GLOBAL RESEARCH HIGHLIGHTS

Editor's note: *Annals* has partnered with a small group of selected journals of international emergency medicine societies to share from each a highlighted research study, as selected monthly by their editors. Our goals are to increase awareness of our readership to research developments in the international emergency medicine literature, promote collaboration among the selected international emergency medicine journals, and support the improvement of emergency medicine world-wide, as described in the WAME statement at http://www.wame.org/about/policy-statements#Promoting%20Global%20Health. Abstracts are reproduced as published in the respective participating journals, and are not peer reviewed or edited by *Annals*.

African Journal of Emergency Medicine

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Official Journal of the African Federation for Emergency Medicine, the Emergency Medicine Association of Tanzania, the Emergency Medicine Society of South Africa, the Egyptian Society of Emergency Medicine, the Libyan Emergency Medicine Association, the Ethiopian Society of Emergency Medicine Professionals, the Sudanese Emergency Medicine Society, the Society of Emergency Medicine Practitioners of Nigeria and the Rwanda Emergency Care Association

Prognostic performance of ECG abnormalities compared to vital signs in acutely ill patients in a resource-poor hospital in Uganda

Namujwiga T, Nakitende I, Kellett J, Opio M, Lumala A; on behalf of the Kitovu Hospital Study Group. Prognostic performance of ECG abnormalities compared to vital signs in acutely ill patients in a resource-poor hospital in Uganda. *Afr J Emerg Med.* 2019;9:64-69.

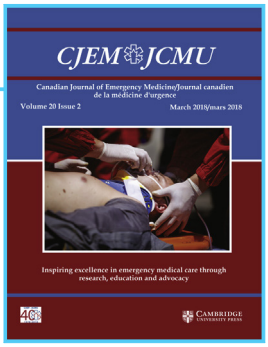
Background: There are few reports of electrocardiogram (ECG) findings and their prognostic value in acutely ill patients admitted to low resource hospitals in sub-Saharan Africa.

Methods: We undertook an observational study of acutely ill medical patients admitted to a low-resource hospital in Uganda. Vital signs were used to calculate the National Early Warning Score (NEWS), and all ECGs were assessed using Tan et al.'s scoring system as described in Clin Cardiol 2009;32:82–86.

Results: There were 1361 ECGs performed, covering 68% of all acutely ill medical patients admitted to the hospital during the study. The most common ECG abnormality was a prolonged QTc interval (42% of all patients) and left ventricular hypertrophy (13.5%). Compared to the 519 patients (38%) with no Tan score abnormality, the 842 (62%) patients with one or more abnormalities were more likely to die in hospital (OR = 2.82; CI95% = 1.50–5.36) and within 30 days of discharge (OR = 2.46; CI95% = 1.50–4.08). There was no relationship between age and mortality; however, after adjustment by logistic regression, any NEWS $\geq$1 on admission, a Tan score of $\geq$1, and male sex all remained clinically significant predictors of both in-hospital and 30-day mortality.

Discussion: The majority of acutely ill medical patients admitted in a low-resource hospital in sub-Saharan Africa had ECG abnormalities, of which prolonged QTc and left ventricular hypertrophy were most common. Those with any Tan score abnormality were twice as likely to die as those without an abnormality.

Canadian Journal of Emergency Medicine



caep.ca/resources/cjem

Official Journal of the Canadian Association of Emergency Physicians

Examining Return Visits to the Emergency Department after Concussion in Canada

Morrison L, Taylor R, Mercuri M, Thompson J. Examining Return Visits to the Emergency Department after Concussion in Canada. *CJEM.* 2019; http://doi.org/10.1017/cem.2019.22.

Objective: The purpose of this study was to identify 1) the proportion of patients discharged from the emergency department (ED) with a diagnosis of concussion and return within 14 days, and 2) the characteristics that prompt a return.

Methods: A health records review was conducted on adult patients with a discharge diagnosis of a concussion who accessed care through Hamilton Health Sciences EDs and Urgent Care Centre in 2016. Subsequent data were collected from those

who returned to the ED within 14 days. Clinical characteristics of returners were compared to those of non-returners.

Results: Of the 389 patients included in the study, 38 (10%) returned within 14 days. Patients who sustained a concussion in a sport-related context or were referred to a specialized clinic were less likely to return ($p = 0.03$). Those who suffered an assault-related concussion were more likely to return ($p = 0.01$). Of those who did return, 42% received a CT scan with normal results, and 42% were given new discharge instructions.

Conclusions: Approximately 10% of patients diagnosed with a concussion in a Canadian hospital setting returned to the ED within 14 days of their index visit. Our study suggests the opportunity to reduce this burden to both the healthcare system and the patient through careful discharge instructions outlining anticipated symptoms following a concussion (specifically, headache) or referral to a concussion clinic.

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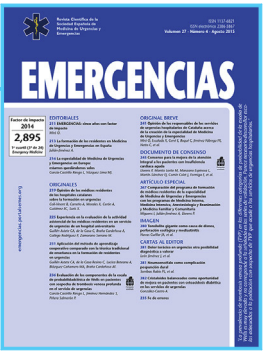
Emergencias



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Official Journal of the Spanish Society of Emergency Medicine

Drowning: epidemiology, prevention, pathophysiology, resuscitation, and hospital treatment

Abelairas-Gómez C, Tipton MJ, González-Salvado V, Bierens JJLM. Drowning: epidemiology, prevention, pathophysiology, resuscitation, and hospital treatment. *Emergencias*. 2019;31:270-280

This narrative review discusses the evidence relevant to key aspects of drowning, which is defined by the World Health Organization as the process of respiratory difficulty caused by submersion/immersion in liquid. The length of time the victim is submerged is a key factor in survival and neurologic damage. Although respiratory distress and hypoxia are the main events, other complications affecting various systems and organs may develop. Drowning is one of the main causes of accidental death worldwide, yet deaths from drowning are underestimated and morbidity is unknown. Prevention is essential for reducing both mortality and morbidity, but if prevention fails, the speed of access to and the quality of prehospital and hospital care will determine the prognosis. It is therefore essential to understand the factors and mechanisms involved in these emergencies.

