

# Optimizing Resident Training: Results and Recommendations of the 2009 Council of Residency Directors Consensus Conference

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## Abstract

This paper reports the results of a consensus conference of the Council of Emergency Medicine Residency Directors (CORD) to discuss the experiential training component of residency education in the emergency department (ED) and to make recommendations on structuring clinical training.

Self-selected emergency medicine (EM) educators discussed experiential training focusing on three topic areas: 1) methods to optimize training in the clinical setting, 2) identification of goals and objectives by training year, and 3) determination of measurable behaviors demonstrating achievement of goals and objectives by residents. Topic areas were organized into the following questions: 1) what is the optimal number and evolution of ED shifts for EM residents during their residency training, 2) what clinical skills are expected of a resident at each level of training, and 3) what objective measures should be used to provide evidence of resident competency?

Participants attended a lecture on the goals of the conference, the questions to be answered, and the role and implementation of deliberate practice into experiential training. Attendees were divided into three groups, each discussing one question. Each group had two discussion leaders. All discussions were digitally recorded for accuracy. After discussion all groups reconvened and reported summaries of discussions and recommendations to ensure group agreement. There were 59 participants representing 42 training programs.

Educators agree that essential features of designing the ED clinical experience include the need to: 1) structure and tailor the clinical experience to optimize learning, 2) establish expectations for clinical performance based on year of training, and 3) provide feedback that is explicit to year-specific performance expectations.

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Physicians, educators, and cognitive psychologists agree that the experience of seeing patients during residency training is crucial to the transformation of medical students into competent physicians.<sup>1-4</sup> The clinical experience is considered the consummate developer of expertise in medicine.<sup>5</sup> At the start of the learning continuum is the medical student, who has assimilated a large body of facts and information and is

often unable to use these to solve patient problems. This information has been termed “inert” based on the student’s inability to use it to solve problems or even to recall it from long-term memory.<sup>6,7</sup> It is the experiential training during residency, combined with continued didactic education, that enables medical students to convert the information acquired in medical school into the hierarchal knowledge structures and intellectual skills that will allow their transformation from students into physicians. Experts in medical education have promoted essential concepts in learning theory that serve as a foundation for designing the clinical experience in medical education. Kolb<sup>8</sup> has defined learning as “the process whereby knowledge is created through the transformation of experience.” Knowledge results from the combination of grasping and transforming experience. He describes a four-stage learning cycle that includes concrete experience, abstract conceptualization, reflective observation, and active experimentation to transform experience into knowledge.<sup>8</sup> The challenge is to create a

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clinical experience that incorporates and allows for all stages in the learning cycle. Simply scheduling a resident for a clinical shift does not ensure that actual learning will take place.

It is not only intuitive, but also supported by evidence that learners must engage in activities unique to their field of study to achieve competence and go on to attain expertise.<sup>9</sup> When activities are structured specifically with the intent of achieving competency, those activities and the manner in which they are structured have been termed “deliberate practice.”<sup>4,10</sup> Deliberate practice is directly linked to development of expertise.<sup>11</sup> The components of deliberate practice include: 1) the practice of activities of appropriate difficulty. These activities must be difficult but not impossible for a learner. The learner must be challenged in performance but have the prerequisite knowledge/skills to allow success at some point during practice. 2) There must be proximate feedback from supervisors/teachers on the performance so that the learner is informed as to what part of the performance is correct and what actions or mental representations need modification. There must be continued, periodic feedback to the learner as performance is modified during repeated practice. 3) Repetition of the performance has to occur until it can be performed correctly and effortlessly. 4) The learner must concentrate/reflect on the performance as it is occurring to incorporate recommended changes and know when actions are correct. Reflection by the learner must also occur after performance as learning continues during this period.<sup>12</sup> 5) Once an acceptable level of performance has occurred, another task is selected for deliberate practice, but the learner must continue to work to ensure that the level of performance of previously learned tasks continues to improve. It is important to recognize that deliberate practice is fatiguing with a decrement in attention and effort once fatigue has occurred.<sup>4</sup>

