

# Global Research Highlights

**Editor's note:** CJEM 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 Abstracts are reproduced as published in the respective participating journals and are not peer reviewed or edited by CJEM.

## Annals of Emergency Medicine

[www.acep.org/annals/](http://www.acep.org/annals/)

**Official journal of the American College of Emergency Physicians**  
(The print version of this article has been scheduled for March 2020)

### Inhaled Methoxyflurane Provides Greater Analgesia and Faster Onset of Action Versus Standard Analgesia in Patients With Trauma Pain: InMEDIATE: A Randomized Controlled Trial in Emergency Departments

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<https://doi.org/10.1016/j.annemergmed.2019.07.028>

#### Objective

The objective of the InMEDIATE study was to evaluate the change in intensity of traumatic pain over the first 20 min in adult patients treated with methoxyflurane versus standard analgesic treatment in Spain. This the first randomized, active-controlled, multicenter trial of methoxyflurane in the emergency setting in Europe.

#### Methods

This was a randomized, controlled study that enrolled adult patients with acute moderate to severe (score  $\geq 4$  on the 11-point Numeric Rating Scale) trauma-associated pain in 14 Spanish emergency departments. Patients were randomized 1:1 to methoxyflurane (up to 2 $\times$ 3 mL) or standard analgesic treatment. Coprimary endpoints were the change from baseline in Numeric Rating Scale pain intensity score during the first 20 minutes of treatment and time to first pain relief.

#### Results

Three hundred five patients were randomized (methoxyflurane 156; standard analgesic treatment 149). Most patients in

the standard analgesic treatment group (70%) received intravenous first-step analgesics and 9.4% of patients were treated with opioids. Mean decrease from baseline in Numeric Rating Scale pain intensity score was greater for methoxyflurane than standard analgesic treatment at all points, with a significant treatment difference overall up to 20 minutes (repeated-measures model 2.47 versus 1.39; treatment difference 1.00; 95% confidence interval 0.84 to 1.32). Median time to first pain relief was significantly shorter for methoxyflurane than standard analgesic treatment (3 versus 10 minutes). Methoxyflurane achieved better patient and clinician ratings for pain control and comfort of treatment than standard analgesic treatment and exceeded patient and clinician expectations of treatment in, respectively, 77% and 72% of cases compared with 38% and 19% for standard analgesic treatment.

#### Conclusion

These results support consideration of methoxyflurane as a nonnarcotic, easy-to-administer, rapid-acting, first-line alternative to currently available analgesic treatments for trauma pain.



## African journal of emergency medicine

[afjem.com](http://afjem.com)

**The 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**

### Needs assessment for a formal emergency medicine residency program in southern Madagascar

Mockler G, Rakotoarivelo RA, Ranaivo J, Valenzuela R, Pierson K, Calix D, Mallon W

*Afr J Emerg Med* 2019;9(3):109–13

<https://doi.org/10.1016/j.afjem.2019.05.001>

#### Introduction

World Health Organization data for Madagascar reveal that the nation's under age five mortality rate is 56/1000, and that its maternal mortality rate is 440/100,000. Malaria, leprosy, plague, and tuberculosis remain significant communicable disease threats. Malnutrition rates are improving but continue to impact negatively on the general health of the Malagasy population, especially in the southern region with its 1.9 million inhabitants. There are no emergency medicine (EM) training programs to serve the southern half of Madagascar, which has a large urban population in Fianarantsoa. This study aimed to assess the need for and potential feasibility of an emergency medicine training program in southern Madagascar.

#### Methods

We met with the institutional leadership on site at the university hospital in Fianarantsoa. A needs assessment was performed on multiple domains. Domain 1: existing hospital infrastructure and its physical plant and emergency centre (EC) space allotment. Domain 2: existing clinical and technological resources. Domain 3: educational resources and the existing curriculum for EM. Domain 4: medical student

educational program and availability of prospective residency candidates. Domain 5: pre-hospital care and emergency medical services.

#### Results

The size of the EC is adequate for the current census. Clinical resources are typical of many developing countries, with significant need for technological advancement and support, which we delineate in the body of our paper. There is an existing curriculum in Antananarivo and in Majanga, as well as one available through the African Federation for Emergency Medicine. The medical school in the area is relatively new, with graduating classes numbering approximately 30. There is no organised pre-hospital care system, no 9-1-1 equivalent, and no pre-hospital treatment from within metropolitan Fianarantsoa.

#### Conclusion

While the needs assessment indicates substantial need for emergency medicine development in southern Madagascar, the yield (particularly for the metropolitan Fianarantsoa area) would serve the population well.

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## Emergency Medicine Journal

[emj.bmj.com](http://emj.bmj.com)

**Official Journal of the Royal College of Emergency Medicine**

### What is the inter-rater agreement of injury classification using the WHO minimum data set for emergency medical teams?

Anisa Jabeen Nasir Jafar, Jamie C Sergeant, Fiona Lecky

<http://dx.doi.org/10.1136/emmermed-2019-209012>

#### Objective

In 2017, the WHO produced its first minimum data set (MDS) for emergency medical team (EMT) daily reporting during the sudden-onset disasters (SODs), following expert consensus. The MDS was deliberately designed to be simple in order to improve the rate of data capture; however, it is new and untested. This study assesses the inter-rater agreement

between practitioners when performing the injury aspect of coding within the WHO EMT MDS.

