

## 46 Resident as Expert: A Novel Approach to Teaching and Practicing Quality Improvement

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**Background:** Physicians are increasingly expected to participate in quality improvement. At teaching hospitals, residents constitute a valuable “brain trust.” As front-line providers, they identify operational inefficiency. As learners, they review the latest literature to inform clinical practice. Naming the resident learner as the department’s “expert” in a clinical area provides a means to harvest this “brain trust” to improve patients’ experience and outcomes. However, many residents have limited, if any, experience in conducting quality improvement.

**Educational Objectives:** To create a framework for residents to learn and practice quality improvement while developing an area of expertise within the broad scope of emergency medicine (EM) practice.

**Curricular Design:** Each of 36 EM residents in a PGY1-3 program selects a clinical area on which to focus. With a faculty advisor, the resident critically appraises the latest published literature and assesses current institutional practice. The expert identifies a need and develops a quality improvement project.

A steering committee reviews the progress of each project annually to identify barriers, opportunities, and methods of dissemination. These may include educational sessions (lectures, workshops, simulation) or updating existing protocols/guidelines.

The expert becomes the department’s “point person” for the topic area, leading discussions on rounds and presenting at resident conference. Faculty advisors support the resident experts by directing them to high quality sources of information, helping to select metrics, and sharing publication/presentation opportunities.

**Impact/Effectiveness:** In the pilot year (2015-2016) only PGY1-2 residents (n=24) participated, so as to develop longitudinal projects. At the end of the year, nearly 90% reported they learned about their topic. The majority felt such a program would help them professionally and help their department/institution.

We identified opportunities for clarifying expectations, as well as improving support from advisors and from the steering committee. We added flexibility with regard to topic selection and types of projects. In fewer than 18 months, the program has generated 16 new or updated clinical protocols or guidelines, and resident involvement in quality improvement has increased dramatically.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
I have learned about my assigned content area by participating in the Content Expert Program (CEP).	0.00% 0	4.17% 1	8.33% 2	58.33% 14	29.17% 7	24
I believe the Content Expert Program will help me professionally.	4.17% 1	0.00% 0	25.00% 6	41.67% 10	29.17% 7	24
I believe the Content Expert Program will help my department/institution.	0.00% 0	0.00% 0	20.83% 5	54.17% 13	25.00% 6	24

## 47 Role of Teaching Resident in Emergency Medicine Residency Program

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**Background:** Medical student rotations in Emergency Medicine (EM) can be difficult for students to obtain autonomy and proficiency due to high volumes and acuity. The creation of a dedicated teaching rotation is a novel concept that enables students to have constant supervision and guidance by a senior resident while honing vital skills like obtaining H&P’s, formulating differential diagnoses and treatment plans, and performing a wide array of procedures rarely afforded in a busy Emergency Department (ED). This rotation allows the senior resident to become a teaching supervisor and ultimately introduces them to the role as a clinical educator.

**Educational Objectives:** Expose students to patient assessment, procedures, and emergency management of patients entering a metropolitan ED and Trauma Center under the supervision of a senior resident. Allow residents the opportunity to demonstrate level 4-5 milestone achievement in sub-competencies such as General Approach to Procedures, Airway Management, Practice-based Performance Improvement, Systems Based Practice, Wound Management and Vascular Access.

**Curricular Design:** Structured educational rotation with 4th year medical students working directly with 3rd year EM residents at high-volume Level 1 Trauma Adult and Pediatric ED’s. Students were scheduled fifteen 8 hour shifts during their rotation, five of which were in the pediatric ED where there was no dedicated teaching resident. Students were involved in their patients’ care throughout their ED stay from door to disposition, including all associated procedures. They were also involved in interesting educational cases that were in the ED during their shift (trauma alerts, medical codes, etc.). Students and residents completed surveys via free text response and online ranking (1-9) respectively at the end of the rotation.

