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**National Implementation of the Model Uniform Core Criteria
for Mass Casualty Incident Triage**

A Concept Paper for FICEMS Consideration

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Issue

The Model Uniform Core Criteria (MUCC) for Mass Casualty Triage is a science and consensus-based national guideline that recommends 24 core criteria for all mass casualty triage systems. The FICEMS Technical Working Group (TWG), through its Preparedness Committee, has reviewed the MUCC and recommends FICEMS supports its nationwide implementation. The following questions are posed to FICEMS for consideration in determining FICEMS' roles in ensuring uniform national implementation of the MUCC:

- 1) Should FICEMS request advice from the National EMS Advisory Council (NEMSAC) in the development of a MUCC implementation strategy?
- 2) Should FICEMS adopt a position statement in support of MUCC and what timeline should be used by FICEMS in developing a MUCC implementation strategy?

Background

MUCC Developed Through Consensus Informed by Evidence

In 2006, the National Association of EMS Physicians (NAEMSP), with funding from the Centers of Disease Control and Prevention (CDC), convened a workgroup¹ (hereafter the SALT workgroup) of subject matter experts from national stakeholder organizations, to examine the science supporting existing mass casualty triage systems and make a recommendation for the adoption of a single system as a national standard. Responders evaluating patients at a mass casualty incident (MCI) typically use a triage system to help prioritize the use of limited patient care and transportation resources. Multiple triage methods have been developed and are in use in the United States, such as Simple Triage and Rapid Treatment (START) and Jump START, the pediatric equivalent to START. MCIs frequently cross jurisdictional lines and involve responders from multiple agencies that may be using different triage methods. For operational simplicity, communications interoperability, and clinical efficiency, it is logical for all of the responders at a given incident to use the same triage method. However, the SALT workgroup concluded that no MCI triage system had sufficient scientific evidence to justify national adoption. The SALT workgroup proceeded with the development of a new triage system, the Sort-Assess-Lifesaving Interventions-Treatment/Triage (SALT) triage system (Appendix A). SALT, a non-proprietary free system, was developed from available research, widely accepted best practices of existing mass triage systems, and consensus opinion from the workgroup.

The SALT workgroup considered the development of SALT to be a first step in creating a national guideline for MCI triage systems. While SALT was developed from a scientific base, adopting SALT as the single national standard for MCI triage would require local, state and federal agencies to change their current practices. Therefore, the SALT workgroup identified the need to develop the Model Uniform Core Criteria (MUCC) for Mass Casualty Triage, which would help to ensure interoperability among existing triage tools.

¹Lerner, E.B., Schwartz, R.B Coule, P.L., Weinstein, E.S Cone, D.C., Hunt, R.C., et al. 2008. Mass casualty triage: an evaluation of the data and development of a proposed national guideline. Disaster Medicine and Public Health Preparedness, 2 Suppl 1:S25-S34.

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The MUCC was created by a 30 member CDC-funded workgroup (hereafter, the MUCC workgroup) that expanded upon the work of the SALT workgroup². The MUCC consists of four general categories (general considerations, global sorting, lifesaving interventions, and individual assessment) and 24 specific criteria (Appendix A) which the MUCC workgroup recommended as model minimum elements which all MCI triage systems should include.

MUCC Represents the Best Available Science

MUCC is a group of 24 criteria (Appendix B) that the MUCC workgroup recommended as essential elements of a MCI triage system. Of MUCC's 24 criteria, 15 are currently used by existing MCI triage systems (Appendix B), excluding SALT, which is completely MUCC-compliant. Having a standard for triage systems increases interoperability between MCI triage systems and provides guidelines for the revision of existing MCI triage systems. During a response to an MCI, responders will assess patients in a similar manner if they are using MCI triage systems that are MUCC-compliant. This reduces the potential for triage errors.

While the MUCC is supported by the best available science, the evidence base for evaluating MCI triage systems in prehospital settings is limited. The majority of MUCC's criteria are supported by indirect evidence (i.e., evidence that comes from different situations or different patient populations) and consensus decisions, meaning the SALT and MUCC workgroups found gaps in the science. The intent of the MUCC workgroup was to revise MUCC as new evidence becomes available, however a process and timeline for updating MUCC has not yet been defined.

MUCC Widely Endorsed but Challenges Remain

To date, MUCC has been endorsed by, or received concurrence from, several national organizations (Appendix C). Despite widespread acceptance of the MUCC, there is, to date, a lack of evidence regarding the impact of using a MUCC compliant MCI triage method versus a non-MUCC compliant MCI triage method.