An effective clinical experience enables the resident to acquire an extensive library of “illness scripts,” which are the knowledge structures or mental abstractions that enable experienced physicians to correctly evaluate and treat patients.<sup>13,14</sup> Experienced residents have more illness scripts stored in memory compared to novice or inexperienced residents. This allows the experienced resident to rapidly obtain the pertinent history and physical examination and then use this information to correctly evaluate and treat a patient.<sup>15</sup> These stored illness scripts also enable experienced residents and physicians to use “pattern recognition” to rapidly diagnose disease states, in contrast to the slower method of hypothico-deductive reasoning used by inexperienced residents.<sup>16,17</sup>

Bedside learning is an excellent opportunity for deliberate practice to occur when it incorporates the needed elements as described above. Medical educators must incorporate deliberate practice into training programs and then assess learners to determine if they have mastered curricular objectives and can use them to solve patient problems. Simply seeing patients may or may not result in a competent physician. Instead, it is the way in which experiential training is structured that allows and fosters the acquisition of competence and

eventually expertise.<sup>5,12</sup> The clinical rotations in the emergency department (ED) provide the bulk of the experiential training for emergency medicine (EM) residents.

The Model Curriculum for Emergency Medicine (Model Curriculum) provides a detailed outline of the required educational content for EM trainees.<sup>18,19</sup> This content, coupled with the training requirements outlined by the Accreditation Council for Graduate Medical Education (ACGME) and the Residency Review Committee for Emergency Medicine (RRC-EM), provide an overall structural framework for the didactic and clinical components of training.<sup>20,21</sup> Program directors (PDs) are then expected to design and implement the content and structure of both the didactic and the clinical curricula, the only criterion being that they meet certain standards set by the ACGME and RRC-EM. The design and the contents of the didactic curriculum is a common topic of discussion by educators because it is a weekly, required educational period of 5 hours mandated by the RRC-EM. The material that needs to be covered is well outlined by the Model Curriculum and there are numerous reports of innovative approaches to teaching the didactic curriculum that include simulation, topic modules, case conferences, and off-site education to supplement the traditional lecture format.<sup>22,23</sup>

In contrast, the overall design and structure of the ED experiential curriculum has received little focused attention from EM educators. The program requirements of the RRC-EM provide guidelines for patient volumes, optimal resident/patient ratios, procedural experiences, and exposure to critically ill and pediatric patients, but not the detailed elements of clinical training. Designing a clinical program that provides optimal educational experiences for the individual resident, at each stage of training, remains a complex and challenging but necessary goal. In contrast to the clinical training provided by inpatient floor or intensive care unit rotations where the experience is fairly consistent, the ED environment varies enormously with respect to patient volumes, acuity, and clinical demands placed on both the trainee and the teacher. Indeed, this environment is described as chaotic.<sup>24</sup> The challenge to the program is to optimize the clinical experience for residents at each stage of training in this type of environment and to use the very unpredictability and variability of the learning environment to ensure that graduated residents are competent to practice in this environment.

The authors were asked to organize a consensus conference on the topic of structuring clinical training in EM to be held at the annual Council of Emergency Medicine Residency Directors (CORD) meeting of educators in EM. The impetus for this conference was an informal discussion and debate by EM educators as to how training in the clinical setting of an ED should be structured to optimally foster learning. The goal of this 2-hour conference was to examine the “best practices” agreed on by educators for designing a clinical EM curriculum that fosters competency upon graduation. The conference was held at the CORD Academic Assembly, Las Vegas, NV, in March 2009.

## METHODS

This article reports the methodology used to structure the consensus conference and the results and recommendations of the discussion, using evidence to support those recommendations whenever it is available. This study was approved by the Human Investigation Committee of Wayne State University. The overall goal of the conference was to examine the clinical training of EM residents in the ED with the goal of optimizing trainee experiences at each stage of training. The discussion was designed to focus on three discrete questions:

- Main Question I: What is the optimal number and evolution of ED shifts for EM residents during their residency training?
- Main Question II: What clinical skills are expected of a resident at each level of training?
- Main Question III: What objective measures should be used to provide evidence of resident competency?

