

checklist significantly decreased the omission rate of important airway management tasks, however it increased the time to definitive airway management. Further study is required to determine if these findings are consistent in a clinical setting and how they impact the rate of adverse events.

Keywords: checklist, airway, simulation

LO35

Improving the precision of emergency physicians diagnosis of stroke and TIA

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Introduction: Studies suggest that there is a significant discrepancy between emergency physicians diagnosis of TIA and confirmation by neurologists. The objectives of our study were to identify factors associated with neurologists confirmation of TIA in patients referred from the emergency department. **Methods:** Data were obtained from a prospective cohort study across more than 8 university-affiliated Canadian hospitals from 2006-2017 of adult patients diagnosed with a TIA or non-disabling stroke in the ED. Patients presenting after 1 week of symptom onset, receiving TPA as part of a stroke code, with a GCS < 15 at baseline, and without a neurology assessment within 90 days were excluded. Univariate analyses were performed with t-tests or chi-square tests as indicated. Multivariate analysis with backward elimination was performed to identify unique predictors of TIA confirmation. **Results:** Of 8,669 patients diagnosed with TIA in the ED, 7,836 (90%) were assessed by neurology. The mean age of patients was 68.2 years and 71.1% presented with their first ever TIA. The rate of confirmation of TIA by neurology was 56%. The most common alternate diagnoses included migraines (26%), peripheral vertigo (10%), syncope (6%), and seizure (4%). The 3 strongest predictors of confirmation of TIA were infarct on imaging (OR 2.31, 2.03-2.63), history of weakness (OR 2.19, 1.95-2.48), and history of language disturbance (OR 2.05, 1.79-2.34). The 3 strongest predictors of an alternate diagnosis were syncope (OR 0.51, 0.39-0.67), history of bilateral weakness (OR 0.51, 0.31-0.84), and confusion (OR 0.57, 0.48-0.67). **Conclusion:** The rate of TIA confirmation by neurology in our study was 56%. Emergency physicians should have a high index of suspicion of TIA in patients with history of weakness and language disturbance, and should resist referring to a stroke prevention clinic, patients with syncope, bilateral findings, or confusion.

Keywords: transient ischemic attack, stroke, diagnosis

LO36

The state of advocacy in postgraduate medical education: a literature review

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Introduction: Health advocacy training is an important part of emergency medicine practice and education. There is little agreement, however, about how advocacy should be taught and evaluated in the postgraduate context, and there is no consolidated evidence-base to guide the design and implementation of post-graduate health advocacy curricula. This literature review aims to identify existing models used for teaching and evaluating advocacy training, and to integrate these findings with current best-practices in medical education to develop

practical, generalizable recommendations for those involved in the design of postgraduate advocacy training programs. **Methods:** Ovid MEDLINE and PubMed searches combined both MeSH and non-MeSH variations on advocacy and internship and residency. Forward snowballing that incorporated grey literature searches from accreditation agencies, residency websites and reports were included. Articles were excluded if unrelated to advocacy and postgraduate medical education. **Results:** 507 articles were identified in the search. A total of 108 peer reviewed articles and 38 grey literature resources were included in the final analysis. Results show that many regulatory bodies and residency programs integrate advocacy training into their mission statements and curricula, but they are not prescriptive about training methods or assessment strategies. Barriers to advocacy training were identified, most notably confusion about the definition of the advocate role and a lower value placed on advocacy by trainees and educators. Common training methods included didactic modules, standardized patient encounters, and clinical exposure to vulnerable populations. Longitudinal exposure was less common but appeared the most promising, often linked to scholarly or policy objectives. **Conclusion:** This review indicates that postgraduate medical education advocacy curricula are largely designed in an ad-hoc fashion with little consistency across programs even within a given discipline. Longitudinal curriculum design appears to engage residents and allows for achievement of stated outcomes. Residency program directors from emergency medicine and other specialties may benefit from promising models in pediatrics, and a shared portal with access to advocacy curricula and the opportunity to exchange ideas related to curriculum design and implementation.

Keywords: advocacy, education

LO37

Barriers and enablers to direct observation of clinical performance a qualitative study using the theoretical domains framework

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Introduction: Direct observation is essential to assess medical trainees and provide them with feedback to support their progression from novice to competent physicians. However, learners consistently report infrequent observations, and calls to increase direct observation in medical training abound. In this study, a theory-driven approach using the Theoretical Domains Framework (TDF) was applied to systematically investigate factors that serve as barriers and enablers to direct observation in residency training. **Methods:** Semi-structured interviews of faculty and residents from various specialties at two large tertiary-care teaching hospitals were conducted. An interview guide based on the TDF was used to capture 14 theoretical domains that may influence direct observation. Interview transcripts were independently coded using direct content analysis by two researchers, and specific beliefs were generated by grouping similar responses. Relevant domains were identified based on the frequencies of beliefs reported, presence of conflicting beliefs, and perceived influence on direct observation practices. **Results:** Data saturation was achieved after 12 resident and 13 faculty interviews, with a total of 10 different specialties represented. Median postgraduate year among residents was 4 (range 1-6), and mean years of independent practice among faculty was 10.3 (SD = 8.6). Ten TDF domains were identified as influencing direct observation: knowledge, skills, beliefs about consequences, social professional role and identity, intention, goals, memory/attention/decision-making, environmental context and resources, social influences, and behavioural regulation. Discord between faculty and resident intentions to engage in

direct observation, coupled with the social expectation that residents should be responsible for ensuring observations occur, was identified as a key barrier. Additionally, competing demands identified across multiple TDF domains emerged as an important and pervasive theme. **Conclusion:** This study identified key barriers and enablers to direct observation. The influencing factors identified in this study provide a basis for the development of potential strategies aimed at embedding direct observation as a routine pedagogical practice in residency training.

