Housestaff perceptions of how handoff quality influences 'Code Blue' and 'Rapid Response Team' events

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Abstract

As the changing environment of inpatient medicine had led to increasing numbers of care transitions, handoffs have come under increasing scrutiny as a potential source of preventable patient harm. We conducted a survey study of housestaff at a major academic medical center who had cared for a patient who underwent acute clinical deterioration during a period of cross-coverage in order to assess their level of preparedness based on the prior handoff. We found that a majority of housestaff found the handoff to have been "appropriate or sufficient" (94%) and that none of the housestaff felt the event would have been preventable with a better handoff. However, only 44% felt prepared to handle the event based on the prior handoff. These findings suggest that housestaff are satisfied with the quality of handoffs received at transitions of care, but that there may be a role for additional education on anticipatory guidance. Additionally, robust rapid response and code blue team systems are vital for managing unanticipated events.

Introduction

The Joint Commission defines handoffs as the "real-time process of passing patient-specific information from one caregiver to another for the purpose of ensuring the continuity and safety of the patient's care."[1] Implementation of the 80-hour work week in 2003 and limitation of intern shifts to 16 hours in 2011 have increased the number of resident shift-to-shift handovers.[2-4] Currently, primary team members are in the hospital for only 47% of a patient's hospitalization.[3]

As many as 80% of serious medical errors involve miscommunication between medical providers during handoffs.[5] 'Code Blue' (code) and Rapid Response Team (RRT) events often occur during periods of cross-coverage.[6,7] The verbal and written quality of the handoff may play an important role in the prevention and management of these situations. To better understand the relationship between handoffs and cross-coverage medical emergencies, we explored housestaff perceptions of how the quality of the preceding handoff had prepared them to handle code/RRT events during periods of cross-coverage.

Methods

Duke University's Patient Safety and Quality Council Task Force on Handoffs studied adult code/RRT events to inform its educational work on handoff quality.[8] Between May 1 and November 30, 2013, the primary resident responding to each code/RRT event at Duke University Medical Center was identified. These individuals received an email survey exploring their perceptions of the adequacy of the preceding handoff in preparing them to avoid or manage the event. Survey questions included when the handoff was received, whether a verbal and/or written handoff had occurred, and whether the handoff was appropriate and sufficient. Using a 4-point Likert scale, the resident was asked to evaluate if, during the handoff, they were made aware of the possible decline of the patient and whether this prepared them to understand and handle the patient's emergency. Respondents were also asked whether the event could have been avoided or would have "gone better" if there had been a better or more complete handoff. Operations administrators, who are present at each code/RRT event, responded to a separate survey that collected demographic information and outcome data about the patient.

Survey responses were counted as agreeing with a statement if the respondent selected "agree" or "agree strongly" and as disagreeing with a statement if "disagree" or "disagree strongly" was chosen. Comparisons between events occurring on medical versus surgical services were made using a two-tailed Fisher's Exact Test. This survey was approved by the Duke University Institutional Review Board (Pro00032334).

Results

In total, 188 code/RRT events occurred during the study period. Seventy-five housestaff responded to the survey, for a response rate of 40%. Of the 75 responses, 38 occurred while the provider was cross-covering. Four responses were removed as they had been completed by providers other than the primary cross-covering team. This left 34 events for analysis.

Thirty-three (97%) responding providers had received a written handoff, and 32 (94%) received a verbal handoff; all respondents had received at least one form of handoff. Although 94% of respondents described the handoff as "appropriate or sufficient," only 71% agreed that it had prepared them to understand the ensuing event (Figure 1). Furthermore, only 44% of respondents agreed that the handoff had prepared them to manage the acute medical situation. No respondent agreed that the event would have been prevented by a more complete handoff, and only 12% agreed that the event could have "gone better" with a more complete handoff.

No differences were observed between events occurring on medical compared to surgical services with regard to perceived handoff quality ($p = 1.0$), preparedness to

manage the situation (p = 1.0), or whether the event would have been better managed with a more complete handoff (p = 1.0).