Two discussion leaders for each topic area were selected based on years of experience as PDs/associate PDs and involvement in academic EM. Discussion leaders (DB, WC, DC, RK, SH; see Data Supplement S1, available as supporting information in the online version of this paper) were given two articles. The first defined and described the components of deliberate practice.<sup>11</sup> The second described how Dreyfus and Dreyfus explained the process by which novices acquire expertise through clinical experiences, as well as how to assess this learning.<sup>17</sup> Conference organizers and discussion group leaders discussed the questions to be posed to the groups in detail to ensure understanding of their meaning, using the theoretical frameworks of Ericsson<sup>10</sup> and Carraccio et al.<sup>17</sup>

The attendees of the conference were self-selected EM educators. The session began with an introductory talk outlining the session objectives, the concept of deliberate practice, progression of residents along a learning continuum, and the need to assess the skills of residents in their clinical education. Participants were broken into three evenly divided groups. Each group had two discussion leaders and a reporter to record pertinent discussion and recommendations. All group discussions were digitally recorded as a post hoc aide to the consensus organizers and group leaders in preparation of their reports of the group discussions. After the introductory presentation, each group met for 1 hour. The findings of the individual groups were then presented and discussed with the entire group prior to the conclusion of the consensus conference to ensure

agreement with the statements and recommendations. Each “Main Question” was addressed by one of the three discussion groups.

## RESULTS

There were 59 participants representing 42 training programs (Data Supplement S1). Demographics of the attendees' current position and experience are shown in Table 1. The reports of the focus groups are framed by the question they were asked to discuss.

### Main Question I: What Is the Optimal Number and Evolution of ED Shifts for EM Residents During Their Residency Training?

**Method Used to Frame the Discussion:** In an ideal educational situation, with no constraints upon resources or scheduling needs, what educational goals should drive decisions regarding clinical scheduling for EM residents working in the ED?

**Report of Group Discussion:** Participants agreed that clinical responsibilities need to be structured for each year of training and educational goals should ideally drive clinical duties and assignments. The group discussion focused on interns in their Postgraduate Year 1 (PGY1) and senior residents in their Postgraduate Year 3 (PGY3).

Faculty agreed on the following with regard to intern training. Interns should concentrate on acquiring excellent skills in patient evaluation, differential diagnosis, and delivery of care rather than attempting to see a large number of patients. They agreed that the number of patients seen by interns should range from 0.7 to 0.8 patients per hour and that this number ideally increases in the second half of the year as the intern gains skills and efficiency in evaluating and caring for patients. Interns need to be immersed in the clinical experience but not to the point of exhaustion. This is especially true when they are seeing or participating in the care of critical patients.

Faculty felt that interns should see critically ill patients but that they should have support by attending physicians or senior residents so they are not overwhelmed by the need to care for a critically ill patient. Rather, they should be allowed to perform those portions of the exam, procedures, or treatment interventions that were within their capabilities. Interns should not be protected by assignment to a clinical area of lower patient acuity. It also may be appropriate to

Table 1  
Demographics of Conference Participants

Position	Number	Collective Years of Experience of Attendees in Position	Mean Years in Current Position	Range
PD	16	79	4.9	1–17
APD	26	73	2.8	1–8
Other	8	19.5	2.47	1–5.5
Attending physician	3	4	1.5	1–2

APD = associate or assistant program director; other = researcher, medical student, educational director; PD = program director.

consider shorter shifts for interns, e.g., 8 hours. Interns assigned 12-hour shifts should be given time toward the end of the shift to reassess patients and plan disposition of these patients. They should also be encouraged not to see new patients toward the end of the shift. When faced with an unfamiliar disease or ancillary test, interns should be given the opportunity to read about these uncertainties to anchor knowledge to clinical experiences. Feedback should be provided to interns on a frequent basis.

Faculty then discussed the clinical experience for senior residents. They agreed that seniors should have a reduced number of shifts to allow for nonclinical duties including teaching and administrative tasks. Senior residents need supervisory and teaching responsibilities to aid in their development in these areas. The supervision of junior residents and medical students encourages senior residents to act as role models and help junior residents achieve efficiency and provides opportunities to see where bottlenecks in patient care are occurring. This then helps the senior resident to learn how to facilitate patient care. Teaching responsibilities should include teaching medical students and interns, but also nursing staff, midlevel practitioners, prehospital care providers, and, importantly, patients and families.

