Impact of Automated Visualization Support on Ability to Efficiently Supervise Resident Physician Handovers

Background and Methods

Background: Fifty-nine percent of resident physicians reported having a patient who experienced harm during their last training rotation due to communication issues during a patient handover. Attending physicians are responsible for overseeing resident physicians, including preventing patient harm. An important aspect of supervision is ensuring that resident physicians are competent in handover communications. When there are multiple teams of resident physicians handing over simultaneously under their supervision, this task is likely impossible to do real-time, and challenging in general. Therefore, visualization support where an overview highlights changes to communication topics and modes is expected to be useful.

Methods: 16 study participants (4th-year medical students) simulated the role of an attending physician supervising four teams of resident physicians during a shift change handover. A between-subjects design evaluated the impact of advanced visualization support as compared to baseline support.

Hypothesis

With advanced visualization support, performance by attending (supervising) physicians will be superior to baseline support. Specifically, supervisors will more quickly identify challenging patients, less-than-ideal handover communication strategies, and be more comfortable with the role of supervising four resident physician teams during a shift change handover.

Communication Topics & Modes

Handover Transcripts (Baseline Support)

Label Code Description Count
Patient Information Patient name, room number, patient age, gender 33
Background Information History of present illness, medical, family, social histories, treatment prior to current hospitalization, reason for hospitalization 160
Procedures Diagnostic tests during this hospitalization (labs, X-ray, etc.), results, in-room procedures (intubation) 195
Current Condition Diagnosis; current state of patient; recent developments 613
Medication Past medications for illness; current medications 90
Treatment Plan Treatment options; consults 120
Off-topic Any comments not pertaining directly to the patient, teaching points 4

Discussion

An unexpected finding was that the study participants had trouble understanding the visualization due to gaps in knowledge about communication concepts. They generally did not understand why "best practice" strategies were recommended for patient handovers, even when explained to them during the debrief period. Therefore, training on communication concepts in general and cultural change initiatives would likely be needed to make clear the need for automated support during patient handovers.

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