Barriers	The main logistical barrier was getting everyone at same meeting (competing schedules, duty hours). Other barriers included issues with the EMR, communication, and accountability. Residents and faculty are now aware of requirements for quality/safety, but engagement of teams/committees to initiate quality/safety is an area for additional work.
Lessons Learned What is the single most important piece of advice for another team embarking on a similar initiative?	Look only at what you can change (focus on the system process) and pilot work with a small engaged group before full rollout. Have an open mind, persistence, and patience when working on an improvement project. Have a leader and hold frequent, regularly scheduled meetings to ensure meetings yield results and goals are met.

Bassett Medical Center, Cooperstown, NY

A Standardized EHR Handoff Tool for Medicine and Surgery

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Background: Bassett Medical Center did not have a standardized tool for handoffs in the hospital setting, and administrative and GME leadership were seeking such an instrument. Prior to full deployment of Epic EHR in December 2013, medicine and surgery residents used Word-based handoff tools that were not part of the EHR, not HIPAA compliant, and augmented by a verbal handoff. Our goal was to create a standardized tool for handoffs in the medicine and surgery resident hospital teams.

Methods: In fall 2013, we assembled a steering committee composed of senior administrative leadership in quality improvement/safety, information technology, and medical education to support the development of standardized handoff tools. Workgroups in the residencies created and modified handoff tools using PDSA techniques. Monthly or bimonthly meetings of the steering committee with the residents and program directors provided incentive and administrative support. The medicine residency workgroup created a pre/post implementation survey to assess the value of the handoff tool.

Results: An audit of medical inpatient medical records showed 100% adherence by the medicine residents in the use of the EHR for handoff. Strict adherence to the method prescribed in the program was 65%. This lower rate was likely due to the technical need of moving information from one area of the EHR to another. The percentage of residents who felt that the written handoff was an effective communication device increased from 58% pre-EHR handoff tool to 83% post.

Conclusions: The development of an EHR-based handoff tool at Bassett Medical Center was a successful project that demonstrates the importance of goal alignment and teamwork. Surveys revealed that residents considered handoffs to be more thorough, more accurate, and better organized after implementation of the handoff tool. In addition, the culture is more attuned to transitions of care, and the faculty is beginning to understand that they need to assess resident competency in this area.

FINAL WORK PLAN – Bassett Medical Center

Team Charter/Objectives	Our goal was to develop a standardized handoff tool within the EHR for the medicine and surgery residency hospital teams. Prior to the project, each of the residency teams had handoff tools that were not HIPAA compliant, existed outside of the medical record, were not retrievable and available for quality improvement, and were not available to other members of the hospital care teams.
Project Description	We designed an iterative quality improvement project to introduce an Epic-based, standardized electronic handoff tool in the medicine and surgery residency programs. Residents and program directors were the front-line developers of the tools, and a steering committee—composed of senior administrative leadership in quality improvement/safety, information technology, and medical education—provided support. The steering committee met monthly. Residents met between meetings to develop the tools, using rapid cycle improvement techniques to modify the handoff tools. Residents and program directors met monthly with the steering committee to provide progress reports and request support when needed.

Vision Statement	In March 2015, medicine and surgery residents will have standardized handoff tools that are part of the EHR. The expectation will be that these are used exclusively as the written communication tool at handoff and supplemented by a verbal handoff. The faculty and program directors in each program will be aware of the handoff tools, and faculty development will be provided on the subject of high-quality handoffs.
Success Factors	The most successful component of our work was the development and implementation of the tools, although the tools are still somewhat clumsy for technical reasons and without 100% adherence. We were inspired by the hard work of the residents in the development process.
Barriers	The largest barrier we encountered was the inability of Epic to accommodate the needs of the residents in several areas that would have made the tools less clumsy. We will overcome most of these problems with the next iteration of Epic and have provided feedback through our Chief Medical Information Officer who serves on the steering committee.
Lessons Learned What is the single most important piece of advice for another team embarking on a similar initiative?	Spend enough time in at the beginning of the project to understand the needs and requirements of the care teams who will develop the transition tools. We did so, but it was an ongoing process and collided with our information technology tools in several areas.

Baylor University Medical Center, Dallas, TX

Resident Training in Code Blue Execution in a Simulation Lab Improves Immediate Post-Code Survival

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Background: Internal medicine residents at teaching institutions often lead emergency resuscitation attempts without formal instruction in the practical elements of leading and executing a code blue in the hospital setting. Simulation training has been shown to improve resident comfort, but a mortality benefit has been established only in the pediatric population.

Methods: We implemented a simulation-based code blue training program with a 3G SimMan involving 21 internal medicine residents who were given lectures about roles/responsibilities and exposed to progressively more challenging code scenarios in which ACLS was implemented. Faculty provided feedback after each session. An internal review of code blue data was conducted comparing code-related outcomes during the 10-month intervention with a 12-month historical control. Primary outcomes were immediate post-code survival and survival to discharge. Secondary outcomes included post-code change to DNR status and post-code withdrawal of life-sustaining care.

Results: Of 287 emergency resuscitation attempts in the 22-month study period, 107 were control codes (8.9 per month) and 180 were intervention codes (16.4 per month). No statistical significance was noted between the groups with respect to age, gender, race, number of night codes, or number of weekend codes. The hospital census was stable during the study period. The Mortality Probability Model II was calculated for every patient. Mean scores were 0.323 (control) and 0.343 (intervention) (P=0.460). Primary analysis showed a trend toward increased immediate post-code survival in the intervention cohort: 72 control (67.3%) vs 128 intervention (71.1%) patients (P=0.496). This trend did not translate to increased survival to discharge: 25 control (23.4%) vs 40 intervention (22.2%) patients (P=0.823). Secondary analysis revealed a significant increase (P=0.013) in the number of patients in whom life-sustaining care was withdrawn after successful resuscitation between the control group (29 patients, 40.3%) and the intervention group (75 patients, 58.6%). No difference was found in the number of patients who changed to DNR code status after successful resuscitation (P=0.594).

Conclusions: Formal simulation-based code training of internal medicine residents may increase immediate post-code survival of adult inpatients. The improvement in our study was not statistically significant, possibly due to insufficient