analyze sets of high-risk cases and record their impressions onto structured databases, which are reviewed by faculty. At monthly meetings, results from the month's case reviews are presented, learning points discussed, and corrective actions are proposed. Conclusion: By integrating Clinical Quality Review (CQR) as a core, continuous component of the residency curriculum, we increased the number of cases reviewed more than 10-fold and implemented a variety of clinical process improvements. An anonymous survey conducted after 2 years of resident-led CQR indicated that residents value their exposure to the peer review process and feel it benefits them as clinicians, but also that the program requires a significant investment of time that can be burdensome.** © **2014 Elsevier Inc.**

☐ **Keywords—peer review; quality; patient safety; administration; education; quality improvement; quality assurance; continued quality improvement; resident education; error; medical error**

## INTRODUCTION

All clinical departments review cases to evaluate quality of care as part of a process variously known as peer review, quality improvement/patient safety, or quality assurance; we call this activity Clinical Quality Review (CQR) (1). CQR is required in many clinical environments by accrediting bodies (2). It produces metrics used to evaluate department and individual provider performance, provides outcomes-based feedback to clinicians, and identifies processes that contribute to inefficiency and error (3).

Our institution is comprised of two urban tertiary care hospitals with emergency departments (EDs) each receiving >100,000 visits per year, staffed by 70 faculty and 60 Emergency Medicine residents. CQR had been done as a routine administrative process by a small number of attendings, and cases were evaluated predominantly for success against mandatory benchmarks such as time to antibiotic in pneumonia and door-to-balloon time in ST-segment elevation myocardial infarction (STEMI) – these metrics pursued more as regulatory standards than as a representation of the quality of the care the benchmarks were designed to measure. Discussion of concerning cases was confined to the department leadership and involved providers. Most residents were engaged in peer review only as occasional presenters at morbidity and mortality rounds.

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We greatly expanded the scope and yield of our CQR and integrated all 60 residents in our 4-year program into the CQR process as a continuous, core component of the curriculum. Our goals were to improve patient care through the systematic, proactive analysis of high-risk cases; expose residents to the performance improvement process and chart review; and improve the translation of knowledge gained from peer review across the entire department. Similar efforts have been described in other specialties, but the diversity of patient care goals, lack of accepted quality metrics, and provider scheduling patterns unique to Emergency Medicine make this initiative especially challenging (4–7). After 2 years of CQR, we surveyed the residents to evaluate their opinion of the process.

## THE CLINICAL QUALITY REVIEW PROCESS

We identified 13 CQR case groups representing high-risk patients or having otherwise high educational or administrative value (e.g., ED mortalities, 72-h returns, trauma team activations, STEMI alerts, patient complaints); each case group is assigned a team of two to seven residents. Teams are reshuffled every 6 months, allowing each resident to rotate through eight CQR case groups during their training. For each case group, we created an instructions document (Supplement 1) and a database template (Supplement 2). The instructions document describes the objectives specific to the case group and presents detailed directions on how to perform the chart review and populate the case group database. The database – the primary product of CQR – is a spreadsheet containing all the patient data pertinent to the case group objectives as well as the reviewer assessment.

Every month, the CQR faculty leaders issue a report listing all the cases from the prior month to the resident leader of each CQR case group, who distributes these cases across the members of the team. Team members review the medical record for each of their allotted cases, discuss the case with involved providers if needed, and document their findings and assessment in the database, which they submit back to the resident case group leader. The team leader consolidates these into a single database document and submits it to the faculty leader 1 week prior to the CQR meeting.

In the week leading up to the CQR meeting, the faculty leader reviews the submitted cases, flagging cases of concern or of particular learning value, and further inspects the medical record or discusses the case with providers as needed. Either the faculty or resident reviewer may notify providers of concerns arising from case review or case progression. Example *CQR Patrol* e-mail notifications include a reminder that a blood gas should be performed within 90 min after intubation, that antibiotics should be initiated within 60 min after identification of severe sepsis, or that a patient discharged with a diagnosis of gastroenteritis returned with cholecystitis.

During the monthly CQR meeting, which is integrated into resident conference and therefore attended by most residents and many faculty, results from the month's case reviews are presented, learning points and opportunities for improvement discussed, and difficult cases deliberated. Meeting minutes are recorded, summarizing the results of the review, outlining responses to concerning cases, and proposing further steps to be taken in cases where ongoing concerns exist; these minutes are submitted to department and hospital leadership. A separate list of anonymized clinical learning points is recorded and distributed to the department and more widely to the emergency medicine community.

## THE CLINICAL QUALITY REVIEW PRODUCT

From January through December 2012, 60 residents reviewed 4458 high-risk patient visits at our two hospital sites. Each month, 10–20 providers were notified of care concerns or unexpected outcomes, and 5–10 teaching pearls, *Q-Tips,* were generated and circulated to our department and our affiliates. There were 194 cases flagged for suboptimal care, resulting in a variety of patient care process improvements. These improvements included the development of a severe sepsis order set, detailed endotracheal intubation and central line procedure notes, which encourage best practice, and a rule-out ectopic algorithm designed to unify care around a set of management principles.

## RESIDENT SURVEY

After conducting CQR for 2 full academic years, we administered an electronic three-question survey to the participating residents. To ensure both complete participation and anonymity, we used an independent research associate to collect the electronic surveys, send individual reminders, and abstract the anonymized responses. This study was reviewed and accepted by our institutional review board.

All 60 residents responded to the three-question survey (Results: Figure 1). Eighty-five percent (51 residents) either agreed or strongly agreed that "participating in CQR has made me a better clinician." Seventy percent (42 residents) either agreed or strongly agreed that "the quality of care delivered to patients in the ED is higher due to resident participation in CQR." Seventy-seven percent (46 residents) either agreed or strongly agreed that "Overall, CQR is a valuable addition to the residency curriculum."