Use of Clinical Algorithms for Evaluation and Management of Pediatric and Adult Sepsis Patients in Low-Resource Clinical Environments

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Introduction: Acute infection in post-disaster settings is associated with increased morbidity and mortality. Sepsis management in low resource settings is controversial with recent research suggesting that aggressive fluid resuscitation may cause greater harm than benefit. However, the vast majority of international sepsis guidelines still suggest large initial fluid boluses as part of sepsis algorithms.

Aim: To create an adult and pediatric sepsis algorithm to be applied in low resource clinical settings. This is part of a larger project to create clinical algorithms to provide standardization of emergency case management for low-resource clinical environments.

Methods: A literature search was performed through PubMed identifying and reviewing fluid resuscitation in adult and pediatric sepsis patients in high and low resource clinical environments. The pathways were created based on interpretation of the available evidence-based literature. Focus groups were conducted in Zambia in March 2018 for feedback from local practitioners regarding feasibility of pathways. The pathways were then modified, reviewed by experts peer-review and revised.

Results: Final pediatric and adult sepsis clinical algorithms were created and posted to the free web-based application AgileMD™. They will be available via app access, an online platform, or printable pathways for use in the clinical environment.

Discussion: The study is currently undergoing IRB approval with a plan for implementation of multiple clinical algorithms at a referral hospital site in Zambia in January 2019. Site direction at Ndola Hospital will be conducted under the leadership of an Emergency Medicine trained physician, who will assist in implementation of algorithms and collection of data. Initial data review will be conducted in May 2019. There will be incremental site visits by organizing researchers throughout the implementation and data collection period. Statistical analysis will examine sepsis associated processes and outcome indicators pre and post-intervention to further delineate sepsis management in low resource clinical environments.

Using Clinically Based Vignettes to Further Develop a Mass Gathering Triage Tool

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Introduction: This research builds on a previously developed triage: Mass Gathering Triage Scale (MaGaTT) by Cannon, et al (2017). This tool was targeted towards non-health care professional first responders within mass-gathering events (MGEs). However, this tool had not been evaluated.

Aim: To further develop the previously designed MaGaTT using vignettes of clinical cases to: 1) determine variation in decision-making, and 2) inform further tool development prior to real-world testing.

Methods: Volunteer members of St. John Ambulance Australia were surveyed using 18 vignettes of de-identified real patient record forms from MGEs covered by St. John Ambulance Australia (NSW) in 2013-2014. Participants were given the MaGaTT and written instructions on its use. Participants triaged 18 patients, recording their decisions on the online survey. Responses against the vignettes were analyzed using Fleiss Kappa [p-bar] measure. A score of 0.61 – 0.8 represented substantial agreement and a score of between 0.41 and 0.6 represented moderate agreement between participants.

Results: There were 110 completed responses. The majority of participants were male (n =66, 60%), having completed a Bachelor's Degree (n =38, 34.5%), and holding the clinical skill level of "first responder" (n=42, 38.2%). The overall agreement [p-bar] for the 18 items was moderate at 0.55. When examined by triage category, the "Resuscitation" category had substantial agreement (0.69), when compared with moderate agreement for "Urgent" (0.52) and "Minor" (0.52) categories.

Discussion: This research demonstrates that the MaGaTT can be used with moderate agreement, and substantial agreement within the resuscitation category. This is similar to triage tools internationally, where high levels of agreement relate to triage categories for patients requiring resuscitation when compared to patients requiring lower levels of clinical care. Slight changes have been made to the original MaGaTT as a result of this research.

Using Security Guards and Civil Volunteers as First Responders in Medical Emergency Response - Tasks, Needs, and Challenges

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Introduction: Public sector challenges have initiated new forms of collaboration between emergency response organizations, occupations from other societal sectors, and civil citizens, not the least in socio-economically vulnerable areas. As collaborations emerge, there is a need to explore the tasks, needs, and challenges of the new resources when providing medical emergency response.

Aim: To explore two cases of 1) security guards and 2) organized civil volunteers collaborating with the ambulance services and municipal rescue services, and identifying relevant tasks,