#### Methods

25 clinical case vignettes were developed, reflecting potential injuries encountered in an SOD. These were presented online from April to July 2018 to practitioners who have experience of/training in managing patients in SODs. The practitioners



were from UK-Med's members, Australian Medical Assistance Team's Northern Territory members and New Zealand Medical Assistance Team members. Practitioners were asked to code injuries according to WHO EMT MDS case classifications. Randolph's kappa statistic for free-marginal multirater data was calculated for the whole dataset as well as subgroups to ascertain inter-rater agreement.

### Results

86 practitioners responded (20.6% response rate), giving >2000 individual case responses. Overall agreement was moderate at 67.9% with a kappa of 0.59 (95% CI 0.49 to 0.69). Despite subgroups of paramedics (kappa 0.63, 95% CI 0.53 to 0.72), doctors (kappa 0.61, 95% CI 0.52 to 0.69) and those with disaster

experience (kappa 0.62, 95% CI 0.52 to 0.71) suggesting slightly higher agreement, their CIs (and those of other subgroups) suggest overall similar and moderate levels of practitioner agreement in classifying injuries according to the MDS categories.

### Conclusion

An inter-rater agreement of 0.59 is moderate, at best, however, it gives ministries of health some sense of how tightly they may interpret injury data derived from daily reports using WHO EMT MDS. Furthermore, this kappa is similar to established but more complex (thus more contextually impractical) injury scores. Similar studies, with weighting for injury likelihood using sample data from SODs would further refine the level of expected inter-rater agreement.

## Emergencias

[emergencias.portalsemes.org/English](http://emergencias.portalsemes.org/English)

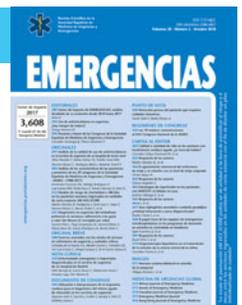
**Official Journal of the Spanish Society of Emergency Medicine**

### Physical frailty and its impact on long-term outcomes in older patients with acute heart failure after discharge from an emergency department

Guillermo Llopis García, Sara Munck Sánchez, Miguel Ángel García Briñón, Cesáreo Fernández Alonso, Juan González del Castillo, F. Javier Martín-Sánchez

**Cited:** Llopis García G, Munk Sánchez S, García Briñón MA, Fernández Alonso C, González Del Castillo J, Martín-Sánchez FJ. Physical frailty and its impact on long-term outcomes in older patients with acute heart failure after discharge from an emergency department. *Emergencias*. 2019;31:413–6.

<http://emergencias.portalsemes.org/descargar/el-efecto-de-la-fragilidad-fsica-en-el-pronstico-a-largo-plazo-en-los-pacientes-mayores-con-insuficiencia-cardiaca-aguda-dados-de-alta-desde-un-servicio-de-urgencias/>



### Objective

To study the frequency of physical frailty and explore whether its presence in older patients with acute heart failure (AHF) is associated with adverse outcomes in the year after discharge from a emergency department (ED).

### Methods

Prospective observational cohort study in patients with AHF aged 75 years or older who were discharged from our ED. Physical frailty was defined by a score of 7 or less on the Short Physical Performance Battery. The outcome was the development of a composite event (ED revisit for AHF, hospital readmission for AHF, or all-cause mortality) within 365 days of discharge from the ED.

### Results

Eighty-six patients with a mean (SD) age of 84 (6) years were included; 59.3% were women. Frailty was identified in 49 patients (57%). The composite outcome was observed in 46.5% within 365 days. Physical fragility was an independent predictor of the outcome (adjusted odds ratio, 3.6; 95% CI, 1.0–12.9; P = .047).

### Conclusion

Frailty in older patients with AHF may predict a poor outcome during the year following discharge from an emergency department.

## Hong Kong Journal of Emergency Medicine

[hkjem.com](http://hkjem.com)

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

### The 10 commandments of exsanguinating pelvic fracture management

Chak Wah Kam, Ping Keung Joe Law, Hon Wai Jacky Lau, Rashidi Ahmad, Chiu Lun Joseph Tse, Mina Cheng, Kin Bong Lee and Kin Yan Lee

<https://journals.sagepub.com/doi/10.1177/1024907919869501>



#### Background

Unstable pelvic fractures are highly lethal injuries.

#### Objective

The review aims to summarize the landmark management changes in the past two decades.

#### Methods

Structured review based on pertinent published literatures on severe pelvic fracture was performed.

#### Results

Ten key management points were identified.

#### Conclusion

These 10 recommendations help diminish and prevent the mortality. (1) Before the ABCDE management, preparedness, protection, and decision are essential to optimize patient outcome and to conserve resources. (2) Do not rock the pelvis to check stability, avoid logrolling but prophylactic pelvic binder can be life-saving. (3) Computed tomography scanner can be the tunnel to death for hemodynamically unstable patients.

(4) Correct application of pelvic binder at the greater trochanter level to achieve the most effective compression. (5) Choose the suitable binder (BEST does not exist, always look for BETTER) to facilitate body examination and therapeutic intervention. (6) Massive transfusion protocol is only a temporizing measure to sustain the circulation for life maintenance. (7) Damage control operation aims to promptly stop the bleeding to restore the physiology by combating the trauma lethal triad to be followed by definitive anatomical repair. (8) Protocol-driven teamwork management expedites the completion of the multi-phase therapy including external pelvic fixation, preperitoneal pelvic packing, and angio-embolization, preceded by laparotomy when indicated. (9) Resuscitation endovascular balloon occlusion of aorta can reduce the pelvic bleeding while awaiting hospital transfer or operation theater access. (10) Operation is the definitive therapy for trauma but prevention is the best treatment, comprising primary, secondary, and tertiary levels.