TWG Recommends National Implementation of MUCC

In considering whether to recommend FICEMS support for implementation of MUCC, the TWG considered several issues including available scientific evidence, current challenges face by EMS agencies regarding MCI triage and the endorsements of MUCC by a broad array of national EMS stakeholder organizations.

NHTSA's National Standard Curricula for emergency medical services providers have previously identified START as the MCI triage method. Currently, the mass casualty section of the National EMS Education Standards states it is subject to ongoing collective and cooperative review and input from all stakeholders including the Departments of Transportation, Homeland

² Lerner, E.B., Cone, D.C., Weinstein, E.S., Schwartz, R.B., Coule, P.L., Cronin, M., et al. 2011. Mass casualty triage: an evaluation of the science and refinement of a national guideline. *Disaster Medicine and Public Health Preparedness*, 5(2):129-37.

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Security and Health and Human Services. The National EMS Education Standards Instruction Guidelines mention several techniques for MCI triage including the CDC guidelines, START and others. There is not a single exclusive MCI triage method that is identified.

FICEMS support for the national implementation of MUCC may facilitate improved EMS agency interoperability during a MCI.

MUCC represents the most comprehensive effort undertaken nationally to develop common uniform criteria for mass casualty triage criteria. It is unlikely that a comparable effort will be undertaken by a Federal agency in the near future. The endorsement of MUCC by a broad array of national EMS organizations will likely to contribute to widespread national adoption of MUCC. However, Federal support would likely contribute to a more rapid and coordinated transition to MUCC by the EMS and emergency management community.

Options for FICEMS to Support National Implementation of MUCC

Two options are presented for FICEMS discussion and potential action. These options are not listed in priority order, are not mutually exclusive, and may be complementary.

Option 1: Request advice from the National EMS Advisory Council (NEMSAC) on actions FICEMS should consider in implementing MUCC.

Overview

This option would yield further support for MUCC and guide FICEMS' actions in developing a MUCC implementation plan by soliciting advice from a Federal Advisory Committee Act compliant council. The questions for FICEMS to propose to NEMSAC may consist of the following:

- What are some actions the federal government could take, specific to the implementation of MUCC, to assist with the uniform and timely national implementation and evaluation of MUCC?
- Are there any barriers or challenges that FICEMS should be aware of regarding MUCC?

Discussion

Soliciting input from NEMSAC would take approximately 6-12 months to complete. This approach would enable FICEMS to obtain a non-federal perspective on the issue before taking action. By seeking advice from NEMSAC, FICEMS would be able to proceed with an action plan that has input from national EMS leaders. A weakness of this option lies in the possibility that NEMSAC proposes a course of action that FICEMS cannot pursue.

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Option 2: FICEMS adopts a position statement in support of the MUCC and develops a strategy for FICEMS member agencies to support the implementation of MUCC.

Overview

FICEMS would immediately adopt a position statement supporting national implementation of MUCC and develop a strategy paper supporting its implementation. Strategy paper action steps might include those listed in Appendix D. Work on this paper would begin in 2012. NEMSAC could help inform the implementation process through the answers to FICEMS's questions if Option 1 is also pursued. The implementation strategy might look similar to *State EMS System Pandemic Influenza Preparedness: A Report of the FICEMS* (November 12, 2009).

Discussion

This approach would move forward with addressing the need for a uniform method to triage patients during MCIs by putting forth a set of FICEMS-developed recommendations for nationwide implementation of the MUCC.

CONCLUSION

The successful implementation of one or both of these options could help improve the uniformity and interoperability of MCI triage methods nationally. In determining whether or not to develop a MUCC implementation strategy, the FICEMS may wish to consider the urgency of the issue nationwide as well as an appropriate timeline for strategy development. If the FICEMS selects both options, it may decide to a.) Carry out both options concurrently - developing the implementation plan while seeking advice from NEMSAC, or b.) Carry out the options sequentially - seeking advice from NEMSAC and using NEMSAC's input in creating an implementation plan.

