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Directions:

Provide the following information for your Innovative Teaching Strategy. The Appendix attached will assist you to complete items 3 through 7.

Be succinct in describing your strategy. Use of bulleted points is encouraged.

1. Mass Casualty Triage Simulation
 2. Date of Submission: January 28, 2022
 3. Topical Area: Disaster Nursing/Bioterrorism
 4. Public Health Nursing competencies and standards:
 - **ACHNE Public Health Nursing Core Knowledge and Basic Competencies**
(Callen, Block, Joyce, Lutz, Schott, & Smith, 2009)
 2. Community/population assessment
 7. Illness and disease management
 12. Ethics and social justice
 - **ANA PHN Scope and Standards of Practice (2013)**
Standards of Practice:
 1. Assessment
 2. Population and Diagnosis
 3. Outcomes Identification
 5. Implementation
 - a. Coordination of Care
 - c. Consultation
 - e. Regulatory Activities
 6. Evaluation
- Standards of Professional Performance for PHN:*
1. Ethics

3. Evidence-based Practice and Research
5. Communication
7. Collaboration
8. Professional Practice Evaluation
9. Resource Utilization

- **QUAD Council Competencies for Public Health Nurses (Summer, 2011)**

1. Analytic and Assessment Skills
3. Communication Skills
5. Community Dimensions of Practice Skills
6. Public Health Sciences Skills
8. Leadership and Systems Thinking Skills

5. Learner Level(s): Undergraduate
6. Learner Setting(s): Skills or simulation laboratories
7. Strategy Type: Simulation Exercise
8. Learning Goals/Objectives:

At the start of the simulation, students will:

- Contrast the ethical principles underlying mass casualty triage to the ethical principles underlying single-victim care.

During the simulation, students will:

- Solve triage problems by:
 - Correctly prioritizing 75% of victims re: who should be assessed first, second, and third.
 - Correctly placing “tourniquets” or “compression bandages” on 75% of victims who have significant bleeding.
 - Demonstrating proper use of the SALT triage algorithm by selecting the proper triage category for 75% of victims assessed.

After the simulation, students will:

- Appraise their own performance of triaging victims, identifying areas of strengths and weaknesses.
- At least 75% of students will correctly answer at least 4 test questions about SALT triage, including placing victims in the correct triage category and performing lifesaving interventions.

9. Estimated time for the activity: 3 hours (1 hour preparation before simulation; 2 hours in simulation and debriefing)

10. Strategy Overview: This simulation provides an opportunity for students in a small, liberal arts environment to experience mass casualty triage with paper victims in place of actors. It is a low-cost, low-tech method of simulation. Students encounter a large space with many paper victims scattered throughout. Students must determine who to assess first, second, and third. They must decide when to reposition an airway, when to give rescue breaths, and when to place a tourniquet or compression bandage. Students assign a triage category to each victim they assess. After completing the simulation, students review triage decisions as a group with faculty oversight.

11. Detailed Strategy Directions:

a. Strategy Materials/Resources:

- Pre-simulation:
 - Student reading: ethics article (reference below)
 - Recorded or live lecture covering MUCC and the SALT triage algorithm
 - Resources for practice: SALT triage quiz, SALT training video (links below)
- At start of simulation:
 - Sample victim (image attached)
 - Simulation instructions: Faculty script (attached)
- SALT triage simulation supplies:
 - Numbered disaster victims in two sizes (adult & child; use moulage images to show how each is injured; use construction paper or other red material to indicate amount of bleeding when appropriate; arrange injuries and flip cards so that all triage categories are represented in the room).
 - This simulation used victims that were 35" tall for adult victims and 9" or 18" tall for children.
 - You will need approximately 20 victims per student in the simulation group. Depending on the size of your room and the size of your class, the exact number will vary. It should appear overwhelming in scope to the students.
 - Flip cards attached to each disaster victim, as described in Table 1.
 - Consider adding noises of mass casualty incident to the scenario, such as a sample from a movie. Consider altering the lighting in the room to reflect a nighttime scenario.

