P023

Code Resus - using a quality improvement approach to improve health care provider response during resuscitations

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Introduction: In order to achieve the best possible outcomes for patients requiring resuscitation (PRRs) in the emergency department (ED), health care providers (HCPs) must provide an efficient, multi-disciplinary and coordinated response. A quality improvement (QI) project was undertaken to improve HCP response to PRRs at two tertiary care hospital EDs in Toronto. **Methods:** We conducted a before-and-after mixed-method survey to evaluate the perception of the adequacy of HCP response and clarity of HCP role when responding to PRRs. The results were compared using the Chi-square test. Qualitative responses to the first survey were also used to inform the development of the QI project. Through interviews of key stakeholders and with continuous input from front-line ED HCPs, a multi-disciplinary team modified the ED resuscitation protocol. This included standardized pre-hospital communication form with paramedics, ED-wide overhead announcement of 'Code Resus', dedicated HCPs assigned to respond to PRRs, and specific duties assigned to each responder. Change initiatives were reinforced through education and posters in the ED. Six months after implementation, a second survey was conducted to evaluate the sustained effects of the intervention. **Results:** Baseline measures indicated that 16 of 52 (30.8%) nurses surveyed believed their role was often or always apparent to themselves and others when they attended to a PRR (on a 5-point rating scale). This proportion increased to 35 of 55 (63.6%) nurses in the post-implementation survey (p < 0.001). Regarding adequacy of the number of HCPs responding to PRRs, 17 of 39 (43.6%) physicians and 23 of 53 (43.4%) nurses surveyed thought the appropriate number of HCPs responded to PRRs; the remainder thought that there were too few or too many HCPs. In the post-implementation survey, 34 of 41 (82.9%) physicians (p < 0.001) and 36 of 56 (64.3%) nurses (p = 0.029) surveyed felt that the appropriate number of HCPs attended to PRRs. **Conclusion:** Using a quality improvement approach, we identified and quantified perceived deficiencies in HCP response to PRRs in the ED. Through feedback-based modifications of the ED resuscitation protocol and by engaging HCP stakeholders, change initiatives were implemented to improve HCP response. As a result, this project achieved significant and sustained improvements in HCPs' perceived response to PRRs.

Keywords: quality improvement, resuscitation

P024

Extracurricular podcast use behaviour and effect on knowledge retention in undergraduate medical students

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Introduction: Podcasts have become increasingly popular as a medium for free online access medical education (FOAM). However, little research has examined the naturalistic use of podcasts as a tool in undergraduate medical education. This study aims to determine usage conditions, preferences, and level of retention of information from podcasts by medical students at a Canadian University. **Methods:** Medical students (Years 1 to 3) were instructed to complete an online test assessing their baseline knowledge on the topics of the podcasts and for qualitative data on podcast usage and preferences. Audio podcasts on two topics (adult asthma, and introduction to toxicology) were then distributed to study participants. One week and two weeks after the initial survey students were asked to complete a follow-up survey for knowledge assessment and further podcast usage data. Simple descriptive statistical generated using Microsoft Excel. Paired samples t-tests were utilized to assess knowledge acquisition using Microsoft SPSS version 23. **Results:** Participants who successfully completed the knowledge assessments demonstrated a significant effect of learning (Asthma, average test score improvement of 30%, p = 0.002; Toxicology, average test score improvement of 13%, p = 0.004). The majority of participants who stated a preference in podcast length indicated they preferred podcasts of 30 or less minutes (85%). The top three activities participants were engaged in while listening to the podcasts were driving (46%), completing chores (26%), and exercising (23%). A large number of participants who did not complete the study in its entirety cited a lack of time and podcast length to be the top two barriers to completion. **Conclusion:** This is one of the first studies to examine podcast usage data and preferences in a Canadian undergraduate medical student population. This information may help educators and FOAM producers to optimize educational tools for medical education.

Keywords: medical education, podcast

P025

Optimizing practice for learning emergency department transthoracic echocardiography using an ultrasound simulator

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Introduction: Emergency department (ED) transthoracic echocardio-graphy (TTE) is an important application of emergency department bedside ultrasound. Given limited curricular hours and economic constraints, training using ultrasound simulators represents an attractive alternative to using live-human models. Despite increased uptake of ultrasound simulator technology, educators lack evidence informing how best to use this technology. Three educational paradigms will be explored in this study: self-guided theory (learners are able to determine when they have had "enough practice"), desirable difficulties (manipulating practice conditions to create more durable and flexible learning), and the challenge point framework (avoiding cognitive overload). The question we seek to answer is: in novice medical trainees, which practice condition leads to improved learning in a test of retention when assessing the ability to generate and interpret a para-sternal long axis (PLAX) and apical four-chamber view (A4CH) of the heart? **Methods:** Ultrasound-novices will be recruited from rotators in the ED. Participants will be allocated to one of three groups based on a 2x2 orthogonal design: Group A (variable difficulty × self-determined practice); Group B (variable difficulty × fixed practice); Group C (static difficulty × fixed practice). A standardized didactic lecture will be presented to each participant. Practice conditions with respect to difficulty level (easy, medium, hard) and structure of practice (learner-determined or fixed practice) will vary according to assigned groups. All groups will receive standardized feedback. The ability to identify anatomy and pathology will be assessed. At the conclusion of practice, a post-practice skills assessment and survey will be administered. Two to three weeks later, participants will be retested using three case scenarios. Screenshots of the participant-determined "best image" and video of the performance will be taken to be evaluated by two blinded (to group allocation) reviewers. **Results:** We have currently enrolled 14 participants. We aim to complete enrollment by April 2016. **Conclusion:** We anticipate that our study will provide evidence to inform the best use of ultrasound simulators for teaching TTE in the ED. It will also provide insight into the ability of three educational theories to predict best learning using a novel educational intervention.