

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 Abstracts are reproduced as published in the respective participating journals, and are not peer reviewed or edited by *Annals*.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

Impact of emergency medicine training implementation on mortality outcomes in Kigali, Rwanda: An interrupted time-series study

Aluisio AR, Barry MA, Martin KD, Mbanjumucyo G, Mutabazi ZA, Karim N, Moreshy RT, Nyinawankusi JD, Byiringiro J, Levine AC. Impact of emergency medicine training implementation on mortality outcomes in Kigali, Rwanda: An interrupted time-series study. *Afr J Emerg Med.* 2019;9:14-20.

Introduction: Although emergency medicine (EM) training programmes have begun to be introduced in low- and middle-income countries (LMICs), minimal data exist on their effects on patient-centered outcomes in such settings. This study evaluated the impact of EM training and associated systems implementation on mortality among patients treated at the University Teaching Hospital-Kigali (UTH-K).

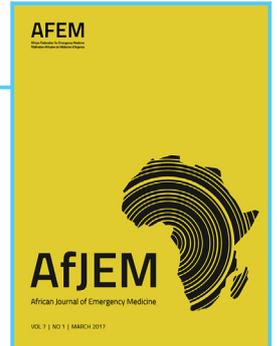
Methods: At UTH-K an EM post-graduate diploma programme was initiated in October 2013, followed by a residency-training programme in August 2015. Prior to October 2013, care was provided exclusively by general practice physicians (GPs); subsequently, care has been provided through mutually exclusive shifts allocated between GPs and EM trainees. Patients seeking Emergency Centre (EC) care during November 2012–October 2013 (pre-training) and August 2015–July 2016 (post-training) were eligible for inclusion. Data were abstracted from a random sample of records using a structured protocol. The primary outcomes were EC and overall hospital mortality. Mortality prevalence and risk differences (RD) were compared pre- and post-training.

Magnitudes of effects were quantified using regression models to yield adjusted odds ratios (aOR) with 95% confidence intervals (CI).

Results: From 43,213 encounters, 3609 cases were assessed. The median age was 32 years with a male predominance (60.7%). Pre-training EC mortality was 6.3% (95% CI 5.3–7.5%), while post-training EC mortality was 1.2% (95% CI 0.7–1.8%), constituting a significant decrease in adjusted analysis (aOR = 0.07, 95% CI 0.03–0.17; $p < 0.001$). Pre-training overall hospital mortality was 12.2% (95% CI 10.9–13.8%). Post-training overall hospital mortality was 8.2% (95% CI 6.9–9.6%), resulting in a 43% reduction in mortality likelihood (aOR = 0.57, 95% CI 0.36–0.94; $p = 0.016$).

Discussion: In the studied population, EM training and systems implementation was associated with significant mortality reductions demonstrating the potential patient-centered benefits of EM development in resource-limited settings.

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Canadian Journal of Emergency Medicine

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Official Journal of the Canadian Association of Emergency Physicians

The prognostic significance of repeated prehospital shocks for out-of-hospital cardiac arrest survival

Cournoyer A, Notebaert É, Cossette S, Londei-Leduc L, de Montigny L, Ross D, Lamarche Y, Potter BJ, Vadeboncoeur A, Daoust R, Sokoloff C, Albert M, Bernard F, Morris J, Paquet J, Chauny J-M, Iseppon M, Marquis M, de Champlain F, Cavayas YA, Denault A. The prognostic significance of repeated prehospital shocks for out-of-hospital cardiac arrest survival. *CJEM*. 2019;21:330-338.

Objective: Patients suffering from an out-of-hospital cardiac arrest (OHCA) associated with an initial shockable rhythm have a better prognosis than their counterparts. The implications of recurrent or refractory malignant arrhythmia in such context remain unclear. The objective of this study is to evaluate the association between the number of prehospital shocks delivered and survival to hospital discharge among patients in OHCA.

Methods: This cohort study included adult patients with an initial shockable rhythm over a 5-year period from a registry of OHCA in Montreal, Canada. The relationship between the number of prehospital shocks delivered and survival to discharge was described using dynamic probabilities. The association between the number of prehospital shocks delivered and survival to discharge was assessed using multivariable logistic regression.

Results: A total of 1,788 patients (78% male with a mean age of 64 years) were included in this analysis, of whom 536 (30%) received treatments from an advanced care paramedic. A third of the cohort (583 patients, 33%) survived to hospital discharge. The probability of survival was highest with the first shock (33% [95% confidence interval 30%-35%]), but decreased to 8% (95% confidence interval 4%-13%) following nine shocks. A higher number of prehospital shocks was independently associated with lower odds of survival (adjusted odds ratio=0.88 [95% confidence interval 0.85-0.92], $p < 0.001$).

Conclusions: Survival remains possible even after a high number of shocks for patients suffering from an OHCA with an initial shockable rhythm. However, requiring more shocks is independently associated with worse survival.

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Emergencias

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Official Journal of the Spanish Society of Emergency Medicine

Factors associated with the activation of emergency medical services in patients with acute stroke: a prospective study

Soto-Cámara R, Trejo-Gabriel-Galán JM, González-Bernal J, González-Santos J, Cubo E. Factors associated with the activation of emergency medical services in patients with acute stroke: a prospective study. *Emergencias*. 2019;31:86-90.

Objective: To identify factors associated with activation of emergency medical services (EMS) in stroke.

