

LO76**Effect of task interruptions training on the quality of simulated ALS**

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Introduction: Task interruptions are reportedly frequent disturbances for emergency physicians performing advanced life support (ALS). The aim of this study was to evaluate the benefit of adding task interruptions in ALS simulated training session. **Methods:** We conducted a multi centered randomized controlled trial in four emergency departments of a university hospital in Paris, France. Each emergency team included one resident, one nurse and one emergency physician. The teams were randomized for the nature of their training session: control (without interruption) or realistic (with interruptions). The interruption consisted of an interfering family member speaking a foreign language, and of repetitive phone calls during ALS. After the first training session, teams were evaluated on a second realistic session with task interruptions. The primary outcome was non-technical skills assessed with the TEAM score during this evaluation session. We also measured the no flow time, and the Cardiff score, which reflects the quality of ALS: including chest compression depth and rate, no flow time. **Results:** On a total of 23 included teams, 12 had a control training session and 11 with task interruptions. Baseline characteristics and TEAM score were similar between the two groups (Mean difference: 3,3 [-2,2; 8,9]; $p = 0,26$). During the evaluation session, the TEAM score was lower for “realistic” teams (mean difference -8 [95% confidence interval -13; -3]). We also report a higher no flow time and similar overall Cardiff score. **Conclusion:** In this simulated ALS study, the presence of disturbances during simulation seemed to worsen the quality of training. This study highlights the negative consequences of task interruptions in emergency medicine.

Keywords: advanced life support, simulation, task interruptions

LO77**Performance enhancing psychological skills in clinical simulation**

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Introduction: Clinical simulations in are designed to evoke feelings of stress and uncertainty in order to mimic challenges that learners will face in the real world. When not managed properly, these sources of extraneous cognitive load cause a burden on working memory, leading to a hindered ability to acquire new information. The “Beat the Stress Fool” (BTSF) protocol is a performance-enhancing tool designed to reduce cognitive overload during acute care scenarios. It involves breathing exercises, positive self-talk, visualization, and deliberate articulations. This study aims to validate the BTSF protocol as a method for reducing cognitive load using both psychometric and physiologic measures. **Methods:** Data collection took place during the Queen's University “Nightmares-FM” course. This clinical simulation program involves team-based scenarios designed to teach the fundamentals of acute care to first-year family medicine residents. Participants were divided equally into experimental and control groups based on pre-existing cohorts. Participants completed a baseline state-trait anxiety inventory and a demographics survey. The experimental group was guided through the BTSF protocol prior to

each of 16 simulations; in both groups, physiologic and psychometric cognitive load measurements were collected for the alternating team leader. Galvanic skin response (GSR) and heart rate (HR) were collected during a 15-second baseline and throughout each simulation using a Shimmer 3 GSR+ wearable sensor. Self-reported cognitive load was assessed after each scenario using the 9-point Paas scale.

Results: The mean Paas scores for the BTSF group were significantly lower than the control group (6.2 vs 6.9, $p < 0.05$), indicating lower subjective cognitive load. GSR signal magnitude ($p = 0.086$), spike amplitude ($p = 0.066$), and spike density ($p = 0.584$) were also lower in the BTSF group. There was no difference in HR between groups. There was not a significant correlation between self-reported cognitive load and the normalized physiologic measures. **Conclusion:** The results demonstrate the effectiveness of the BTSF protocol in lowering the amount of perceived mental effort required to perform clinical simulation tasks. These findings were mirrored in the galvanic skin response signal, though our study was likely underpowered for significance. This is the first study to validate a proof-of-concept for the BTSF protocol in learners during simulated training.

Keywords: cognitive load, physiologic measures, psychometric measures

LO78**Ready for launch? A survey of readiness factors among 2019 Competence By Design launch disciplines**

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Introduction: A critical component for successful implementation of any innovation is an organization's readiness for change. Competence by Design (CBD) is the Royal College's major change initiative to reform the training of medical specialists in Canada. The purpose of this study was to measure readiness to implement CBD among the 2019 launch disciplines. **Methods:** An online survey was distributed to program directors of the 2019 CBD launch disciplines one month prior to implementation. Questions were developed based on the R=MC2 framework for organizational readiness. They addressed program motivation to implement CBD, general capacity for change, and innovation-specific capacity. Questions related to motivation and general capacity were scored using a 5-point scale of agreement. Innovation-specific capacity was measured by asking participants whether they had completed 33 key pre-implementation tasks (yes/no) in preparation for CBD. Bivariate correlations were conducted to examine the relationship between motivation, general capacity and innovation specific capacity. **Results:** Survey response rate was 42% ($n = 79$). A positive correlation was found between all three domains of readiness (motivation and general capacity, $r = 0.73$, $p < 0.01$; motivation and innovation specific capacity, $r = 0.52$, $p < 0.01$; general capacity and innovation specific capacity, $r = 0.47$, $p < 0.01$). Most respondents agreed that successful launch of CBD was a priority (74%). Fewer felt that CBD was a move in the right direction (58%) and that implementation was a manageable change (53%). While most programs indicated that their leadership (94%) and faculty and residents (87%) were supportive of change, 42% did not have experience implementing large-scale innovation and 43% indicated concerns about adequate support staff. Programs had completed an average of 72% of pre-implementation tasks. No difference was found between disciplines ($p = 0.11$). Activities related to