First Responder Accuracy Using SALT after Brief Initial Training

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Abstract

Background: Mass-casualty incidents (MCIs) present a unique challenge with regards to triage as patient volume often outweighs the number of available Emergency Medical Services (EMS) providers. A possible strategy to optimize existing triage systems includes the use of other first responder groups, namely fire and police, to decrease the triage time during MCIs, allowing for more rapid initiation of life-saving treatment and prioritization of patient transport.

Hypothesis: First-year primary care paramedic (PCP), fire, and police trainees can apply with similar accuracy an internationally recognized MCI triage tool, Sort, Assess, Life-saving interventions, Treatment/transport (SALT), immediately following a brief training session, and again three months later.

Methods: All students enrolled in the PCP, fire, and police foundation programs at two community colleges were invited to participate in a 30-minute didactic session on SALT. Immediately following this session, a 17-item, paper-based test was administered to assess the students' ability to understand and apply SALT. Three months later, the same test was given to assess knowledge retention.

Results: Of the 464 trainees who completed the initial test, 364 (78.4%) completed the three month follow-up test. Initial test scores were higher ($P < .05$) for PCPs (87.0%) compared to fire (80.2%) and police (68.0%) trainees. The mean test score for all respondents was higher following the initial didactic session compared to the three month follow-up test (75% vs 64.7%; Δ 10.3%; 95% CI, 8.0%-12.6%). Three month test scores for PCPs (75.4%) were similar to fire (71.4%) students (Δ 4.0%; 95% CI, –2.1% to 10.1%). Both PCP and fire trainees significantly outperformed police (57.8%) trainees. Over-triage errors were the most common, followed by under-triage and then critical errors, for both the initial and follow-up tests.

Conclusions: Amongst first responder trainees, PCPs were able to apply the SALT triage tool with the most accuracy, followed by fire, then police. Over-triage was the most frequent error, while critical errors were rare.

Introduction

Mass-casualty incidents (MCIs) present a unique challenge for the medical community as patient volume often outweighs the number of available Emergency Medical Services (EMS) providers. All MCI triage algorithms are purposed to sort patients rapidly based on acuity to allow health care providers to ensure the greatest good is achieved for the most patients in a resource-constrained environment.[1] Multiple civilian MCI triage algorithms have been developed with little consensus regarding superiority.[2] The majority of previous triage algorithm research pertains to accuracy and construct validity, the latter being the ability of an algorithm to identify patient acuity correctly. When different triage tools are compared, reported triage accuracy is similar amongst MCI algorithms, but there is no definitive evidence to suggest which triage instrument is superior.[3-6] Moreover, although an evidence-based approach has been encouraged, MCI triage systems have been developed mostly through expert opinion.[2]

    In an attempt for consensus, the Centers for Disease Control and Prevention (Atlanta, Georgia USA) created the Sort, Assess, Life-saving interventions, Treatment and/or