VIDEOS IN EMERGENCY MEDICINE

Trauma

SALT triage training and virtual reality demonstration

Nicholas E. Kman MD[1] | **Alan Price MFA**[2] | **Vita Berezina-Blackburn MA, MFA**[3] | **Jeremy Patterson BFA**[3] | **Kellen Maicher MFA**[4] | **David P. Way MEd**[1] | **Jillian McGrath MD**[1] | **Ashish R. Panchal MD, PhD**[1] | **Alex Oliszewski MFA**[3] | **Scott Swearingen MFA**[3] | **Douglas Danforth PhD**[5]

[1]Department of Emergency Medicine, The Ohio State University College of Medicine, Columbus, Ohio, USA

[2]Center for Immersive Media, University of the Arts, Philadelphia, Pennsylvania, USA

[3]Advanced Computing Center for the Arts and Design, The Ohio State University, Columbus, Ohio, USA

[4]James Instructional Design Section (JIDS), The Ohio State University Wexner Medical Center, Columbus, Ohio, USA

[5]Department of Obstetrics & Gynecology, The Ohio State University College of Medicine, Columbus, Ohio, USA

Correspondence
Nicholas E. Kman, Department of Emergency Medicine, The Ohio State University College of Medicine, 785A Prior Hall, 376 W 10th Ave., Columbus, OH 43210, USA.
Email: Nicholas.kman@osumc.edu

1 | BACKGROUND

SALT (sort-assess-lifesaving interventions-treatment and/or transport) was developed as a national all-hazards mass casualty initial triage standard for all patients (eg, adults, children, and special populations).[1] SALT is endorsed by[1-3] the American College of Emergency Physicians (ACEP), American College of Surgeons Committee on Trauma, American Trauma Society, National Association of EMS

VIDEO 1 SALT triage training.

2 of 3 | **WILEY** | **JACEP OPEN**
JOURNAL OF THE AMERICAN COLLEGE OF EMERGENCY PHYSICIANS OPEN
A GLOBAL JOURNAL OF EMERGENCY MEDICINE | Open Access

KMAN ET AL.

Physicians (NAEMSP), and National Disaster Life Support Education Consortium.

2 | PROCESS

The process is explained using Video 1, and its algorithm is presented in Figure 1.

3 | KEY POINTS

Hemorrhage is the leading preventable cause of death in trauma (30%–40% of fatalities).[4] Death from hemorrhage can occur in as little as 3–5 minutes. SALT allows for early hemorrhage control. In other triage algorithms, bleeding control does not occur until *after* respirations are counted and perfusion (cap refill) is checked.
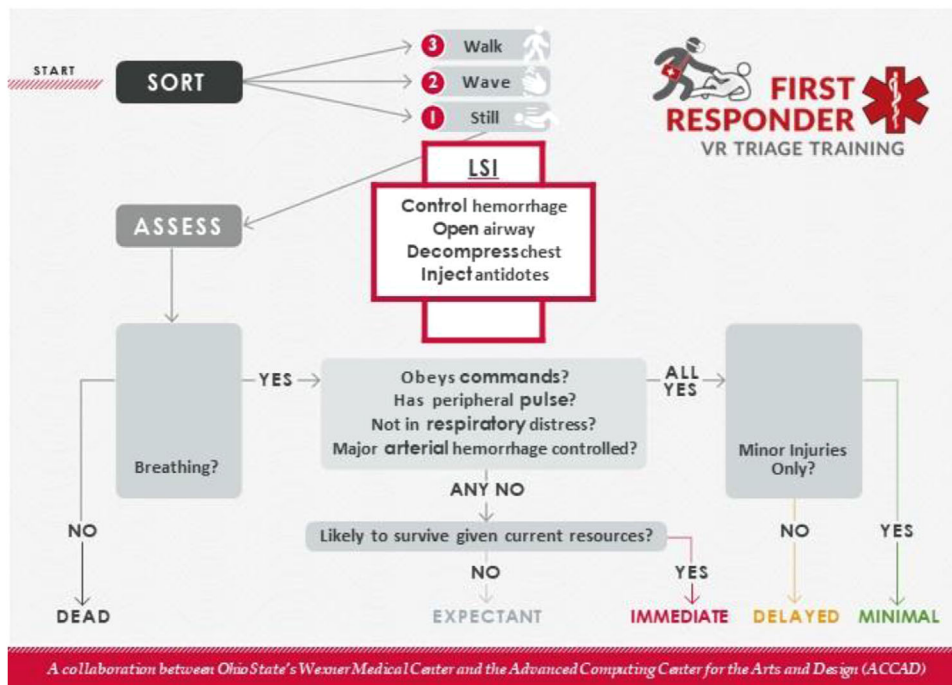
FIGURE 1 SALT (sort-assess-lifesaving interventions-treatment and/or transport) triage algorithm.
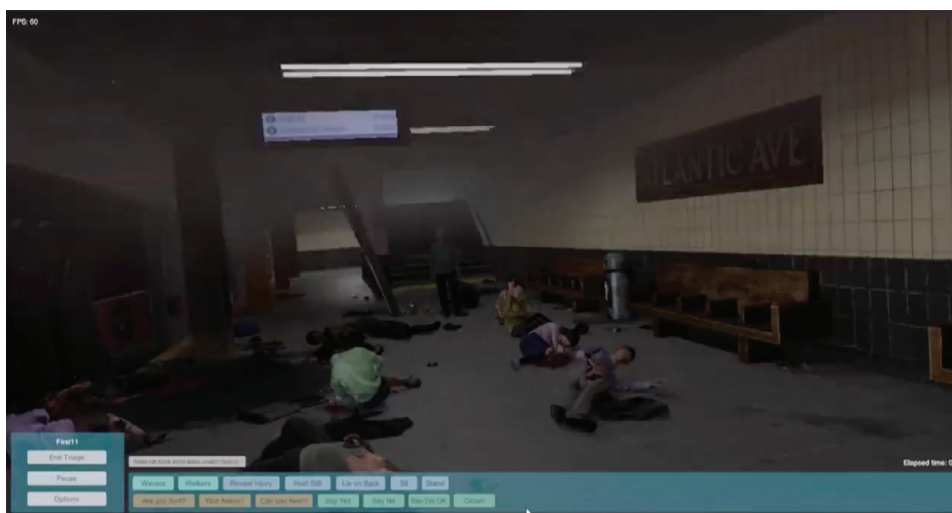
VIDEO 2 VR SALT demonstration.