Discussion

During code/RRT events, approximately half of cross-covering internal medicine and surgery residents felt unprepared to manage the event, although all residents had received at least one form of handoff beforehand. Overall, the vast majority of residents felt the preceding handoff was appropriate and sufficient and indicated that the event was unavoidable. Eighty-eight percent of residents did not feel a more complete handoff could have improved the outcome of the code/RRT event. We believe this indicates housestaff largely are satisfied with the quality and quantity of information provided during transitions of care and that educational efforts surrounding handoff content have been successful.

In a prior pilot study, we found that 95% of Duke medical and surgical residents surveyed after a night shift felt the evening handoff they had received would have enabled them to respond to an acute change in patient status. In the current study, however, fewer than half of housestaff who actually did have a patient's status decline felt prepared to handle the code/RRT event based on the received handoff. This suggests that emergent patient needs often will be unable to be anticipated and timely response of rapid response and code blue teams for decompensating patients is vital for situation management.

In addition to ensuring rapid response and code blue systems are efficient and available, hospitals and graduate medical education programs should continue to emphasize housestaff training on anticipating patient decompensation. As providers progress through the new Milestones system, programs should expect improved resident discernment of potential acute patient issues. Additional educational resources may need to be devoted to management of code/RRT events to increase housestaff comfort in managing situations that cannot be anticipated.

This study had several limitations. The sample size was small, with only 188 code/RRT events; however, this represents all adult events at our institution during a seven-month period. Second, our response rate was low at 40%, though this is comparable to response rates using electronic surveys in residents.[7] Third, this survey was unvalidated; however, we are unaware of any validated survey for this topic.

Currently, we are sharing the findings from this study with residents and fellows at our institution, while continuing to offer education regarding best practices for handoffs. Next steps include assessing how education to improve anticipatory guidance during handoffs impacts the number of code/RRT events during periods of cross-coverage,

affects residents' perceptions of their ability to handle the events, and potentially improves patient outcomes during code/RRT events.

Words: 985

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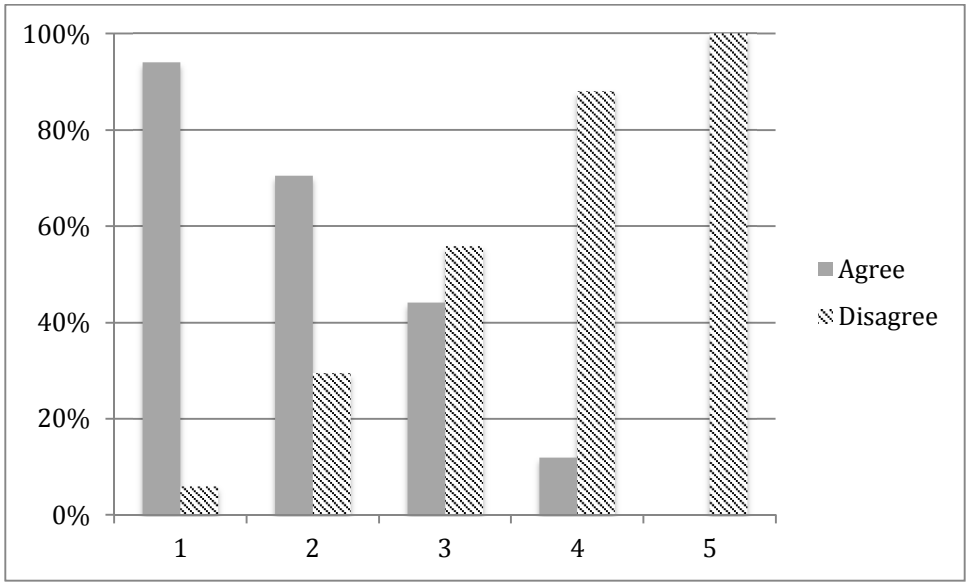
Figure 1. Resident responses to post-event survey.



Survey questions with percentage of provider's responses.

1- The handoff I received on this patient was appropriate and sufficient.
2- The handoff I received prepared me to understand my patient's emergency.
3- The handoff I received specifically prepared me in how to handle my patient's emergency.
4- I think this RRT/code would have gone better if there had been a better or more complete handoff.
5- I think this RRT/code could have been avoided by a better or more complete handoff.