Table 1: Flip cards for disaster victims		
Location	Front: Triage question	Back: Possible Answers
Head	Breathing?	Yes or No
Chest	Breathing normally?	Varied descriptions of breathing: regular rate and rhythm, labored, shallow, rapid, irregular, etc. Also include N/A for victims who are not breathing after intervention(s).
Extremity	Peripheral pulse?	Weak, thready, strong, absent; also include N/A for victims who are not breathing after intervention(s).
Abdomen or hand	Follows commands?	Yes or No; could include descriptions of following commands, confusion, oriented,

		unresponsive, posturing, etc. Also include N/A for victims who are not breathing after intervention(s).
Near injury	Bleeding controlled?	Yes, No, or N/A Used on victims with injuries which may or may not have significant bleeding. N/A would be used for victims without significant bleeding or victims who are not breathing after intervention(s).
Beside the head	Breathing after repositioning?	Yes, No, or N/A Used on victims who are not breathing (per the flip card on the head). Can also include for some who are breathing, as cards that should not be “flipped;” these cards would have N/A.
Beside the head	Breathing after rescue breaths?	Yes, No, or N/A N/A would be used for victims who are breathing after repositioning or for adults, as well as for victims who are breathing, as cards that should not be “flipped.”

- Considerations for types of victims:
 - One walking victim should be carrying a child. Students will have to indicate that this child should be assessed first when they begin examining this group.
 - One or two waving victims should have significant bleeding; per SALT, students should stop to care for this victim while heading to victim who is not waving.
 - One or more victims should be borderline red/gray depending on resources available.
- Each student receives a bundle of “tourniquets” (pipe cleaners or other prop) and “pressure bandages” (rectangles of felt or other prop) to place on victims with significant bleeding, one color per student (this helps identify who assessed a victim). (could also consider decompression prop or autoinjector prop to represent all four life-saving interventions used in SALT triage).
- Each victim has a triage card, or other way to assign a triage category, nearby. This simulation used a set of strips of colored foam paper by each victim. Students removed the correct color from the stack and placed it on top of the victim.
- Copy of SALT triage algorithm for each student
- Answer sheet with triage category and rationale for each disaster victim (for faculty reference)
- If possible, use two rooms

- 1) Small room with at least two disaster victims per student. Used for students to practice, faculty member reviews each victim using the SALT triage algorithm.
 - 2) Large room with at least 20 disaster victims per student. Used for simulation. Most disaster victims should be laying on the ground. Some should be partially hidden, some should be taped to the wall (walking), some should be waving (hand/arm supported in air). After all disaster victims are triaged, students review each victim using the SALT triage algorithm, faculty member correcting when category or life-saving intervention is incorrect.
- b. Website Links:
- SALT training video: https://www.youtube.com/watch?v=aDj_4GoktLk
Students watch prior to simulation; 22 minutes
 - SALT triage quiz: <https://www.ems1.com/ems-education/articles/quiz-how-accurately-can-you-apply-the-salt-triage-method-to-mci-patients-G5AYleJt14i3tehY/>
Interactive quiz, gives scenario and victim descriptions and student chooses category; approximately 10 minutes
 - Example resources for “victims”
 - Adults: Roylco Pre-Cut Paper Finger Paint Big Kids, 18 x 35 Inches: https://www.amazon.com/gp/product/B000GKY0CS/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&psc=1
 - Children: Roylco Finger Paint Wee Kid Shape, 7 1/2" x 12" https://www.amazon.com/gp/product/B014VEFFUU/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&psc=1
 - Google image search for “moulage” and “burns”, “lacerations”, “broken bone”, etc.
- c. Methods for evaluating student learning:
- Answers to ethics questions at start of simulation
 - Debriefing after simulation (begin to recognize mistakes in triage process)
 - Written reflection about simulation
 - Student evaluation of simulation
 - Exam questions about SALT triage

12. Comment on overall success of this teaching strategy

- Students express improved understanding of the SALT triage process and the meaning of the categories.
 - Overall, this was a great learning experience as I never have had to care for several intense patients all at once. I more clearly understand the role of the public health nurse in a critical setting now.
 - I really enjoyed it and it was highly educational on concepts that were originally hard to wrap my head around. It also was a great help for my confidence going into triage concepts, because they are very overwhelming to think about. I was expecting to be so rushed and anxious trying to "save" people but it was easier to take a minute for each person than I thought it would be.
 - This week in the sim lab, it was nice to practice triaging before the exam, it really helped a lot. The one thing I missed is if the patient has normal breathing or not, before the sim practice I

