

# Virtual Mentor

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## MEDICAL EDUCATION

### A Longitudinal Approach to Handoff Training

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Transitions of patient care, or handoffs, between members of the medical team have often been hampered by communication failures, near-miss events, and environmental barriers [1, 2]. Consequently, the handoff has repeatedly been the subject of a Joint Commission National Patient Safety Goal *requiring* hospitals to implement a standardized, structured approach to handoff communication and provide an opportunity for physicians to ask and respond to questions about a patient's care [3]. Meeting this goal is particularly challenging for academic teaching hospitals, given that few medical trainees receive formal training on handoffs [4] and there is more need for communication among a large number of allied health professionals and subspecialty consultants. The Institute of Medicine has therefore recommended that all resident physicians receive formal training in how to execute a safe and effective handoff.

In its most recent (July 2011) iteration of work-hour regulations, the Accreditation Council for Graduate Medical Education (ACGME) further limited shift duration for first-year trainees (PGY-1) to 16 hours, compounding concerns about transitions. But explicit language in the new ACGME regulations also mandates that trainees receive education about handoffs and that residency training programs assess handoff quality [5]. However, there is a lack of both validated tools for the assessment of handoff quality and innovative materials for trainee education. Review of the literature in medical education confirms that the use of video-based education and standardized patient environments increases learner satisfaction and improves the fidelity of the experience.

Combining these strategies with our prior work in this area, we aimed to develop and test a generalizable tool and simulation-based education modules for assessment of handoffs among faculty and trainees. If further reductions in residency duty hours are enacted, the increased frequency of patient handoffs will heighten the need for improved handoff education. The University of Chicago's vertically integrated undergraduate, graduate medical education, and faculty development structure makes it possible to use a case- and simulation-based approach to develop and implement innovative education and evaluation across the continuum of medical training.

### Description of Program

Using learner-identified handoff milestones, we developed and implemented a longitudinal education and evaluation curriculum for all levels of learners from medical student through faculty. We developed a multimodal approach with novel

educational tools to engage the learners in the handoff process. Both undergraduate and graduate medical education trainees were asked to identify and define educational milestones.

*Undergraduate medical education (UME).* A needs assessment was conducted to ascertain clinical students' exposure to and participation in handoffs. Third-year students reported that participation in the verbal component of the handoff during their clinical rotations was highest during their internal medicine rotation, and nearly three-quarters of students reported that handoff training prior to beginning third-year clerkships would be beneficial.

Using case-based workshops and simulations, the program allows third- and fourth-year students to practice giving and receiving handoffs, with a focus on updating information, the transfer of professional responsibility, and effective communication during an interactive, objective, structured handoff experience (OSHE).

The simulated OSHE has two components: (1) providing static information (i.e., a mock history and physical examination transcript based upon an actual clinical case) and (2) dynamic information (i.e., a 5-minute trigger video representing "interval patient events" that occur throughout the day and require follow-up by the covering physician, such as increasing oxygen requirement and pending labs). Trainees are given 10 minutes to complete a written sign-out using a structured template, incorporating the dynamic information from the video with the static information, and then hand off this "patient" to a standardized "receiver."

Receivers at both institutions were housestaff who had been trained on the case and handoff expectations beforehand. They received the handoff and provided feedback using the Hand-off CEX instrument, which asks them to rate overall handoff performance and its components on a 9-point scale (see figure 1).

Figure 1. Sign-out PROVIDER Evaluation

Evaluator: \_\_\_\_\_ Evaluatee: \_\_\_\_\_ Ward: \_\_\_\_\_ Date: \_\_\_\_\_

Evaluatee: intern resident student Other: \_\_\_\_\_ Situation: End of shift Transfer btwn services Admission

Setting

( Not observed)

	1	2	3	4	5	6	7	8	9	
<i>no interruptions; silent</i>	Unsatisfactory			Satisfactory			Superior			

Organization/efficiency

( Not observed)

	1	2	3	4	5	6	7	8	9	
<i>disorganized; rambling</i>	Unsatisfactory			Satisfactory			Superior			<i>standardized signout; concise</i>

Communication skills

*not face-to-face;  
understanding not confirmed;  
no time for questions;  
responsibility for tasks unclear;  
vague language*

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Superior		

*face-to-face sign-out;  
understanding confirmed;  
questions elicited;  
responsibility for tasks clearly  
assigned;  
concrete language*

Content ( Not observed)

*information omitted or irrelevant;  
clinical condition omitted;  
"to-dos" lack plan, rationale*

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Superior		

*all essential information included;  
clinical condition described;  
"to-dos" have plan, rationale*

Clinical judgment

( Not observed)

*no recognition of sick patients;  
no anticipatory guidance*

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Superior		

*sick patients identified;  
anticipatory guidance provided  
with plan of action*

