

A Qualitative Study of Provider Perspectives on Cognitive Load During Intensive Care Unit Rounds

Purpose:

Cognitive Load Theory asserts that learning and performance degrade when cognitive load exceeds working memory capacity. This is particularly relevant in the learning environment of intensive care unit (ICU) rounds, when multidisciplinary providers integrate complex decision-making and teaching in a noisy, high-stress environment that is prone to cognitive distractions.

Objective:

We sought to understand, qualitatively, the features of ICU rounds that increase provider cognitive load to guide future interventions.

Methods:

We conducted semi-structured, one-on-one interviews with ICU rounding providers to understand factors that impact provider cognitive load during rounds. The interviews were transcribed verbatim, coded independently, and discussed in pairs by all members of the research team until an agreement was reached on the coding of each transcript. The team then collaboratively reviewed the code report from all transcripts to generate themes through iterative discussions.

Results:

Nineteen ICU providers were interviewed between December 2020 – May 2021, including 3 (15.8%) intern physicians, 8 (42.1%) resident physicians, 4 (21.1%) fellow physicians, 3 (15.8%) attending physicians, and 1 (5.3%) pharmacist. Thirteen (68.4%) of interviewed providers were male. Seven themes emerged: (1) interruptions drive repetition and prolong the length of rounds, (2) clear and consistent role expectations reduce cognitive load, (3) scripted communication corresponds with a shared mental model that reduces cognitive workload, particularly for learners, (4) repetition when reinforcing and iterative is viewed positively, while unnecessary data repetition is burdensome, (5) emotions, stress, and the perception of psychological safety impact provider capacity for cognitive load, (6) interruptions to learners by more-senior rounding providers decrease perception of psychological safety and reduce availability to learn, and finally (7) well-received teaching is topically-relevant and avoids interruption to a learner's presentation.

Conclusion:

ICU rounding providers identify interruptions as a driver of rounding inefficiency and increased cognitive load, and that scripted rounding communications with clear role expectations may reduce workload during rounds. Well-received teaching during rounds is topically-relevant and delivered without interruption to a learner's presentation. These qualitative results may help direct how the structure of

ICU rounds may be modified to reduce provider cognitive load to optimize provider learning and performance.