- through as long as the patient is breathing it consider not immediate. I felt more confident when triaging,
- This clinical assignment was really helpful in understanding how triage works and how I could use it in a real-world setting. I was able to ask questions and correct and understand the errors I had made in the simulation (such as mistakenly labeling someone black when they should have been grey). I think that today was really interesting and will help me on the exam and in the future if I am ever involved with a mass casualty triage event.
 - I actually made quite a few mistakes in the triage lab. I think that it was better for me though! I learn from my mistakes and by talking it out, so having that little wakeup call will make me remember it!
 - This simulation was very helpful in providing insight on which patients need assessed first. In addition, it gave me the actual sense on how to triage someone. I think performing the motions help connect the dots between class and this simulation.
 - I really enjoyed the exercise that we did. I thought that it was a good way to help review and study for the exam. I also thought that it was helpful that each person was able to talk through the patients that they classified and why they chose what they did. It was also nice to have the guide as to what classification each person was, but as I started to go through it more, it became easier to understand and I did not need to reference the paper as much, which makes me feel more confident about the exam. Overall, I thought that this was a very helpful simulation to go through.
 - While I was triaging the patients, I think I did pretty well prioritizing them and placing them in the correct category. I also enjoyed how we each had to go around to the people we categorized and explained why we gave them a certain category. This was a good time to learn what we did wrong and what we should've done.
 - This simulation required a lot of independent thinking to select the appropriate triage category for the patients. I think this simulation was very helpful to grasp these concepts and also fun.
 - After we were finished we got to go through what we chose and talk through each victim. This really helped me understand this process better.

13. References:

Required reading for students:

Wagner, J.M. & Dahnke, M.D. (2015). Nursing ethics and disaster triage: Applying utilitarian ethical theory. *Journal of Emergency Nursing*, 41, 300-306. DOI: doi.org/10.1016/j.jen.2014.11.001

References used in developing this strategy:

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; ...Health Resources and Services Administration/Maternal and Child Health Bureau Emergency Medical Services for Children Program. (2011). Model uniform core criteria for mass casualty triage. *Disaster Medicine and Public Health Preparedness*, 5, 125-128. doi: 10.1001/dmp.2011.41.

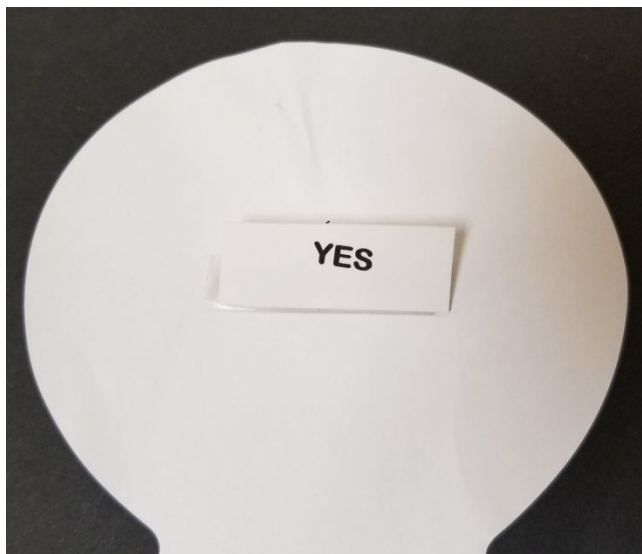
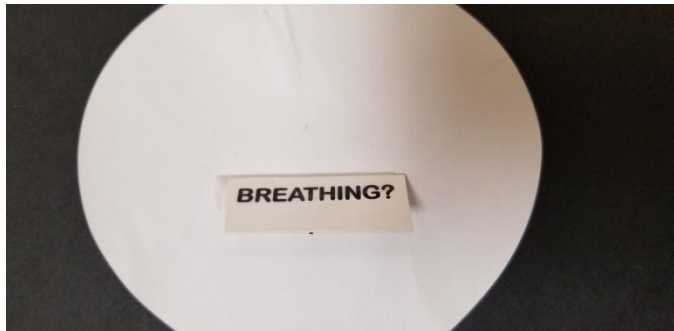
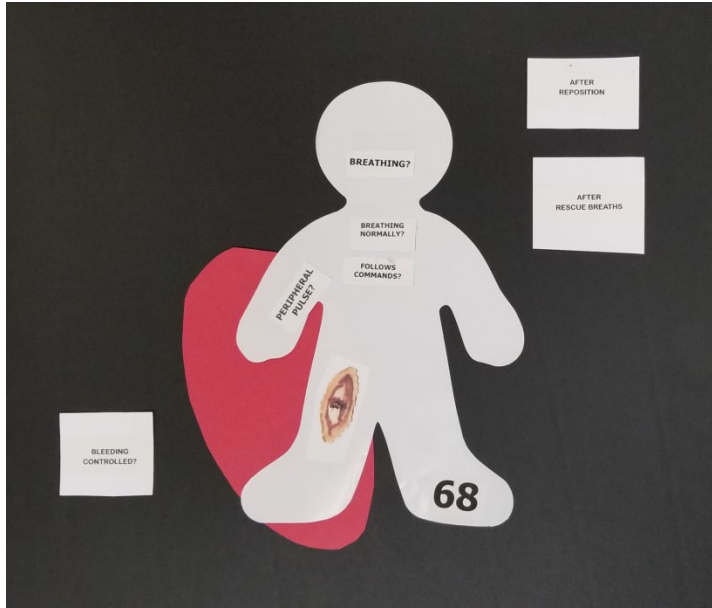
Lerner, E.B., Cone, D.C., Weinstein, E.S., Schwartz, R.B., Coule, P.L., Cronin, M., ... Hunt, R.C. (2011). Mass casualty triage: An evaluation of the science and refinement of a national guideline. *Disaster Medicine and Public Health Preparedness*, 5, 129-137. doi: 10.1001/dmp.2011.39.

