

has been manually performed using paper cards, yet new digital technologies claim to be more efficient.

Methods: This prospective observational cross-over study was performed during a live disaster simulation at an urban level 1 trauma center. Healthcare providers (two doctors, two paramedics, and two nurses) each triaged a total of thirty simulated patients, half using paper-based (manual) and half using computer-based (electronic) triage. Speed and accuracy of triage using both methods was measured. Following the exercise, simulated patients and participating health care providers completed a feedback form.

Results: There were no significant differences in triage times (seconds) between manual and electronic methods by doctors (10.3 ± 7.2 vs 15.3 ± 8.0 , respectively) and nurses (12.8 ± 9.8 vs 11.2 ± 7.2), whereas the manual method was faster for paramedics (11.1 ± 7.2 vs 21.5 ± 7.6 , $p < 0.001$). However, after accounting for extra actions required using the manual method, adjusted triage times for doctors (21.4 ± 7.8) and nurses (24.0 ± 9.9) were significantly longer using manual compared to the electronic method ($p < 0.001$). Triage accuracy was similar ($p = 0.70$) between manual (72/90, 80%) and electronic (75/90, 83%). The electronic method was preferred by 4 out of 6 (67%) healthcare providers, while almost half (14/30, 47%) of patients had no preference. While patients commonly perceived the computer method as “less personal” they also perceived it as “better organized”.

Conclusion: This study suggests that computer triage may be the most efficient triage tool for healthcare providers familiar with the technology. Further studies are required to assess the performance of electronic hospital triage in the context of a rapid patient surge and limited computer availability. We present a framework for assessing the accuracy, efficiency and feasibility of digital technologies in live disaster simulations.

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Evaluation of Mass Casualty Triage Algorithms in a Pediatric Population

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Study/Objective: This study compared the effectiveness and accuracy of five MCT algorithms in a surrogate pediatric trauma population at a tertiary care children’s hospital emergency department.

Background: In disasters, first responders use Mass Casualty Triage (MCT) algorithms to assess victims and direct efforts to provide the greatest good for the greatest number of victims. Several algorithms exist; few were designed for application in pediatric victims.

Methods: An observational, single cohort study with prospective and retrospective data collection was employed. Using a standard observation sheet, prospective data were collected on a convenience sample of pediatric patients with trauma activation levels from one to three, with one being identified as the most severely injured. Trained observers recorded physiologic and treatment observations on injured patients.

An MCT category was determined using each of the five algorithms. After the patient’s completed electronic medical record was available, a second reviewer retrospectively determined the patient’s MCT category based on a gold standard definition; a standard that uses clinical outcomes to assign a MCT category. The prospective and retrospective categories across the five algorithms were then compared.

Results: The results of this study demonstrate that when existing MCT algorithms are applied to a pediatric trauma population, as if they were disaster victims, they are inconsistent. The algorithms were more accurate for Priority 2 and 3 traumas. JumpSTART, CareFlight, and Triage Sieve assignments were similar and were more accurate than START and SALT. SALT was the least accurate algorithm overall.

Conclusion: A larger sample size is needed to potentially capture a more injured population and a greater variety of patients. Additional research is needed to increase the number of major traumas included, and to increase the sample size overall. The results of this study demonstrate a potential deficit in the algorithm’s effectiveness of categorizing pediatric patients in a mass-casualty event.

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Trilogie Pilot Study - Assessing the Efficacy of a Triage Sieve Educational Intervention using Non-medical Emergency Service Providers

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Study/Objective: The key objective of this pilot study was to determine if a standardised educational intervention would provide non-medical emergency service personnel with enough knowledge to accurately complete a triage sieve questionnaire. A secondary objective was to assess the suitability of a previously utilized triage sieve questionnaire for use with non-medical emergency services.

Background: Non-medical emergency services may be first on scene of a Mass-Casualty Incident (MCI); however, they are not currently trained to undertake primary triage (triage sieve).

Methods: Non-medical participants from the Country Fire Service were recruited for this study. All participants completed a triage sieve questionnaire prior to receiving the same standardised educational intervention. Participants were then divided into two groups to repeat the triage sieve questionnaire. One group was provided with an aide-memoire currently used by SA Ambulance Service while the other group received no decision making assistance.

Results: Current accepted triage accuracy rates are 5% under- and 50% over-triage. Pre-educational intervention results showed accuracy rates of 65.8% for under-triage and 50.7% for over-triage. Post-educational intervention achieved accuracy rates of 2.0% for under-triage (using an aide-memoir) and 9.2% (without an aide-memoir); conversely, the group without an aide-memoir achieved a lower over-triage accuracy rate than those who used an aide-memoir (8.4% versus 9.5%, respectively). As the improvement in under-triage rate from this study was similar,