Appendix A: Diagram of SALT and Tables Detailing MUCC

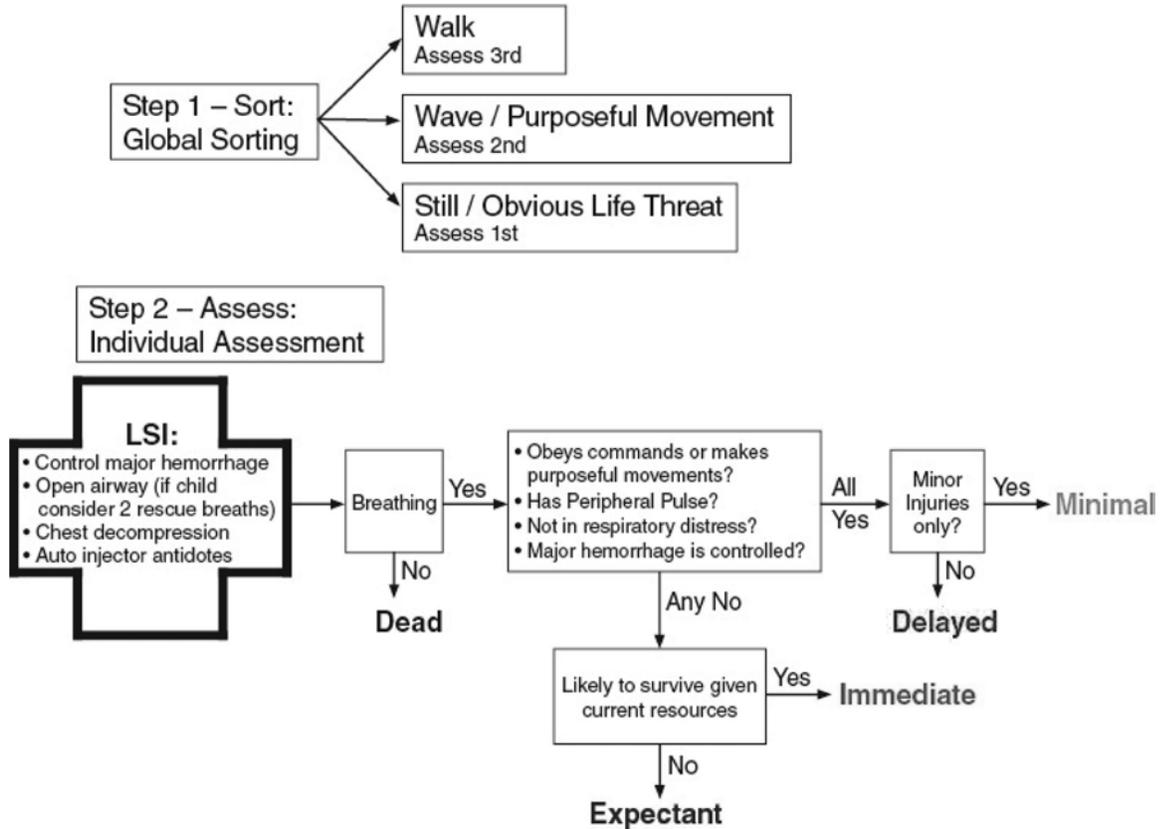


Figure: The Sort-Assess-Lifesaving Interventions-Triage/Treatment (SALT) Triage System

LSI= Lifesaving intervention

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Appendix B: Summary of the 24 Model Uniform Core Criteria

CRITERIA	Used by other triage systems
<i>General Considerations</i>	
Triage systems and all of their components must apply to all ages and populations of patients.	Yes
Triage systems must be applicable across the broad range of mass-casualty incidents in which there is a single location with multiple patients.	No
Triage systems must be simple, easy to remember, and amenable to quick memory aids.	Yes
Triage systems must be easy to apply and practical for use in an austere environment.	Yes
Triage systems are resource dependent, and the system must allow for dynamic triage decisions based on changes in available resources and patient conditions.	Yes
The triage system must require that the assigned triage category for each patient be visibly identifiable (e.g., triage tags, tarps, markers).	No
Triage is dynamic and reflects patient condition and available resources at the time of assessment. Assessments must be completed whenever possible and categories adjusted to reflect changes.	No
<i>Global Sorting</i>	
Simple commands must be used initially to prioritize victims for individual assessment.	Yes
The first priority for individual assessment is to identify those who are likely to need a lifesaving intervention. They can be identified as those who are unable to follow commands and do not make purposeful movements, or those who have an obvious threat to life (e.g., life-threatening external hemorrhage).	No
The second priority for individual assessment is to identify those who are unable to follow the command to ambulate to an assigned place but are able to follow other commands (e.g., wave) or make purposeful movement.	No
The last priority for individual assessment is to identify those who follow commands by ambulating to an assigned place (or make purposeful movements) and have no obvious life-threatening conditions (e.g., life-threatening external hemorrhage).	Yes
All patients must be assessed individually regardless of their initial prioritization during global sorting. This includes the assessment of walking patients as soon as resources are available.	No
<i>Lifesaving Interventions</i>	
Lifesaving interventions are considered for each patient and provided as	Yes

