



*The Sacco Triage Method (STM) is an evidence based outcome driven triage and resource management system that maximizes expected survivors in consideration of the timing, availability and capability of transport and treatment resources. Based on a simple age adjusted physiological score (i.e. respiratory rate, pulse, best motor response) that is computed routinely on every trauma patient and that is correlated to survival probability, triage decisions are made in response to the specific type, size and location of incident, and the resources that can be brought to bear on its resolution. STM explicitly prioritizes and tracks resource utilization and expected patient outcome, creates a triage and regional resource plan, and provides real time situation and status reports. STM provides evidence based decision support for medevac dispatching, and research indicates reductions of more than 50% of flights with no impact on mortality rates.*

### **Benefits**

- Saves lives. Method maximizes expected survivors, producing optimal strategies during MCI. Simulations of large incidents show increases in expected survivors in excess of 600% compared to current protocols. Routine medevac dispatch application improves mortality rates, primarily through enhanced geriatric care.
- Saves money. Evidence indicates use of STM for medevac dispatching can reduce flights by 50% - 60% with no negative impact on mortality.
- Is used everyday, on every trauma patient. Scoring trauma patients routinely enables outcome tracking and ensures MCI preparedness. There is no separate MCI protocol – responders score patients as they do everyday. Routine outcome tracking enables performance analyses (e.g. compare outcome by facilities, by jurisdiction, by agency or trending results over time.)
- Is outcome driven/measurable. Expected survivorship is known in MCIs, drills, simulations, and for routine care.
- Takes the guess work out of triage. Severity scoring is quick and reproducible and a precise triage strategy provides the transport schedule and patient assignment to specific hospitals. No more “playing God!”
- Promotes interoperability. Precision in scoring allows all responders to “speak the same language.” System considers regional resources in simulations and incidents to determine the optimal triage strategy.
- Balances patient loads across hospitals. Distributes patients across trauma treatment centers within a region, not allowing the disaster to be “moved to the hospital.”
- Is scalable. Determines the optimal triage strategy when resources are taxed, or overwhelmed.
- Manages/leverages resources. Maximizes human, transport and treatment resource utilization.
- Improves information flow. Regional resource plan provides schedule of patient arrivals by treatment facility, and live incident reports track resource utilization and scene status.
- Enables research-based improvements (e.g. chemical trauma, combat trauma, technology advances)
- Provides simulation/surge capabilities. Regional MCI simulations and surge analyses can be run in minutes.

### **Evidence Based Triage and Publications**

- Based on analysis of over 250,000 trauma victims (Pennsylvania Trauma Outcome Study)

- Simple, precise physiological scores correlate more accurately to survivability than the Revised Trauma Score and the Injury Severity Scale
- Selected Publications:
  - *Precise Formulation and Evidence Based Application of Resource Constrained Triage.* Academic Emergency Medicine August 2005
  - *A New Resource-Constrained Triage Method Applied to Penetrating-Injured Victims.* Journal of Trauma August 2007
  - *Application of A New Resource Constrained Triage Method to Military-aged Trauma Victims.* Military Medicine. December 2009.
  - *Application of Patient Age-dependent STM (A Resource Constrained Triage Method) to Blunt-Injured Victims.* Prehospital and Disaster Medicine. Submitted for Publication 2009.
  - *Triage is Broken.* EMS Magazine. August 2005
  - *A Disaster Doesn't Have to be a Disaster: An evidence based method that takes the guesswork out of triage.* EMS Magazine September 2005.
  - *Operational Comparison of START and the Sacco Triage Method (STM) in Mass Casualty Exercises.* Journal of Trauma. 2010.

### Simple Scoring Method

- Physiological scores are based on respiratory rate, pulse and motor response, with a simple adjustment for age, and can be computed in about 40 seconds.
- Scoring is easy to learn, requires little medical proficiency. Operational tests show accuracy rate exceeding 90%.
- Routine use on all trauma patients ensures accuracy and mass casualty preparedness.
- Anatomic, mechanism-of-injury and age scoring adjustments tied to precise travel model for Medevac dispatch

### How It Works in a Multiple and Mass Casualty Events

- Victims are scored, and tagged with score-based, bar-coded triage tags
- Victims are organized at the scene into score groups. Groupings are best determined based on local policy (e.g. setting the scores for expectants), but will be reasonably homogenous in prognoses within each grouping and enable more targeted use of scene resources.
- The STM Triage and Resource Management Software can be used, or a custom rule based protocol, determined *a priori* based on simulations of likely local or regional threats, is used in the absence of technology,
- Real time resource information is updated (offline from scene communication).
- Scores communicated/ transmitted to Dispatch or Incident Command (or rule based protocol applied.)
- Precise and optimal triage strategy is determined based on number and severity of victims, and availability and timing of resources. (or use the rule based protocol)
- Regional resource plan details patient severity and arrival schedule by treatment facility, so hospitals can prepare.

### Operational Superiority to START in 99 Patient Parallel Mass Casualty Exercises

- STM:
  - Identified and moved 12 of the 13 most serious patients in the first 7 ambulance in 31 minutes
  - Only one patient of first 28 to leave the scene had normal physiology
  - 91% of patients scored correctly
  - Scene cleared in 53 minutes
- START

- Only 2 of 13 most serious patients assigned to first 13 ambulances.
- The three most serious left by bus nearly an hour later.
- 16 of the first 28 patients to leave the scene had normal physiology
- 71% of patients tagged correctly.
- Scene cleared in 63 minutes.

### **Satisfies criteria of NIMS, SALT**

- STM is only triage method evaluated for NIMS compatibility:
  - “STM’s objective to maximize survivors is fundamental to preparedness and response and an improvement over current methods.”
  - Advantages cited by Review Panel: objective triage strategy; efficient resource utilization; balances loads between treatment facilities; scoring and grouping both improvements over color coding.
- STM satisfies the Center for Disease Control’s SALT triage criteria
  - Triage decisions not made in isolation; Priority treatment and transport based on available resources; patient deterioration.... age... must be considered; patient acuity must be differentiated.
  - Data driven process to improve outcomes/reliability; supports predictive, reliable and practical field measures; addresses infrequent use of triage protocols.

### **Invented by Bill Sacco, one of worlds foremost authorities in triage and trauma scoring**

- 1999 Honorary Fellow of American Association for the Surgery of Trauma (AAST) for lifetime contributions
- author of 80 papers including 2 of top 3 and 4 of top 10 Journal of Trauma articles referenced worldwide
- inventor of Revised Trauma Score and TRISS
- *Dr. Sacco has been an international leader in emergency management, triage and mass casualty events for decades...his work has consistently been driven by the best science available ... I urge all EMS leaders to evaluate STM as a potential improved triage tool.”* Dr. Richard Carrmona.17<sup>th</sup> Surgeon General of the United States.

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