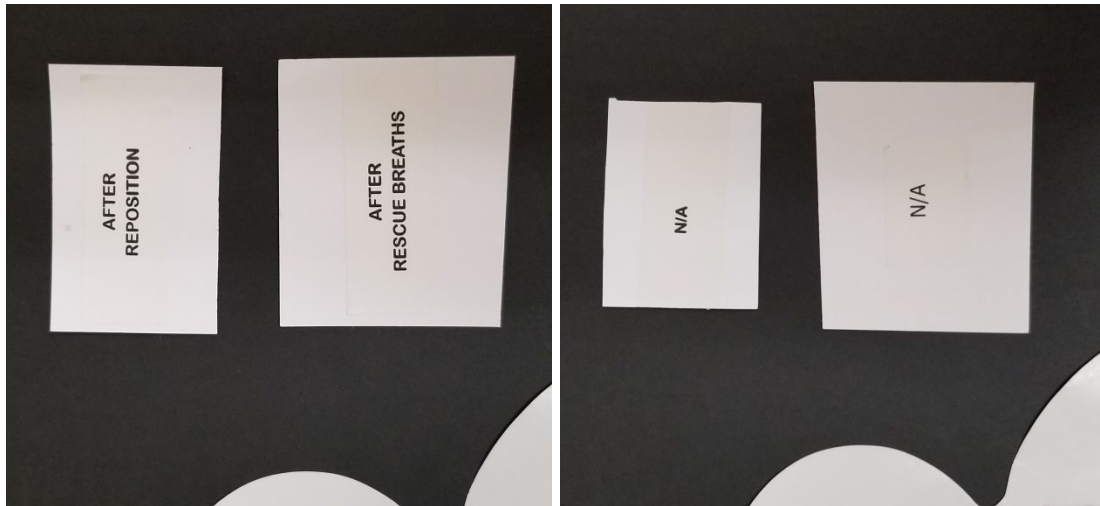
Lowes, A.J. & Cosgrove, J.F. (2016). Prehospital organization and management of a mass casualty incident. *BJA Education*, 16, 323-328. doi: 10.1093/bjaed/mkw005

Mills, B., Dykstra, P., Hansen, S., Miles, A., Rankin, T., & Hopper, L. (2020). Virtual reality triage training can provide comparable simulation efficacy for paramedicine students compared to live simulation-based scenarios. *Prehospital Emergency Care*, 24, 525-536. doi: 10.1080/10903127.2019.1676345

