

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 Abstracts are reproduced as published in the respective participating journals, and are not peer reviewed or edited by *Annals*.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

### A descriptive analysis of endotracheal intubation in a South African Helicopter Emergency Medical Service

Stassen S, Lithgow A, Wylie C, Stein C. A descriptive analysis of endotracheal intubation in a South African Helicopter Emergency Medical Service. *Afr J Emerg Med.* 2018;8:140-144.

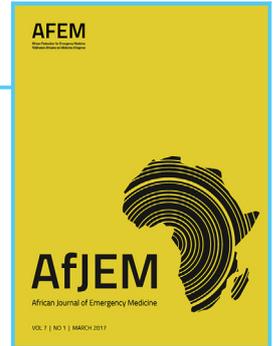
**Introduction:** Helicopter Emergency Medical Services (HEMS) exists to supplement the operations of ground-based emergency care providers, mainly in high acuity cases. One of the important procedures frequently carried out by HEMS personnel is endotracheal intubation. Several HEMS providers exist in South Africa, with a mix of advanced life support personnel; however, intubation success rates and adverse events have not been described in any local HEMS operation.

**Methods:** This was a retrospective chart review of intubation-related data collected by a HEMS operation based in Johannesburg over a 16-month period. First-pass and overall success rates were described, in addition to perceived airway difficulty, adverse events and other data.

**Results:** Of the 49 cases recorded in the study period, one was excluded leaving 48 cases for analysis. Most cases ( $n = 34$ , 71%) involved young male trauma patients who were intubated with rapid sequence intubation. The first-pass success rate was 79% ( $n = 38$ ) with an overall success rate of 98% ( $n = 47$ ). At least one factor suggesting airway difficulty was present in 29% ( $n = 14$ ) of cases, with most perceived airway difficulty related to the high prevalence of trauma cases. At least one adverse event occurred in 27% ( $n = 13$ ) of cases with hypoxaemia, hypotension and bradycardia most prevalent.

**Discussion:** In this small sample of South African HEMS intubation cases, we found overall and first-pass success rates comparable to those reported in similar contexts.

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## Canadian Journal of Emergency Medicine

[caep.ca/resources/cjem](http://caep.ca/resources/cjem)

*Official Journal of the Canadian Association of Emergency Physicians*

### Emergency overcrowding and access block: A smaller problem than we think

Innes GD, Sivilotti MLA, Ovens H, McLelland K, Dukelow A, Kwok E, Chopra A, Cheng I, Kalla D, Mackinnon D, Kim Sing C, Barclay N, Ross T, Chochinov A. Emergency overcrowding and access block: A smaller problem than we think. CJEM. 2019;21:177-185.

**Objective:** Emergency department (ED) access block, the inability to provide timely care for high acuity patients, is the leading safety concern in First World EDs. The main cause of ED access block is hospital access block with prolonged boarding of inpatients in emergency stretchers. Cumulative emergency access gap, the product of the number of arriving high acuity patients and their average delay to reach a care space, is a novel access measure that provides a facility-level estimate of total emergency care delays. Many health leaders believe these delays are too large to be solved without substantial increases in hospital capacity. Our objective was to quantify cumulative emergency access blocks (the problem) as a fraction of inpatient capacity (the potential solution) at a large sample of Canadian hospitals.

**Methods:** In this cross-sectional study, we collated 2015 administrative data from 25 Canadian hospitals summarizing patient inflow and delays to ED care space. Cumulative access gap for high acuity patients was calculated by multiplying the number

of Canadian Triage Acuity Scale (CTAS) 1-3 patients by their average delay to reach a care space. We compared cumulative ED access gap to available inpatient bed hours to estimate fractional access gap.

**Results:** Study sites included 16 tertiary and 9 community Eds in 12 cities, representing 1.79 million patient visits. Median ED census (interquartile range) was 66,300 visits per year (58,700-80,600). High acuity patients accounted for 70.7% of visits (60.9%-79.0%). The mean (SD) cumulative ED access gap was 46,000 stretcher hours per site per year ( $\pm 19,900$ ), which was 1.14% ( $\pm 0.45\%$ ) of inpatient capacity.

**Conclusions:** ED access gaps are large and jeopardize care for high acuity patients, but they are small relative to hospital operating capacity. If access block were viewed as a “whole hospital” problem, capacity or efficiency improvements in the range of 1% to 3% could profoundly mitigate emergency care delays.

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## Emergency Medicine Journal

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*Official Journal of the Royal College of Emergency Medicine*

### Reliability of triage systems for paediatric emergency care: a systematic review

Magalhães-Barbosa MC, Rodrigues Robaina J, Prata-Barbosa A, de Souza Lopes C. Reliability of triage systems for paediatric emergency care: a systematic review. Emerg Med J. 2018; <http://doi.org/10.1136/emmermed-2018-207781>.