Resident work hours were discussed in detail. The group felt that setting resident work hours at 50–60/week is appropriate. While shift assignments currently range in number from 20–22 per month, the majority of faculty felt that 18 shifts/month is ideal. Although shift lengths range from 8–12 hours in most programs, the majority of faculty felt that a 10-hour shift is optimal for balancing clinical exposure with fatigue.

### **Main Question II: What Clinical Skills Are Expected of a Resident at Each Level of Training?**

**Methods to Frame the Discussion:** The facilitators asked the attendees to identify the clinical skills expected of a graduating resident in EM. Once these were defined, they then worked backward and narrowed the skill set to those expected of trainees in their second and first years of training (see Table 2).

**Report of Group Discussion:** Faculty felt it was vitally important to first establish expectations of clinical performance for each year of training. These expectations can then help guide the design of clinical experiences with specific training goals in mind. For example, if interns are expected to recognize critical illness and then call for help as needed, they should be rotating through clinical areas where they will encounter critically ill patients, but with appropriate back-up and support. As residents begin their second year of training, performance expectations should now include the initiation of resuscitation measures to stabilize the patient and management of sick patients with less immediate supervision. The benefits of creating a list of performance expectations can also guide what skills should be taught at each level of training and where and how they are best taught. Clarification of roles and responsibilities can be reinforced through simulation exercises,

case-based teaching, and immediate feedback in the clinical arena.

Mastery of these performance expectations can only be achieved through deliberate exposure of the resident to learning opportunities. An example is the second-year resident who is expected to deliver bad news both clearly and compassionately. Mastery of this skill can only occur through multiple exposures to scenarios where this will be required, necessitating modeling by attending physicians and senior residents in the ED and rotations through critical care units. Didactic instruction using strategies of discussion, role playing, and simulation exercises can be designed to achieve the stated expectations.

For each clinical rotation, both within the ED and off-service, the goals and objectives for patient care should be appropriate for the year of training. Once the training goals are clarified, evaluation tools can be aligned to assess competency in these specific areas. Using the examples above, an evaluation tool assessing interpersonal skills for a PGY2 resident can specifically ask about the resident's ability to deliver bad news compassionately.

### **Main Question III: What Objective Measures Should Be Used to Provide Evidence of Resident Competency?**

**Methods Used to Frame the Discussion:** The participants were asked to reflect on their expectations for performance for a resident working in the ED at each level of training. The challenge was to identify measurable actions and behaviors that can be used to evaluate resident performance.

**Report of Group Discussion:** Group consensus was rapidly achieved with respect to generic skill sets for each year of training. By the end of the first year of training, the intern should demonstrate the ability to recognize "sick or not sick" and ask for help when necessary. By the second year of training the junior or PGY2 resident should demonstrate additional competency in intervention and treatment, while the senior resident should be able to not only diagnose and treat patients, but provide safe and efficient disposition of patients.

These actions were then further refined into specific skill sets that could be translated into objective measures (see Table 3). The group discussed methods to translate these core clinical skills into measurable outcomes. The main recommendation was to incorporate the language used to describe performance expectations into the clinical evaluation tool(s). For example, the evaluation tool for a PGY1 should include specific questions about the resident's ability to recognize "sick or not sick" patients and get help when patient needs are outside the intern's comfort range. Likewise, a senior resident's performance evaluation should specifically assess the ability to assemble resources, manage adverse outcomes, and teach/supervise. Another recommendation was that residents be clearly informed of their performance expectations for each year of training. This can occur at the beginning of the year, rotation, shift, or individual patient. An example of this is