Shannon, C.C. (2015). Using a simulated mass casualty incident to teach response readiness: A case study. *Journal of Nursing Education*, 54, 4. doi:10.3928/01484834-20150318-05

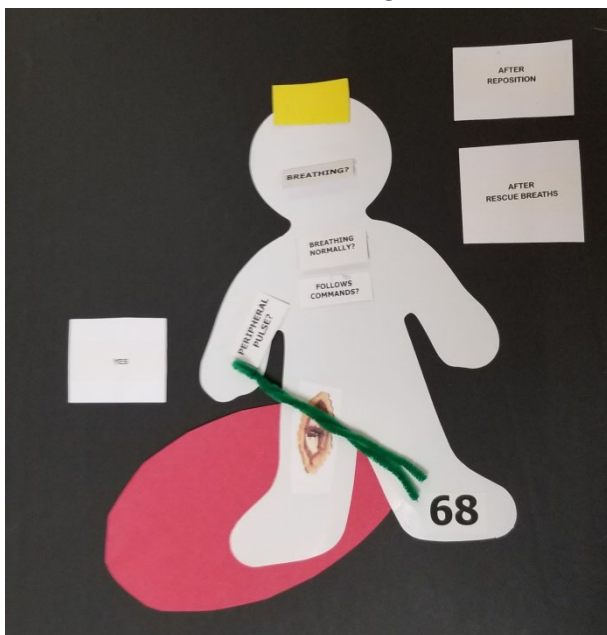
Silverstri, S., Field, A., Mangalat, N., Weatherford, T., Hunter, C., McGowan, Z., Stamile, Z., Mattox, T., Barfield, T., Afshari, A., Ralls, G., & Papa, L. (2017). Comparison of start and salt triage methodologies to reference standard definitions and to a field mass casualty simulation. *American Journal of Disaster Medicine*, 12, 27-33. doi: 10.5055/ajdm.2017.0255





Flip cards

next to head with N/A responses because victim was breathing. This is an example of a flip card that should remain untouched during the simulation.



Victim with tourniquet placed and triage category assigned. Note that flip card to the left of the victim asked if bleeding was controlled.

MCI Triage simulation: Faculty Script

Instructions for simulation: Points to cover while reviewing a sample victim

- 1) Show size of child vs. adult victims.
- 2) Show images of different wounds/injuries used on victims and state what each is.
- 3) Explain use of “tourniquets” and “compression bandages”
- 4) Burns
 - a. If on a limb, assume entire limb is affected.
 - b. If on forehead, assume entire head is affected.
 - c. If on chest, assume entire area affected.
 - d. If on abdomen, assume entire area affected.
- 5) Flip cards
 - a. Explain meaning of attached flip cards
 - b. Explain use of nearby flip cards
 - Important: If they flip it, do not flip it back over, even if it was “wrong” to flip the card
- 6) Explain how to assign a triage category
- 7) Review SALT triage algorithm, asking students to explain each step and correcting any errors. Faculty should do one final review of the algorithm without student input.

Faculty introduction to simulation:

- 1) State type of emergency, indicate that both adults and children are injured.
- 2) State that they have already asked for people who can walk to go toward a picnic pavilion (or other structure/location), those people are now standing (indicate that victims will be taped to the wall).
- 3) State they have just asked people who can hear them to wave (indicate that victims will have a hand raised in the air).
- 4) State that students now have to triage all the victims.

During simulation:

- 1) Observe how students divide the room where the victims are.
- 2) Observe if students correctly bypass waving victims unless they have obvious life-threatening injury (per SALT triage algorithm).
- 3) Answer questions about type of injury if needed.
- 4) Observe each student triage at least one victim. Note the amount of time taken for assessment and intervention.

After simulation:

- 1) Correct errors as students review triage decisions. Note common errors.
- 2) Discuss time taken per victim, compare to ideal time (15 seconds/1 minute).
- 3) Discuss common errors and review relevant part of SALT algorithm.

MCI Triage simulation: Faculty Script

- 4) Discuss difference between red/gray and resources available vs. number of victims. If student categorized victim gray, explain how it could be red in different circumstances. If student categorized victim red, explain how it could be gray in different circumstances.
- 5) Provide opportunity for students to discuss feelings related to triaging/walking away from victims categorized as gray, reluctance to assign gray category, etc.