In SALT, the individual assessment begins with limited rapid lifesaving interventions, such as:[5]

1. to control major hemorrhage with tourniquets or direct pressure provided by other patients or other devices;
2. to open the airway through positioning or basic airway adjuncts (no advanced airway devices should be used);
3. if the patient is a child, consider giving two rescue breaths;
4. chest needle decompression;
5. CBRN antidotes or autoinjector antidotes:
   - SALT includes an expectant category for patients who are still breathing but unlikely to survive given current resources.
   - SALT allows for a quick global sorting of the patients so responders can more accurately identify patients who are not responding or have an obvious life threat.

4 | VR DEMONSTRATION

VR SALT demonstration is presented using Video 2.[6]

CONFLICT OF INTEREST STATEMENT

The authors report no conflicts of interest.

ORCID

Nicholas E. Kman MD https://orcid.org/0000-0002-4769-4658

REFERENCES

1. Lerner EB, Schwartz RB, Coule PL, et al. Mass casualty triage: an evaluation of the data and development of a proposed national guideline. *Disaster Med Public Health Prep*. 2008;2(Suppl 1):S25-S34. doi:10.1097/DMP.0b013e318182194e
2. https://www.mayoclinic.org/medical-professionals/trauma/news/mass-casualty-triage-guidelines-revised/mac-20512735
3. Goolsby C, Schuler K, Krohmer J, et al. Mass shootings in America: consensus recommendations for healthcare response. *J Am Coll Surg*. 2023;236:168-175. doi:10.1097/XCS.0000000000000312
4. Turner CD, Lockey DJ, Rehn M. Pre-hospital management of mass casualty civilian shootings: a systematic literature review. *Crit Care*. 2016;20(1):362. doi:10.1186/s13054-016-1543-7. Erratum in: Crit Care. 2017 Apr 13;21(1):94.
5. Pepper M, Archer F, Moloney J. Triage in complex, coordinated terrorist attacks. *Prehosp Disaster Med*. 2019;34(4):442-448. doi:10.1017/S1049023X1900459X
6. Kman NE, Price A, Berezina-Blackburn V, et al. First responder virtual reality simulator to train and assess emergency personnel for mass casualty response. *J Am Coll Emerg Physicians Open*. 2023;4(1):e12903. doi:10.1002/emp2.12903