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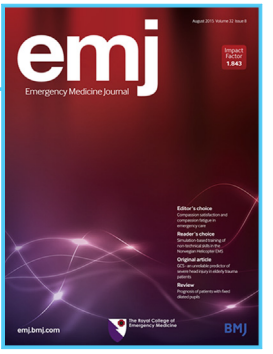
Emergency Medicine Journal



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Official Journal of the Royal College of Emergency Medicine

Adapting the Canadian CT head rule age criteria for mild traumatic brain injury

Fournier N, Gariepy C, Prévost J-F, Belhumeur V, Fortier É, Carmichael P-H, Gariepy J-L, Le Sage N, Émond M. Adapting the Canadian CT head rule age criteria for mild traumatic brain injury. *Emerg Med J*. 2019; http://doi.org/10.1136/emermed-2018-208153.

Objective: Gamification is a non-evaluation and competition-based training methodology with high emotional involvement. The goal of this study was to evaluate gamification methodology as compared with other existing methodologies when teaching cardiopulmonary resuscitation (CPR) to secondary school students.

Methods: 489 secondary school students from two high schools in Spain participated in this randomised block quasi-experimental study in February 2018. The students were classified into different groups. Each group received CPR training with a different methodology: GAM (gamification-based training as a compulsory but non-tested academic activity to learn by playing in teams, with instructor and visual feedback); EVA (training based on subsequent evaluation as a motivational incentive, with instructor and visual feedback); VFC (visual feedback complementary, training based on a non-compulsory and non-tested academic activity, with instructor and visual feedback); TC (traditional complementary, training based on a non compulsory and non-tested academic activity, with instructor feedback). After a week, each student performed a 2-min hands-only CPR test and quality of CPR was assessed. Visual feedback in training and CPR variables in test were provided by the QCPR Instructor App using a Little Anne manikin, both from Laerdal (Norway).

Results: GAM (89.56%; 95% CI 86.71 to 92.42) methodology resulted in significantly higher scores for CPR quality than VFC and TC (81.96%; 95% CI 78.04% to 85.88% and 64.11%; 95% CI 58.23 to 69.99). GAM (61.77%; 95% CI 56.09 to 67.45) methodology also resulted in significantly higher scores for correct rate than VFC and TC (48.41%; 95% CI 41.15% to 55.67% and 17.28%; 95% CI 10.94 to 23.62). 93.4% of GAM methodology participants obtained >50 mm of compression mean depth which was a significantly higher proportion than among students in VFC and TC (78.0% and 71.9%). No differences between GAM and EVA were found. A confidence level of 95% has been assigned to all values.

Conclusions: GAM methodology resulted in higher CPR quality than non-tested methods of academic training with instructor feedback or visual feedback. Gamification should be considered as an alternative teaching method for Basic Life Support (BLS) in younger individuals.

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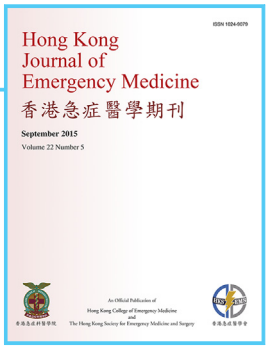
Hong Kong Journal of Emergency Medicine



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Official Journal of the Hong Kong College of Emergency Medicine

Clinical features of patients with acute epiglottitis in the emergency department

Wu I-Y, Lin P-C, Hsu C-C, Chen K-T. Clinical features of patients with acute epiglottitis in the emergency department. *HKJEM*. 2019;26:268-274.

Background: Acute epiglottitis is a potentially life-threatening condition, but its clinical manifestations are usually nonspecific.

Objective: We investigated the clinical differences between patients with and those without acute epiglottitis and identified the risk factors of patients with acute epiglottitis who may develop airway compromise.

Methods: We studied patients suspected of having acute epiglottitis in the emergency department. All patients received fibre-optic laryngoscopy performed by an otorhinolaryngologist and were subsequently divided into two groups: patients with acute epiglottitis and those without.

Results: Of the 311 adult patients, 108 were diagnosed with acute epiglottitis. In the nonepiglottitis group, more complaints of fever ($p < 0.001$), cough ($p < 0.001$), and rhinorrhoea ($p = 0.048$) and more systemic comorbidities were reported. People with acute epiglottitis generally had a higher prevalence of head and neck tumours ($p = 0.015$), odynophagia ($p = 0.037$) and an elevated white blood cell level ($p < 0.001$). The proportion of patients with cardiovascular disease ($p = 0.014$) or diabetes mellitus ($p = 0.019$), drooling ($p = 0.026$) or sore throat ($p = 0.042$), a high respiratory rate ($p = 0.009$), an elevated white blood cell level ($p = 0.002$) and a higher C-reactive protein level ($p = 0.005$) was higher among those who required airway intervention.

Conclusion: Clinical manifestations alone were insufficiently reliable for diagnosing acute epiglottitis but could predict disease severity. Laryngoscopy should be performed as soon as possible once a patient is suspected of having acute epiglottitis.

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