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The impact of high performance physician training on resident wellness and clinical performance

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Introduction / Innovation Concept: There are numerous research studies in the medical literature, which demonstrate how the experience of a medical residency can contribute towards burnout. The escalating performance pressures and expectations during residency training have the potential to negatively impact upon physician health and clinical performance. The purpose of this prospective cohort study was to test the effectiveness of the High Performance Physician (HPP) program among General Surgery residents at the University of Manitoba with regard to burnout and clinical performance. **Methods:** This program was delivered over a 9-week period. All 26 residents were asked to complete the Maslach Burnout Inventory - Human Services Survey (MBI-HSS). Each resident then participated as the team leader for a 15-minute trauma resuscitation simulation. Three attending physicians from Surgery & Emergency Medicine assessed resident performance and ability to manage work-based stressors. Following the simulation, each resident received a debrief interview. Once the HPP curriculum had been completed, residents took part in a second high fidelity simulation session and again completed the MBI-HSS. **Curriculum, Tool, or Material:** The HPP program offered through the Department of Emergency Medicine (EM), is a performance enhancement based curriculum. It is designed to equip physicians with mental skills to help optimize focus, arousal control, stress management, communication, and teamwork. Further, to utilize these skills to cope and respond more effectively to the inherent performance pressures that may present within one's area of specialization. **Conclusion:** The Emotional Exhaustion domain of the MBI-HSS demonstrated a statistically significant decrease. The other domain scores were not statistically significant. Simulation domain scores did not demonstrate a statistically significant difference in performance between the pre- and post-HPP curriculum simulation sessions. A summative content analysis of the interview data demonstrated that residents believed internal barriers to situational awareness were the most significant impact on performance. Further study is required to determine if differences are seen in long-term follow-up.
Keywords: innovations in EM education, resident wellness, clinical performance

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Incidence and characteristics of ventricle fibrillation in patients with ST-elevation myocardial infarction in a suburban pre-hospital setting

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Introduction: *Background:* Ischemic ventricular fibrillation (VF) is highly related to ST elevation myocardial infarction (STEMI). Pre-hospital STEMI patients have been shown to also develop VF during ambulance transport. However, there is limited literature exploring the characteristics of this specific population of VF. *Objective:* To determine the incidence of pre-hospital VF, and evaluate some demographic and electrocardiogram (ECG) characteristics of STEMI patients having VF while transported by ambulance in a Quebec suburban pre-hospital setting. **Methods:** A retrospective study from 8th August 2006 to 6th December 2015 of 937 STEMI patients transported by ambulance in the Chaudiere-Appalaches region, south of Quebec City. Destination for treatment was either Catherization Laboratory (CL) or the nearest Emergency Department (ED) for reperfusion treatment and was mainly based upon a maximum transport time of 60 minutes, from the first confirmed STEMI-ECG to the CL. Demographics and ECG characteristics were extracted from the patients care records. SPSS-20 was used for descriptive statistics. **Results:** 937 patients (259 women & 678 men) diagnosed with STEMI were included in the study. Patients were regrouped in V1-V4 leads STEMI (336; 35.9%) and in other leads STEMI (651; 64.1%). 52 (5.55%) of all STEMI patients had FV during ambulance transport. There were 10 women (27,4%) and 42 men (72,6%). Of these, 28 had V1-V4 STEMI (28/336; 8.33%) while 24 had other leads STEMI (24/651; 3.69%). Relative risk of FV is higher (225%) with V1-V4 STEMI compared to other leads STEMI. Regarding age groups, patients from 60 to 70 years old represent 38.4% (20/52) of FV for 25.7% (241/937) of STEMI patients while those over 80 years old had 3.85% (2/52) of FV, but were 17% (159/937) of all STEMI patients. Men seem also more at risk for FV (16/20) especially between 60 and 70 years old compare to other age group. **Conclusion:** In this suburban area, VF occurred in 5.55% of STEMI patient's transported by ambulance. STEMI patients over 80 years old had a low rate of FV. Being a man, 60 to 70 years old, with a STEMI located in V1-V4, seems to be associated with a higher risk of VF. More studies are needed to confirm these results and explore other characteristics associated to pre-hospital VF.
Keywords: pre-hospital ventricular fibrillation, electrocardiogram (ECG), myocardial infarction

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Emergency department falls risk management screening tool comparison

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Introduction: Emergency Department (ED) fall risk screening has been newly implemented in Alberta based on Accreditation Canada requirements. Two existing inpatient tools failed to include certain ED risk conditions. One tool graded unconsciousness as no risk for falling, and neither considered intoxication or sedation. This led to the development of a new fall risk management screening tool, the FRM (Tool1). This study compared Tool1 with inpatient utilized Schmid Fall Risk Assessment Tool (Tool2) and the validated Hendrich II Fall Risk Model (Tool3). **Methods:** Patients ($\geq$17 years old) in a tertiary care adult ED with any of the following; history of falling in the last 12 months, elderly/frail, incontinence, impaired gait, mobility assist device, confusion/disorientation, procedural sedation, intoxication/sedated, or unconscious were included. Forms were randomized to score patients using different paired screening tools: Tool1 paired with either Tool2 or Tool3. Percent agreement (PA) between the tools based on identification of a patient at either risk/no risk for falling; higher PA indicating more tool homogeneity. **Results:** A total of 928 screening forms were completed within our 8-week study period; 452 and 443 comparing Tool1 to Tool2 and Tool1 to Tool3, respectively. Thirty-two forms included only Tool1 scores, excluding them from comparative analysis. The average patient age (n = 895) was 64.8 ± 21.4 years. Tool1 identified 66.4% of patients at risk, whereas Tool2 and Tool3 identified only 19.2% and 31.4%, respectively. Tool1 and 2 had a PA of 50.2%, whereas Tool1 and Tool3 had a PA of 65.9%. **Conclusion:** The FRM tool had higher agreement with the validated assessment tool, identifying patients at risk for falling but better identified patients presenting with intoxication, need for procedural sedation and unconsciousness. The other tools generally miss these common ED conditions, putting