Table 2  
Skill/Competency Expected by Level of Training

	Skill/Competency	PGY1 (by end of year)	PGY 2 (by end of year)	PGY3 (by end of year)
1	Discriminate sick from not sick (urgent intervention needed)	Recognize critically ill, calls for support	Able to initiate resuscitative measures for critically ill patients	Can manage critically ill patient independently
2	Ability to know Plan A and have a Plan B	No	Locks down "Plan A," starts to consider "Plan B"	Yes
3	Ongoing triage of all patients	No	With their own patients only	Yes
4	Knows limits/abilities	Acknowledges own limits	Exploring their limits	Yes
5	Has procedural competency	Meeting basic with initiative	Meeting predefined levels (institution, ACGME)	All basic ED techniques; know when/how less common techniques
6	Has "situational awareness" (ED flow, waiting room)	Aware of their patient's situation	An awareness of multiple patients in the ED	Overall ED
7	Ability to delegate	No	Appropriate delegation in working role	Yes
8	Decisive/efficient/multitasker	Developing	Developing these skills	Yes
9	Teamwork/interpersonal skills	Team participant, communicate patient needs	Should have skills on common situations, support for difficult interactions	Yes
10	Knowledge base	Knows some of most common diseases and some of deadly diseases	Knows common, recognizes deadly	Knows common, deadly and atypical presentation of disease
11	Appropriate treatment plans	Knows basic order sets	Knows treatment for all common and most deadly	Knows treatment for common and deadly diseases
12	Communication skills	Should be able to present a case well and get a history and physical exam	Able to deliver bad news compassionately	Effective communication with patients, nurses, consultants, etc.
13	Advocacy	Empathetic	Communicate honestly and in an organized fashion	Independent
14	Organizational skills	With supervision	With supervision	Broader skill set
15	Monitor of self well-being	Yes	Yes	Yes
16	Leadership	Recognize leaders	Able to lead their team	Leads entire ED as appropriate
17	System awareness	No	Conceptual/where to find resources	Yes
18	Ability to self-educate	Needs direction	With guidance	Yes
19	Resourceful/creative	Algorithmic care	Flexible in decision making	Able to customize care plans and adapt to changing clinical situation
20	Enjoys the job	Comfortable within skill limitations	Pushing limits of skill sets within comfort range	Broad set of skills and comfortable treating majority of patients
21	Professional attitude toward documentation	Appropriate documentation of patient assessment and plan of care.	Appropriate documentation of patient assessment, plan of care and medical decision making	Complete charts; appropriate billing/medical/medicolegal documentation
22	EM as a specialty	Role as an emergency physician in the hospital, including relationship with other specialties.	Patient-centered "big world" view (e.g. insurance, safety, risk management, and societal expectation of care delivered)	General understanding of EM as a specialty, including professional organizations
23	Accurate self-assessment of capabilities	No	Occasionally	Usually

PGY1 = Postgraduate Year 1; PGY2 = Postgraduate Year 2; PGY3 = Postgraduate Year 3.

the intern who goes into the resuscitation bay to participate in the resuscitation of three trauma victims. The experience will be less overwhelming if the experience is structured by informing the intern that the expectation is to assess only one of the patients, and

- Acquire data to evaluate that patient;
- Perform targeted and accurate history and physical examination;
- Begin diagnostic test ordering and interpret test results;

Table 3  
Goals by Year of Training

Goals	Year of Training		
	PGY 1	PGY 2	PGY 3
	Diagnose	Treat	Disposition/Leadership
Specific skills	Recognize "sick or not sick" Get help when patient needs are outside comfort range Acquire data to evaluate patient Perform targeted and accurate history and physical exam Begin diagnostic test ordering and understand results Perform initial stabilizing measures within scope of practice	Simultaneously treat and assess Perform necessary procedures to stabilize patients acutely ill/injured patients Alter speed and quality of assessments commensurate with ED volume/acuity Manage multiple patients Know algorithms for evaluation and treatment Recognize when patient falls outside of algorithm	Assemble resources Triage, risk stratify Anticipate outcomes Manage adverse outcomes Teach/supervise Lead/debrief
PGY1 = Postgraduate Year 1; PGY2 = Postgraduate Year 2; PGY3 = Postgraduate Year 3.			

- Perform initial stabilizing measures within scope of practice; and
- Get help when patient needs are outside comfort range.

Following the resuscitation or at end of the shift, the feedback should again specifically focus on these performance expectations. Another recommendation was that residents need to take ownership of responsibility for their own competency in each of these areas and actively seek ways to obtain meaningful feedback. Examples of this include end-of-shift discussion or post-resuscitation review of performance.

