INTERPROFESSIONAL
MASS CASUALTY SIMULATION: GET INVOLVED

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National and International Events have prompted the world to change its methods toward disaster preparedness.

Resilient communities begin with prepared individuals and depend on the leadership and engagement of local government, NGOs, and the private sector. (National Response Framework)
Professional Responsibility

“The American Nurses Association (ANA) emphasizes nurses’ moral and ethical responsibility to respond to the event of a disaster, recognizing the need for this specialized skill set in the nursing profession” (Brewer, 2010)

The National Athletic Training Association recommends each organization that has athletic events have an emergency plan and that the emergency plan should be reviewed, rehearsed and modified annually. (Courson et. al 2002)

Education

Business
Simulation in Healthcare Education

What is simulation?

The Future Vision of Simulation in Healthcare

David M. Gaba, MD

Simulation is a technique—not a technology—to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner. The diverse applications of simulation in healthcare can be categorized by 11 dimensions: aims and purposes of the simulation activity; unit of participation; experience level of participants; healthcare domain; professional discipline of participants; type of knowledge, skill, attitudes, or behaviors addressed; the simulated patient’s age; technology applicable or required; site of simulation; extent of direct participation; and method of feedback used. Using simulation to improve safety will require full integration of its applications into the routine structures and practices of healthcare. The costs and benefits of simulation are difficult to determine, especially for the most challenging applications, where long-term use may be required. Various driving forces and implementation mechanisms can be expected to propel simulation forward, including professional societies, liability insurers, healthcare payers, and ultimately the public. The future of simulation in healthcare depends on the commitment and ingenuity of the healthcare simulation community to see that improved patient safety using this tool becomes a reality.

(Sim Healthcare 2:126–135, 2007)
Interprofessional Education

Interprofessional Education
◦ “When students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes.” (WHO, 2010)

Interprofessional Practice/Collaborative Practice
◦ “When multiple health workers from different professional backgrounds work together with patients, families, careers, and communities to deliver the highest quality of care.” (WHO, 2010)

Why?
◦ Improved health outcomes
◦ Collaborative practice-ready health workforce
◦ Optimal health services
◦ Strengthened health system
Interprofessional Education

Athletic Training Accreditation Standards:
- #44. Students must interact with other medical and health care personnel.
- # 50. Students must gain clinical education experiences that address the continuum of care that would prepare a student to function in a variety of settings with patients engaged in a range of activities with conditions described in athletic training knowledge, skills and clinical abilities, Role Delineation Study/Practice Analysis and standards of practice delineated for an athletic trainer in the profession.

Nursing Accreditation Standards:
- Essential VI: Interprofessional Communication and Collaboration for Improving Patient Health Outcomes

Other Healthcare programs:
- Physical Therapy, Dietetics, Medicine, Dental Medicine, Pharmacy, SLP and Audiology
# Interprofessional Education

## Athletic Training Program Objectives

- Identify the signs and symptoms, interventions, and return to participation criteria of brain injuries and spinal trauma.
- Explain and demonstrate the indications and guidelines for acute care including equipment removal, maintenance of the airway, external hemorrhage, shock, anaphylaxis, and stabilization of an injured body part including appropriate transportation and/or ambulatory aid.
- Identify signs and symptoms (including the role of core body temperature in differentiating between different illnesses), interventions (including rapid body cooling), and return to participation criteria for various heat illnesses.

## Nursing Objectives

- Student will identify and demonstrate various roles and actions required during response to each training lane situation.
- Students will demonstrate appropriate triage of casualties.
- Students will demonstrate ability to work with interprofessional teams to complete tasks of scene safety, patient triage, first aid, and teamwork.

## Emergency Management Objectives

- Establish Scene Management in the Crisis Phase of Response (Command, Facilities, Public Information, Outreach/Resources both physical and personnel needed; Determine and Mitigate Safety and Security Concerns; Accountability)
Two Models

1. Single Mass Casualty event
   1 scenario
   Active shooter
   – focus on triage, transport, shelter and reunification.

2. Army Style Lane Training
   5 scenarios
   Camping tornado
   Bull trampling at the rodeo
   Bike car accident
   Bike race on a hot day
   Rider thrown from horse
SHSU
Gibbs
Ranch
Student Preparation

Lecture
- Nursing – Currently enrolled in Community Nursing
- AT – Currently enrolled in Prevention & Care of Injuries course

Video
- Triage – both groups

Brief
- Group
- Scenario
Debriefing

The post-experience analytic process

“A process by which the people who have had an experience are led through a purposive discussion of that experience”

Assumption 1: The experience has effected the participants in some meaningful way

Assumption 2: Processing of that experience is necessary to provide insight into that experience and its impact.

(Lederman, 1992)
Debriefing in Healthcare Education

On-based learning experiences should include a planned debriefing session Aimed toward promoting reflective thinking” (Decker, et al., 2013)

What we did:
1) Debrief in small groups at each lane station
2) Debrief as a large group (all students at that particular simulation time)
3) Debrief as a faculty post-simulation (typically 1-2 weeks after)
Assessment and Findings
Fall 2016 Pilot Study

Simulation Participants
- N = 68 (53 Nursing Students, 15 Athletic Training Students)
- Five Simulation Scenarios repeated in morning and afternoon session
- Four or five Nursing Students teamed with one or two Athletic Training Students

The researchers hypothesize that students who participate in simulations which use interprofessional teams will have positive perceptions of and attitudes toward teamwork and IPE.