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necessary, before assigning a triage category. Patients must be assigned a triage category according to their condition after any lifesaving interventions.	
Lifesaving interventions are performed only if the equipment is readily available, the intervention is within the provider's scope of practice, the intervention can be performed quickly (i.e., in less than 1 min), and the intervention does not require the provider to stay with the patient.	No
Lifesaving interventions include the following: controlling life-threatening external hemorrhage, opening the airway using basic maneuvers (for an apneic child, consider 2 rescue breaths), performing chest decompression, and providing auto-injector antidotes.	No
<i>Individual Assessment</i>	
Each victim must be assigned to 1 of 5 triage categories (immediate, delayed, minimal, expectant, and dead). Each category must be represented with an associated color: immediate/red, delayed/yellow, minimal/green, expectant/gray, dead/black.	Yes
Assessment must not require counting or timing vital signs and instead use yes-or-no criteria. Diagnostic equipment must not be used for initial assessment.	No
Capillary refill must not be used as a sole indicator of peripheral perfusion.	Yes
Patients who are not breathing after 1 attempt to open their airway (in children, 2 rescue breaths may also be given) must be classified as dead and visually identified as such.	Yes
Patients are categorized as immediate if they are unable to follow commands or make purposeful movements, OR they do not have a peripheral pulse, OR they are in obvious respiratory distress, OR they have a life-threatening external hemorrhage; provided their injuries are likely to be survivable given available resources.	Yes
Patients are categorized as expectant if they are unable to follow commands or make purposeful movements OR they do not have a peripheral pulse, OR they are in obvious respiratory distress, OR they have a life-threatening external hemorrhage, AND they are unlikely to survive given the available resources. These patients should receive resuscitation or comfort care when sufficient resources are available.	Yes
Patients are categorized as delayed if they are able to follow commands or make purposeful movements, AND they have peripheral pulse, AND they are not in respiratory distress, AND they do not have a life-threatening external hemorrhage, AND they have injuries that are not considered minor.	Yes
Patients are categorized as minimal if they are able to follow commands or make purposeful movements, AND they have peripheral pulse, AND they are not in respiratory distress, AND they do not have a life-threatening external hemorrhage, AND their injuries are considered minor.	Yes

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<p>Patients categorized as immediate are the first priority for treatment and/or transport, followed by patients categorized as delayed and minimal. Patients categorized as expectant should be provided with treatment and/or transport as resources allow. Efficient use of transport assets may include mixing categories of patients and using alternate forms of transport.</p>	<p>Yes</p>
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**Appendix C:
National Organizations that Have Endorsed MUCC
(as of June 2011)**

- American Academy of Pediatrics
- American College of Emergency Physicians
- American College of Surgeons–Committee on Trauma
- American Trauma Society
- Children's National Medical Center, Child Health Advocacy Institute, Emergency Medical Services for Children National Resource Center
- International Association of Emergency Medical Services Chiefs
- National Association of County and City Health Officials
- National Association of Emergency Medical Technicians
- National Association of EMS Physicians
- National Association of State EMS Officials
- National Disaster Life Support Education Consortium
- National EMS Management Association
- Society for the Advancement of Violence and Injury Research
- **Concurrence by** Health Resources and Services Administration Maternal and Child Health Bureau Emergency Medical Services for Children Program

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Appendix D: Examples of Potential Action Items for Option 2

- Collaborate with Federal agencies to update pertinent curricula and protocols
- Change grant guidance to support State and local transition to MUCC.
- Change grant guidance to require MUCC compliance for all MCI drills and exercises.
- Develop training for field providers as well as state/local agency on MUCC through a FICEMS member agency
- Establish a cooperative agreement to support implementation and engage EMS medical directors in the MUCC adoption process
- Work with federal agencies and the Federal Education and Training Interagency Group (FETIG) to update pertinent curricula and protocols
- Develop a post-implementation evaluation plan in collaboration with FICEMS