Finally, it became apparent to the group that by clarifying performance expectations and assessing them in a deliberate manner, feedback and remediation plans become much clearer and more effective. For example, a second-year resident's need for improvement in the patient care core competency can be further clarified to "needs to improve the ability to alter speed and quality of assessments commensurate with ED volume/acuity." Once it is agreed on that the resident's problem consists of "one speed" despite patient volume, the remediation plan could focus specifically on that issue.

## DISCUSSION

This is the first formal structured discussion of the clinical education of EM residents, to our knowledge, by a group of EM educators. Other studies have surveyed EM faculty on teaching style and effective methods of teaching and have reported on challenges to teaching in the ED.<sup>25-27</sup> Surveys have also asked learners what they want from teachers and what they feel should be taught in the ED.<sup>28,29</sup> To date, however, we know of no comprehensive recommendations or research into how expert educators in EM think the experiential component of training in EM should be structured. The consensus conference demonstrated that educators in EM agree on a number of essential features of the EM clinical experience: the need to structure the experience

so that it allows for 1) deliberate practice, 2) optimal learning, 3) graded responsibility, and 4) goals and objectives based on level of training. These recommendations provide guidelines for use when designing the clinical training program for EM residents.

### Specific Recommendations

**1. Structure the Clinical Experience:** Members of the conference agreed that workload needed to be controlled, especially for the interns so that they are not overwhelmed by the number and complexity of patients, but still see patients with varied pathology and acuity. This recommendation is supported by the findings that when time for experiential learning is truncated, learning often does not take place, is not enduring, or does not result in adequate performance.<sup>29,30</sup> Learning in dynamic environments, such as the ED setting, is negatively affected when time for learning is too short and/or complexity of task (workload) overwhelms the cognitive abilities of the learner.<sup>30,31</sup> Gaba<sup>32</sup> has stated that, "One of the primary reasons that training ... does not endure in practice is ... if the decision must be made under the kind of constraints (e.g., stress, time pressure, and limited resources) found in many natural settings."

Educators also felt that it was necessary to give learners, especially interns, time to look up information while seeing patients so that learning new information was associated with a particular patient problem, thus making the knowledge contextual, which has been shown to improve learning.<sup>33</sup> Members of the conference recommended that residents should have time during their shifts to make dispositions of their patients whenever possible. While this may result in the resident seeing fewer patients during the last hours of a shift, it does allow for practice of the entire task, specifically "admission to disposition." Resident learning and ultimately performance may be linked to task completion. Research has shown that, in airline pilots who have similar performance pressures, partial practice did not result in improved performance.<sup>34</sup> Allowing adequate

time for learning, by supplementing experience with factual knowledge and positioning patients whenever possible, prevents the learner's experience in the clinical environment from becoming an isolated experience unrelated to contextualized learning or a mere repetition of a task. This also ultimately fulfills the requirements of deliberate practice: processing of meaning, reflection, and feedback.<sup>11</sup> Tactics that can be used to achieve these goals are immersion in the clinical arena with support from senior residents and faculty, realistic expectations about patient numbers/shift, and shift durations averaging 10 hours.

In contrast, educators felt that senior residents should have to deal with issues outside of direct patient care. Through their clinical training they should have developed a full library of "illness scripts," and the care of most patients should be routine.<sup>13-15</sup> In the clinical setting they should now be dealing with issues such as complex or angry patients, patient flow in the setting of high volume/acuity, and handling of operational problems, since these are the problems that they will have to manage after graduation. Educators felt strongly that these are components of graded responsibility and give the more experienced resident the opportunity to try out problem-solving in novel situations while still practicing within the safety net of supervision by experienced physicians. Teaching should also become part of their practice, and their "students" should include patients, families, nurses, and students. These goals can be achieved by outlining these performance expectations clearly within resident's competency objectives and evaluations. Additionally, some programs have created dedicated administration and teaching rotations or shifts that complement their purely clinical experiences.