Keywords: direct observation, residency education, assessment

LO38

Does spaced instructional design result in improved retention of pediatric resuscitation skills? A randomized education study

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Introduction: Survival from cardiac arrest has been linked to the quality of resuscitation care. Unfortunately, healthcare providers frequently underperform in these critical scenarios, with a well-documented deterioration in skills weeks to months following advanced life support courses. Improving initial training and preventing decay in knowledge and skills are a priority in resuscitation education. The spacing effect has repeatedly been shown to have an impact on learning and retention. Despite its potential advantages, the spacing effect has seldom been applied to organized education training or complex motor skill learning where it has the potential to make a significant impact. The purpose of this study was to determine if a resuscitation course taught in a spaced format compared to the usual massed instruction results in improved retention of procedural skills. **Methods:** EMS providers (Paramedics and Emergency Medical Technicians (EMT)) were block randomized to receive a Pediatric Advanced Life Support (PALS) course in either a spaced format (four 210-minute weekly sessions) or a massed format (two sequential 7-hour days). Blinded observers used expert-developed 4-point global rating scales to assess video recordings of each learner performing various resuscitation skills before, after and 3-months following course completion. Primary outcomes were performance on infant bag-valve-mask ventilation (BVMV), intraosseous (IO) insertion, infant intubation, infant and adult chest compressions. **Results:** Forty-eight of 50 participants completed the study protocol (26 spaced and 22 massed). There was no significant difference between the two groups on testing before and immediately after the course. 3-months following course completion participants in the spaced cohort scored higher overall for BVMV (2.2 ± 0.13 versus 1.8 ± 0.14 , $p = 0.012$) without statistically significant difference in scores for IO insertion (3.0 ± 0.13 versus 2.7 ± 0.13 , $p = 0.052$), intubation (2.7 ± 0.13 versus 2.5 ± 0.14 , $p = 0.249$), infant compressions (2.5 ± 0.28 versus 2.5 ± 0.31 , $p = 0.831$) and adult compressions (2.3 ± 0.24 versus 2.2 ± 0.26 , $p = 0.728$). **Conclusion:** Procedural skills taught in a spaced format result in at least as good learning as the traditional massed format; more complex skills taught in a spaced format may result in better long term retention when compared to traditional massed training as there was a clear difference in BVMV and trend toward a difference in IO insertion.

Keywords: education, resuscitation

LO39

Stress inoculation training: a critical review for emergency medicine

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Introduction: In high stakes, performance-oriented professions, the ability to execute in stressful situations is both a prerequisite and an intense focus of training. Stress Inoculation Training (SIT) is a three-step cognitive-behavioural intervention aimed at reducing stress that may play a role in helping EM teams prepare for high acuity events. We conducted a systematic review of literature in medicine and performance-oriented professions to inform the development of an EM-focused SIT curriculum. **Methods:** An electronic search of Ovid MEDLINE, Web of Science Core Collection, PsychINFO, ProQuest and Scopus was conducted. Inclusion criteria were studies investigating the impact of stress inoculation training on performance and anxiety reduction. Data extraction included recording of performance and anxiety domains measured in each study and the details of how the stress inoculation training was delivered. Screening of articles, data extraction, and summarization were conducted by two independent reviewers using a standardized data extraction tool. **Results:** Our search yielded 431 studies; 40 were screened for full-text review and 10 met inclusion criteria. A total of 930 trainees throughout the 10 studies were enrolled. Four studies consisted of students in varying disciplines, including law, technology, education, and general undergraduate students, and 4 studies were composed of military personnel. No papers directly examined the effect of stress inoculation training on performance in healthcare. A change in performance and a reduction in anxiety and/or stress was noted in 90% of studies. Training length, experience of trainer, or group size did not appear to impact outcomes. Notably, heart rate variability (HRV) did not appear to be affected throughout the studies included, while cortisol and subjective stress were consistently reduced. **Conclusion:** SIT is an effective tool for enhancing performance and reducing stress and anxiety in high intensity environments. Studies examining the effect of EM-focused SIT on individual, team and patient-orient outcomes are needed.

Keywords: human factors, patient safety, stress

LO40

Describing CCFP(EM) programs in Canada: a national survey of program directors

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Introduction: Enhanced skills training in emergency medicine (EM) for family physicians (CCFP(EM)) has existed since the 1970s. Accreditation standards define what every program must and should have, yet little is known on what is currently done across Canada. Our objectives were to: 1) describe major components of CCFP(EM) programs; and 2) determine how programs incorporate these components into their curriculum. **Methods:** A rigorous development process included expert content development and in-person pilot testing using Royal College Emergency Medicine Program Directors. An electronic survey questionnaire comprised of 63 questions was administered to all 17 CCFP(EM) program directors using a modified Dillman technique. Non-responders were sent a reminder email every 2 weeks over a 6-week period and an in-person reminder was given to non-responders at a face to face meeting 4 weeks after the initial survey was sent in June 2016. **Results:** All 17/17 (100%) program directors responded. There was considerable variation in administrative structure and financial support for each program. All programs provided ultrasound courses for basic skills (trauma, abdominal aortic aneurysm, intrauterine pregnancy). Variation exists for offering independent ultrasound certification (77%), advanced scanning (18%) and protected academic time for scanning (53%). All programs utilize high fidelity simulation. Some programs