Humanistic qualities/  
Professionalism

( Not observed)

*hurried, inattentive; inappropriate  
comments re: patients, family, staff*

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Superior		

*focused on task;  
appropriate comments re: patients,  
family, staff*

Overall sign-out competence

( Not observed)

1	2	3	4	5	6	7	8	9
Unsatisfactory			Satisfactory			Superior		

Evaluation time: Observing: \_\_\_\_\_ minutes Providing feedback: \_\_\_\_\_ minutes

Evaluator satisfaction with evaluation:	1	2	3	4	5	6	7	8	9
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Evaluatee satisfaction with evaluation:	1	2	3	4	5	6	7	8	9
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Comments: \_\_\_\_\_

Third- and fourth-year students currently receive training on the necessary components of a handoff, the importance and function of verbal and written handoffs, common barriers to written and verbal communication, and effective communication strategies for verbal handoffs. Senior students participating in the OSHE experience reported significant increases in self-efficacy related to handoff preparedness [6].

*Graduate medical education (GME).* Additional survey data revealed that incoming interns reached several milestones during their PGY-1 year, including such handoff improvement topics as peer evaluation, performance audit, and feedback. Our GME curriculum currently includes case-based review, peer assessment of handoff performance using the Hand-off CEX tool, and handoff audits using the UPDATED tool (figure 2), an instrument to evaluate the quality of the written sign-out.

Figure 2. UPDATED—Guide to Review Written Sign-out ©

Updated admin data	especially team members, room number, code status
Problem list ordered by importance	Start with acute problems, end with chronic problems.
Diagnosis in one-liner?	e.g., “presumed pneumonia” or “PE” as opposed to “shortness of breath”
Anticipated problems	with directions in “if-then” format
TMI?	Too much information?
Error-prone meds reviewed	i.e., narcotics/IV antibiotics/anticoagulants/insulin
Directions clear	All to-dos have rationale and clarification, not, e.g., “check CBC” without directions on what to do with results

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Housestaff participate in a workshop in which they identify systems issues that prevent effective handoffs and use process improvement to identify solutions. Trainees view a video that stresses the systems-based barriers to the handoff process and debrief about them, which promotes effective handoff communication. Using the UPDATED tool, housestaff evaluate several examples, varying in quality, of the written sign-out. Finally, the senior housestaff are encouraged to provide supervision to their trainees and evaluate their handoff performance in a standardized way, providing feedback on process and performance using the Hand-off CEX tool incorporated into the New Innovations residency evaluation management software, an electronic system used to securely record and track trainee evaluations of performance.

*Faculty development.* Faculty development focuses on the incorporation of handoff education into teaching rounds and training on handoff quality using the VALID (Video Assessment of Levels of Interactive Dialogue at Hand-offs) workshop and Hand-off CEX evaluation. To train faculty to perform direct observation of trainee handoffs and provide feedback on their written and verbal performance, an

interactive faculty development workshop was piloted this past spring at our institution.

First, faculty received education on the principles of effective handoff communication and the importance of evaluation and feedback in improving handoffs. Instructors also stressed the importance of direct faculty observation of trainee handoffs and feedback on their performance. Following the educational module, faculty participated in interactive practice, where they viewed a gold-standard video-based handoff and discussed the benchmarks of a superior performance. Next, faculty watched six videos that highlight various levels of handoff performance, specifically in the domains of communication skills, professionalism, and environment or setting. In each video, one domain of performance changes while the others remain constant. Finally, faculty identified the factors that encourage or discourage the displayed behaviors and practiced their handoff evaluation skills utilizing the Hand-off CEX instrument.

Upon review of their evaluations, we noted that faculty were reliably able to distinguish the different levels of performance in each domain (e.g., communication skills, professionalism, and setting), and preliminary data regarding the validity and reliability of the Hand-off CEX tool are promising. Participants also commented on the realistic nature of the video-based scenarios, specifically those portraying setting and communication challenges during trainee handoffs.

### **Conclusions**

Using learner-identified handoff milestones, we have successfully created and piloted a longitudinal handoff curriculum, addressing the needs of various learners at their respective stages in training. This curriculum relies heavily on innovative interactive teachings tools that have been easily transported and generalized to institutions other than our own.

This longitudinal, stepwise approach begins with a conceptual model of practical skill development for UME and GME trainees and then moves to a more theoretical, systems-based, and evaluative approach to handoff education. By tailoring to all levels of learners, and diversifying experiences with multimodel educational strategies, the program builds upon prior knowledge as the curriculum moves forward with the trainee.

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### **Related in VM**

[Responsibility for Patients after the Handoff](#), May 2012

[The Problem with Hand-Offs](#), September 2011

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