Extraneous Load Events Correlate with Cognitive Burden Amongst Multidisciplinary Providers during Intensive Care Unit Rounds

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Background
- Inadequate ICU rounding practices have profound impact on the quality and safety of patient care, and on the effectiveness of trainee education.
- Cognitive load theory (CLT) states that reducing these extraneous events may improve performance and learning. Our data suggests that this may be achieved by reducing emotional distractions and interruptions.
- Extraneous load events on rounds had a positive linear correlation with the perceived workload by multidisciplinary providers.

Methods
- Study Design: A mixed-methods study of multidisciplinary providers at medical ICU rounds at University of Colorado and Denver Health Hospitals.
- Part 1: Observational cohort study
  - Primary independent variable: Hourly extraneous cognitive load events during rounds
  - Outcome variable: mean post-rounds NASA-TLX score
- Part 2: Qualitative study
  - Semi-structured interviews to assess perceptions on the extraneous cognitive load burden during rounds.

Results
- Figure 2: Mean post-rounds perceived cognitive load vs a) hourly extraneous load, b) length of rounds, and c) rounding census.
- Figure 3: Sub-unit (n=45) and rounding (n=17) data
- Figure 4: Mean extraneous load events per hour
- Figure 5: Themes in provider perceptions on the cognitive load burden of ICU rounds.

Conclusions
- Extraneous load events on rounds had a positive linear correlation with the perceived workload by multidisciplinary providers.
- CLT states that reducing these extraneous events may improve performance and learning. Our data suggests that this may be achieved by reducing rounding census and duration, adhering to structured discussions, and reducing emotional distractions and interruptions.

Study Aim
- To characterize the cognitive load providers experience during rounds. We hypothesize that increased extraneous load during ICU rounds is associated with increased perceived workload.

Figure 1. Working memory is “filled” by the cognitive load imposed by a task.