

methods, and creation of a clinical pathway may help address the rate of over-transfusion.

Keywords: blood transfusion, Choosing Wisely, audit

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Paramedics perception of working in Nova Scotia's collaborative emergency centres

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Introduction: The Collaborative Emergency Centre (CEC) model of health care delivery was implemented in rural Nova Scotia in July 2011 without an identifiable, directly comparable precedent. It features interprofessional teams working under one roof with the goal of providing improved access to timely primary health care, and appropriate access to 24/7 emergency care. One important component of the CEC model is overnight staffing by a paramedic/registered nurse team consulting with an offsite physician via telephone. Our objective was to ascertain the attitudes, feelings and experiences of paramedics working within the CEC construct. **Methods:** We conducted a qualitative study, guided by the principles of grounded theory. Semi-structured telephone interviews were carried out by the principal investigator with paramedics with experience working in a CEC in the province of Nova Scotia. Interviews were recorded, transcribed and analyzed. Analysis involved an inductive and deductive grounded approach using constant comparative analysis. Data collection and analysis continued until thematic saturation was reached. **Results:** Fourteen paramedics participated in the study. The majority were male ($n = 10$, 71%), with a mean age of 44 years (STD = 8.8) and mean experience as a paramedic of 14 years (STD = 9.7). Four major themes were identified from the data: 1) leadership support, encompassing support from Emergency Health Services and Government prior to and after implementation of the model, 2) team work and collaboration, including interprofessional relationships among members of the healthcare team, 3) value to patients and the communities, and 4) professional and personal benefits of working in CECs. **Conclusion:** Paramedics have found working in CECs to be both professionally and personally rewarding. They perceive the CEC model to be of great value to the patients and communities it serves. Key lessons that might help future expansion of the model in Nova Scotia and other jurisdictions across the country include the importance of building and strengthening relationships between paramedics and nurses, and the need for greater feedback and support from leadership.

Keywords: collaborative emergency centres, qualitative, paramedics

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The novel application of eye-tracking for the cognitive task analysis of expert physician decision-making while leading real-world traumatic resuscitations

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Introduction: Resuscitation is a dynamic, complex and time-sensitive field which encompasses management of both critically-ill patients as well as large multidisciplinary teams. Expertise in this area has not been adequately defined, and to date, no research has directly examined the decision-making and cognitive processes involved. The evolving paradigm of competency-based medical education (CBME) makes better defining expertise in this field of critical importance to aid in the development of both educational and assessment methods.

The technique of cognitive task analysis (CTA) has been used in a variety of fields to explicate the cognitive underpinnings of experts. Experts, however, often have limited insight and incomplete recall of their decision-making processes. We hypothesized that the use of eye-tracking, which provides the combination of first-person video as well as an overlying gaze indicator, could be used to enhance CTA to better understand the defining characteristics of experts in resuscitation.

Methods: Over an 18-month period a sample of 11 traumatic resuscitations were obtained, each led by one of four pre-selected expert physicians outfitted with the Tobii Pro Eye-Tracking Glasses. After each resuscitation, the participant was debriefed using a cued-recall, think-aloud protocol while watching his or her corresponding eye-tracking video. A subsequent qualitative analysis of the resulting video and debrief transcript was performed using an ethnographic approach to establish emerging themes and behaviours of the expert physicians. **Results:** The expert participants demonstrated specific, common patterns in their cognitive processes. In particular, participants exhibited similar anticipatory and visual behaviours, dynamic communication strategies and the ability to distinguish between task-relevant and task-redundant information. All participants reported that this technique uncovered otherwise subconscious aspects of their cognition.

Conclusion: The novel combination of eye-tracking technology to supplement the CTA of expert resuscitators enriched our understanding of expertise in this field and yielded specific findings that can be applied to better develop and assess resuscitation skills.

Keywords: eye-tracking, cognitive task analysis, expertise

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The Calgary Stampede: effects on emergency and urgent care department utilization during a Canadian mass gathering

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Introduction: The Calgary Stampede is a two-week mass gathering occurring annually in July. Clinicians have anecdotally noted increases in emergency department (ED) and urgent care (UC) visits, especially for complaints related to substance misuse and violence. Our objectives were: 1) to determine if there is an increase in overall visits to EDs and UCs during the Stampede, and 2) to determine if there are increases in presentations related to trauma, violence, or intoxication. **Methods:** This observational study used prospectively collected administrative data from five EDs and two UCs in Calgary. For the years 2013 to 2016, daily average data during Stampede dates were compared to the data from the 21 days immediately preceding and following the event. Dates were selected to incorporate a similar proportion of weekends and weekdays in the Stampede and non-Stampede periods. The primary outcome was daily average ED and UC utilization. Secondary outcomes included time of arrival, utilization by demographic groups, complaint category at triage, or International Statistical Classification of Diseases, 10th revision (ICD-10) diagnosis. **Results:** The study period included 263 380 individual ED and UC visits (34 492 Stampede and 228 888 non-Stampede visits). Daily average ED and UC visits increased by 2.1% ($p < 0.0001$) during the Stampede period. Increases in utilization were identified in specific subgroups: male, ambulance arrival, and nighttime arrival between 2000 and 0400 (all $p < 0.05$). The Stampede period saw a marked increase in CTAS 1 visits (16.2%, $p < 0.01$), triage complaints of lacerations (12.4%, $p < 0.0001$) and blunt trauma (19.4%, $p < 0.0001$), and the ICD-10 diagnosis of substance misuse (23.9%, $p = 0.01$). Visits triaged to the minor treatment areas increased by 9.5% ($p < 0.0001$), again most markedly at night (15.3%, $p < 0.0001$).