**Impact/Effectiveness:** At the end of their rotation, each student was asked to complete a free response survey including the best/worst aspects of their rotation. From 08/12-10/16, a total of the 214 students submitted surveys. Of these students, 140/306 (46%) of responses found the teaching resident as the best aspect of the rotation. 51/241 (21%) responses listed “Nothing/ Not Applicable” as the

worst aspect. During the same time period, residents found the quality of the rotation to be “Excellent” based on an average of 7.83/9. Refer to tables for specific breakdown.

Retrospective Review of Rotating Student Post-Rotation Survey 8/2012-10/2016				
	Top 10 Best Aspects	Number of responses (N=306)	Top 10 Worst Aspects	Number of responses (N=241)
1	Teaching Resident	140 (46%)	Nothing/ Not Applicable	51 (21%)
2	Faculty/ Staff/ Residents	43 (14%)	No Teaching Resident at Pediatric ED	47 (19.5%)
3	Procedures	38 (12%)	Too Many Students on a Shift	29 (12%)
4	SIM/ US/ Procedure Labs	17 (5.6%)	Pediatric ED Shifts	25 (10.4%)
5	Patient Variety/ Pathology	15 (4.9%)	Limited Night/ Weekend Shifts	15 (6.2%)
6	Conference/ Journal Club	14 (4.6%)	Conferences	12 (5%)
7	Autonomy/ Ownership of Patients	13 (4.2%)	Not Enough Patients	11 (4.6%)
8	Pediatric ED	11 (3.6%)	Schedule/ Shift Turnaround	8 (3.3%)
9	Trauma Exposure	4 (1.3%)	Limited Attending Interaction	8 (3.3%)
10	Learning Environment	2 (0.65%)	Presenting to Multiple Attendings	5 (2.1%)

	Resident Responses to “Evaluate Quality of Clinical Experience” for Teaching Rotation		
	Number of Responses	Period of Evaluations	Average Response (1-9)
	7	7/1/12-6/30/13	8.43
	14	7/1/13-6/30/14	7.93
	12	7/1/14-6/30/15	7.27
	13	7/1/15-6/26/16	7.77
	6	6/27/16-7/2/17	8.33
Total	52	-	7.85

## 48 Small-Group Shift for Assessment of Entrustable Professional Activities in an EM Clerkship

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**Background:** Entrustable professional activities (EPA) have gained acceptance in UME to assess readiness to transition from medical student to intern. The best method for evaluating students within the EPA context has not been identified. Many of the EPA can be routinely evaluated in a single ED shift.

**Educational Objectives:** The goal is to evaluate fourth year medical student’s proficiency in EPA 1-10 during an ED shift.

**Curricular Design:** Many methods have been described

to assess a single EPA using simulated patients. This is time and resource intensive.

Small-Group Shift (SGS) consists of 4-6 students and one faculty facilitator. Each patient interaction is directly observed by the facilitator. Then follows a discussion of differential diagnosis, plan and identification as sick or not-sick. The student then enters orders and a note including a pertinent literature reference. Meanwhile the next student’s patient interaction is observed. The cycle continues until all students have seen a patient. Each student presents his case to the group. At the end, each student is observed transitioning care to the next provider.

Evaluation categories for EPA 1-10 are “Entrustable”, “Pre-entrustable”, or “Remediation”.

Several limitations were encountered. Students are idle until they see their first patient. Space is needed within the ED to allow group discussion. Assessing transition of care is not always possible if the patient has been discharged.

**Impact/Effectiveness:** 48% of students (n=27) felt SGS exceeded expectations and 48% felt it met expectations. 74% of students felt the facilitator’s teaching skills exceeded expectations.

Positive themes from student feedback included a sense of autonomy, real-time feedback on plans and learning from peers during case discussions. Downtime was noted as a negative.

The SGS is the first method described allowing one faculty member to assess multiple students simultaneously on most EPA using real patients. The SGS offers a time- and cost-effective method of evaluating a large number of students.