Methods: Cross-sectional study of all patients admitted with stroke to Hospital Universitario de Burgos in Spain between September 1, 2015, and August 31, 2016. We recorded sociodemographic, clinical, behavioral, cognitive, and context information and explored possible associations with calls for EMS units.

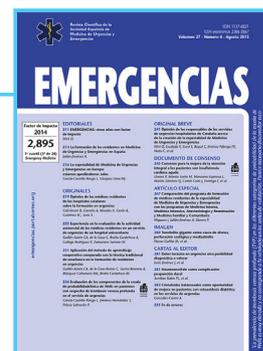
Results: Three hundred eleven patients were included. EMS units were activated in 171 cases (55%) associated with an assessment that the patient was unable to manage the health situation from the onset of symptoms (adjusted odds ratio [OR], 6.95; 95% CI, 3.64–13.26), a witness's call for help (rather than the patient's) (OR, 5.68; 95% CI, 2.99–10.83), serious neurological

deficit defined by a score over 16 on the National Institute of Health Stroke Scale (OR, 4.51; 95% CI, 1.10–18.46), a patient's awareness of serious symptoms leading to a call for help (OR, 4.03; 95% CI, 1.42–11.42), and a patient's history of high blood pressure (OR, 2.38; 95% CI, 1.25–4.54).

Conclusions: Calls for EMS attendance from either a patient or a witness are associated with objective signs of severe stroke and subjective perception of severity.

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Emergency Medicine Journal

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Official Journal of the Royal College of Emergency Medicine

Prehospital determinants of successful resuscitation after traumatic and non-traumatic out-of-hospital cardiac arrest

Barnard EBG, Sandbach DD, Nicholls TL, Wilson AW, Ercole A. Prehospital determinants of successful resuscitation after traumatic and non-traumatic out-of-hospital cardiac arrest. *Emerg Med J*. 2018; <http://doi.org/10.1136/emermed-2018-208165>.

Background: Out-of-hospital cardiac arrest (OHCA) is prevalent in the UK. Reported survival is lower than in countries with comparable healthcare systems; a better understanding of outcome determinants may identify areas for improvement.

Methods: An analysis of 9109 OHCA attended in East of England between 1 January 2015 and 31 July 2017. Univariate descriptives and multivariable analysis were used to understand the determinants of survival for nontraumatic cardiac arrest (NTCA) and traumatic cardiac arrest (TCA). Two Utstein outcome variables were used: survival to hospital admission and hospital discharge.

Results: The incidence of OHCA was 55.1 per 100,000 population/year. The overall survival to hospital admission was 27.6% (95% CI 26.7% to 28.6%) and the overall survival to discharge was 7.9% (95% CI 7.3% to 8.5%). Survival to hospital admission and survival to hospital discharge were both greater in the NTCA group compared with the TCA group: 27.9% vs 19.3% $p=0.001$, and 8.0% vs 3.8%

$p=0.012$ respectively. Determinants of NTCA and TCA survival were different, and varied according to the outcome examined. In NTCA, bystander cardiopulmonary resuscitation (CPR) was associated with survival at discharge but not at admission, and the likelihood of bystander CPR was dependent on geographical socioeconomic status. An air ambulance was associated with increased survival to both hospital admission and discharge in NTCA, but only with survival to admission in TCA.

Conclusion: NTCA and TCA are clinically distinct entities with different predictors for outcome—future OHCA reports should aim to separate arrest aetiologies. Determinants of survival to hospital admission and discharge differ in a way that likely reflects the determinants of neurological injury. Bystander CPR public engagement may be best focused in more deprived areas.

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Hong Kong Journal of Emergency Medicine

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Official Journal of the Hong Kong College of Emergency Medicine

Is lung ultrasonography a useful method to diagnose children with community-acquired pneumonia in emergency settings?

Çağlar A, Ulusoy E, Er A, Akgül F, Çitlenbik H, Yılmaz D, Duman M. Is lung ultrasonography a useful method to diagnose children with community-acquired pneumonia in emergency settings? *HKJEM*. 2019;26:91-97.

Background: Lung ultrasonography is a new method for diagnosing community-acquired pneumonia. Lung ultrasonography has some advantages over chest X-ray, such as lack of ionizing radiation risk, bedside performance, and cost-effectiveness.

Objectives: In this study, we aimed to determine the feasibility of lung ultrasonography in emergency settings in children with community-acquired pneumonia.

Methods: The study included patients younger than 18 years of age with suspicion of community-acquired pneumonia. On the first evaluation, patients with positive clinical and/or chest X-ray findings were defined to have community-acquired pneumonia,

and this was accepted as the gold standard. The chest X-rays were evaluated by the chief of the pediatric emergency department, who was blinded to the patients and the lung ultrasonography results. Lung ultrasonography was performed by another pediatric emergency physician who was also blinded to the chest X-ray results and clinical findings such as fever, respiratory distress, rales, and wheezing.

Results: Of the 91 patients enrolled, 71 (78.0%) were diagnosed with community acquired pneumonia based on clinical and chest X-ray findings. The median (interquartile range) duration of the lung ultrasonography procedure was 4.0 (3.5–6.0) min. Shred sign, air bronchogram, and



hepatization were significantly more frequent in the patients with community-acquired pneumonia ($p < 0.01$, $p < 0.01$, and $p = 0.01$, respectively). Sensitivity and specificity of lung ultrasonography were 78.5% (67.1–87.4) and 95.2% (76.1–99.8), respectively.

Conclusion: Lung ultrasonography is a useful diagnostic method for children with suspicion of community-acquired pneumonia.

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