## **2. Establish Expectations for Clinical Performance:**

Knowledge of what is to be learned is an integral part of deliberate practice and fulfills Kolb's four-stage learning cycle: concrete experience, abstract conceptualization, reflective observation, and active experimentation to transform experience into knowledge.<sup>8,11</sup> Making explicit the goals of learning, the steps to reach these goals, and the expectations at each level of training allows the learner to understand the goals to be reached and enables the instructor to determine if the goal has been attained. It also sets the stage for progression of increased expectations of more senior learners as they are required to accept increased responsibility.

Making explicit the goals and objectives of learning is fundamental to allowing valid assessment of performance in the clinical setting, providing accurate and meaningful feedback, and support of the learner's progression to the next level of capability. This can be accomplished at many stages of learning. During the orientation to a clinical rotation, trainees can be given explicit examples of their performance expectations, using cases and clinical scenarios as a framework. This can also be done in the clinical setting, where the hypothetical is now real. Using the example of a multiple-victim trauma, the supervising faculty can quickly assign roles and performance expectations. The intern's role should be the initial assessment and

year-appropriate interventions on a single patient, the second-year resident should be able to manage airway and procedures on multiple patients, and the senior resident should take charge of mobilizing resources, triage, and establishing back-up plans. Clarification of roles and expectations will likely improve efficiency of care, reduce anxiety for the trainee, and allow for feedback and assessment specific to the assigned roles.

**3. Provide Performance Feedback:** Feedback needs to be specific to performance expectations. Too often the evaluative feedback given is generic and unlikely to provide insight into performance strengths or deficits. Using the example of the multiple-patient trauma scenario, feedback can be linked to the year-specific performance expectations. The intern should be assessed on the accuracy of his or her patient evaluation, recognition of critical conditions, knowledge of limitations, and accuracy of interpretation of diagnostic studies. The senior resident should receive feedback on his or her ability to obtain needed resources such as blood products, operating rooms, surgical back-up and consultation, triage of victims, and discussion with family and patients. This degree of detailed feedback can be incorporated into the end-of-shift or rotation evaluation forms and is likely to have a greater effect on future performance than a simple "good job on your shift today" or "meets expectations" on the evaluation form.

The assumption that residency training, and graduation from an accredited training program, results in a competent physician able to independently practice medicine has been challenged by the ACGME. The ACGME Outcomes Project expects residency programs to objectively demonstrate that the training expectations, clinical experiences, and acquired skill sets result in competency by the end of the training period. This conference identified the opinions of academic faculty and PDs on clinical training methods. Research is needed to demonstrate whether these opinions are correct. The ACGME also requires that training programs implement a wide range of assessment tools to provide objective measures of competency. In response, all programs have rapidly developed and implemented assessment tools intended to provide objective measures of resident competency. Currently, there are little if any data supporting the ability of these tools to demonstrate that graduated residents have the competencies needed for independent practice. Critical next steps include ensuring that we have objective measurements of resident competency that work. The research remains to be done.

## **LIMITATIONS**

The limitations of this report are the fact that the participants were self-selected and had a range of experience with respect to residency leadership. The CORD Academic Assembly is a meeting that is specifically geared toward residency training in EM. This session was part of a track for experienced educators and PDs in EM. The fact that the attendees were not all PDs may be

considered a limitation, and the session leadership considered this. In fact, the robust discussion that took place reflected the depth of experience and involvement in residency training. Many of the non-PDs were able to better provide resident and faculty perspective to the discussion, by not being part of senior leadership. The faculty chosen to lead the discussions were all experienced PDs, and the discussion leaders felt that the discussion and recommendations were arguably strengthened by the range and breadth of experience reflected by the attendees.

## CONCLUSIONS

The three main recommendations were to 1) structure the clinical experience, 2) establish expectations for clinical performance, and 3) provide performance feedback. The consensus conference was able to make some very concrete suggestions for designing the clinical experience for trainees, identifying year-specific training goals and developing language to describe specific competencies. This establishes a template for designing a clinical training program that will allow for learning, feedback, and effective evaluation. These recommendations also provide the foundation for deliberate practice in the clinical setting.

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**Supporting Information:**

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The following supporting information is available in the online version of this paper:

**Data Supplement S1. Attendees.**

The document is in PDF format.

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