**Objective:** To present a systematic review on the reliability of triage systems for paediatric emergency care.

**Methods:** A search of MEDLINE, Cochrane Library, Latin American and Caribbean Health Sciences Literature, Scientific Electronic Library Online, Nursing Database Index and Spanish Health Sciences Bibliographic Index for articles in English, French, Portuguese or Spanish was conducted to identify reliability studies of five-level triage systems for patients aged 0–18 years published up to April 2018. Two reviewers performed study selection, data extraction and quality assessment as recommended by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement.

**Results:** Twenty studies on nine triage systems were selected: the National Triage System (n=1); the Australasian Triage

Scale (n=3); the paediatric Canadian Triage and Acuity Scale (PedCTAS) (n=5); the Manchester Triage System (MTS) (n=1); the Emergency Severity Index (ESI) (n=5); an adaptation of the South African Triage Scale for the Princess Marina Hospital in Botswana (n=1); the Soterion Rapid Triage System (n=1); the Rapid Emergency Triage and Treatment System-paediatric version (n=2); the Paediatric Risk Classification Protocol (n=1). Ten studies were performed with actual patients, while the others used hypothetical scenarios. The studies were rated low (n=14) or moderate (n=6) quality. Kappa was the most used statistic, although many studies did not specify the weighting. PedCTAS, MTS and ESI V.4 exhibited substantial to almost perfect agreement in moderate quality studies.



**Conclusions:** There is some evidence on the reliability of the PedCTAS, MTS and ESI V.4, but most studies are limited to the countries where they were developed. Efforts are needed to improve the quality of the studies, and cross-cultural adapta-

tion of those tools is recommended in countries with different professional qualification and sociocultural contexts.

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## Hong Kong Journal of Emergency Medicine

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*Official Journal of the Hong Kong College of Emergency Medicine*

### A preliminary report of clinical experience in managing patients with sepsis and septic shock in emergency medicine ward

Kit Li C, Fung Wong O, Ko S1, Man Ma H, Lit CHA. A preliminary report of clinical experience in managing patients with sepsis and septic shock in emergency medicine ward. HKJEM. 2019;26:15-25.

**Background:** Sepsis and septic shock are common causes of hospital admission, morbidity, and mortality, posing a significant burden on the health-care systems.

**Objective:** The objective of this study was to report the clinical experience of management and outcomes of sepsis patients in the emergency medical ward of a community hospital. The risk factors associated with adverse outcomes of sepsis patients were also analyzed.

**Methods:** This was a retrospective cohort study of patients with sepsis or septic shock managed in the emergency medical ward of North Lantau Hospital from 1 March 2015 to 31 March 2017. Their characteristics, clinical outcomes, risk factors associated with in-hospital mortality, 28-day mortality, and prolonged hospital stay (>14 days) were analyzed.

**Results:** A total of 68 eligible patients met the inclusion criteria during the study period. The mean age of the patients was 73 (standard deviation, 16.7; range, 34–100) years. The mean Sequential Organ Failure Assessment score of all the cases was 4.5 (standard deviation, 2.4; range, 2–11). The most common source of infection was pneumonia (50%). During the stay in the emergency medical ward, 35 cases (49%) required vasopressor support for management of septic shock, and 12 cases required non-invasive ventilation (NIV) support. Five patients were eventually transferred to tertiary hospital (Princess Margaret Hospital) for further management. There were five in-hospital mortality cases and two 28-day mortality cases. From the univariate analysis, factors

associated with in-hospital mortality included Sequential Organ Failure Assessment score >6 ( $p < 0.000$ ), increasing number of organ dysfunction ( $p < 0.000$ ), presence of chronic liver disease ( $p = 0.025$ ), respiratory dysfunction during admission ( $p = 0.028$ ); factors associated with 28-day mortality were advanced age ( $p < 0.000$ ), increasing number of organ dysfunction ( $p = 0.033$ ), presence of congestive heart failure ( $p = 0.004$ ), and the presence of cancer ( $p = 0.034$ ); factors associated with prolonged hospital stay were advanced age, presence of chronic obstructive airway disease ( $p = 0.003$ ), advanced age ( $p = 0.041$ ), and the use of NIV support ( $p = 0.001$ ). In multivariate analysis, weak associations between in-hospital mortality and Sequential Organ Failure Assessment score >6 ( $p = 0.226$ ) and increased number of organ dysfunction ( $p = 0.108$ ) were demonstrated; there was a trend of prolonged length of stay with increased age ( $p = 0.139$ ).

**Conclusion:** Our experience and knowledge in managing sepsis patients in the emergency medical ward with implementation of critical care bed services increased significantly. These preliminary results demonstrated that, with appropriate patient selection, sepsis patients can be safely managed in the emergency medical ward. Further study with larger sample size is needed to identify risk factors of adverse outcomes in this group of patients managed in the emergency medical ward.

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