Data:
1. Post-event survey
2. Student reflections
3. Pre- and Post - KidSIM Attitudes Towards Teams in Training Undergoing Designed Educational Simulation (ATTITUDES) Questionnaire
Post-Event Survey

- Completed by 27 participants (~40%)
- 23 Nursing, 4 Athletic Training
- Included four components:
  - Demographic Info, KIDSIM, Research Team Questions, Open-Ended Questions

Demographics:
- 88.89% Female; 11.11% Male
- Average Age: 25.52
- 70.37% report no previous simulation with other disciplines (IPE)
- 88.89% were second-year professional students (in final year of program)
Assessment and Findings
Fall 2016 Pilot Study

Research Team Questions:

- How real do you feel the scenarios were?
- Overall, how do you think you preformed during the activity?
- Overall, how would you rank this simulation for learning about triage?
- Overall, how would you rank this simulation for learning about roles in a disaster or mass causality situation?
- What skill(s) did you enhance during the simulation? Select all that apply.
Assessment and Findings
Fall 2016 Pilot Study

Student Skills Enhanced by Simulation

- Leadership
- Teamwork
- Critical thinking
- Assessment
- Communication
- Patient care

Percent of Students
Assessment and Findings
Fall 2016 Pilot Study

**WHAT DID YOU LIKE LEAST ABOUT THE SIM**
- More instruction from faculty about equipment and what to bring prior to event
- Review basic first aid and CPR prior to event
- Negative feedback from instructors [rather than debrief]
- Uncomfortable with time constraints
- Did not know what to expect/uncertain; want more info
- Confusion and lack of communication during simulation
- Ratio at scenarios with only one victim
- Location
- Should assign roles to vary across simulations

**WHAT DID YOU LIKE MOST ABOUT THE SIM**
- Interacting/working with other students
- Realistic
- Multiple scenarios
- Had to "stretch" ourselves/Adapting to situations
- Setting/location
- Immediate feedback
- Work on communication
- Build confidence
Assessment and Findings
Fall 2016 Pilot Study

I wish we had more information on the crises occurring, but at the same time I realized that in the real world we may barely get any information in the situation especially among all the chaos.

I would have liked to know what our first aid materials we had beforehand. This might have aided in being able to provide patient care.

Feedback in one scenario did not include any constructive criticism, only negative feedback. It did not help with the morale of the team.

Possibly not having enough information before the simulations. More information on first aid and a touch up on CPR

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I really liked that we go to work with "live" victims and not just simulation dummies. It made the experience a lot more realistic. I also thought the amount of time for each scenario and debrief was perfect.

I liked working with the other major and seeing how important their role is. I liked how real the scenarios were and that we didn't know everyone in our group beforehand, so it forced us to work harder to work as a team.

I liked working with the nursing students because they were put out of their element and we, as Athletic Training students, were able to see the skill sets they were more proficient in, while we were able to display ours. Our teamwork went hand in hand.
Pre- and Post – KidSIM Attitude Towards Teamwork in Training Undergoing Designed Educational Simulation (ATTITUDES):

Five Factors, 30 Items

1. Relevance of Simulation
2. Relevance of IPE
3. Communication
4. Situational Awareness
5. Roles and Responsibility

Undergraduate Students’ Perceptions of and Attitudes Toward a Simulation-Based Interprofessional Curriculum

The KidSIM ATTITUDES Questionnaire

Relevance of Simulation (5 items: 5-7, 9, and 10)

5. Simulation is a good environment for learning with other health care professionals
6. Simulation supports opportunities to change attitudes
7. Opportunities to practice teamwork can help students learn interprofessional roles
8. Simulation is a good tool for practicing team decision-making skills
9. Deliberate practice can improve clinical decision making
10. All students should learn how to work in the context of health care teams

Relevance of IPE (7 items: 1-4 and 8-10) (Sigalet et al., 2012)

1. Learning with other professionals is important to collaboration
2. Opportunities to learn with other professionals should be a priority in my education.
3. I want more opportunities to learn with other professionals.
4. Shared learning with other team members will improve my ability to understand clinical problems.
5. Interprofessional opportunities for learning will improve patient outcomes.
6. Attitudes about teamwork can change through opportunities to work with other professionals in simulation.
7. Learning with other health care professionals before qualification is important for the development of future interprofessionals.

Roles and Responsibility (6 items: 22-27)

22. Teamwork practice will provide me with feedback to enhance my ability to provide optimal patient care.
23. Monitoring what each team member is doing is important to optimize patient safety.
24. [Monitoring] will enhance other team members understanding of my role in patient health care.
25. Teamwork practice will help me recognize how best to help other team members complete their tasks.
26. It is important for team members to ask for assistance if they need support in completing a task.
27. Teamwork practice allows for flexibility in roles during times of crisis.

Situational Awareness (4 items: 17 and 19-21)

17. I will speak up if I perceive a problem regardless of who might be affected
20. Patient care is improved when all team members share a shared understanding about the assessment and treatment
21. Team leaders should provide frequent summaries of patient findings to keep team members oriented to patient needs.

Opportunities to learn with other health care professionals has increased their understanding of their roles.

(Sigalet et al., 2012)
### Paired Samples T-Test on KidSIM ATTITUDES by Factor Sum

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Reflections from Nursing Students

"One of the greatest's aspects to our simulation day was the fact that sports medicine was included...I think interdisciplinary training is very useful and great for the school."

“By the end of the day, the group knew its strengths and weaknesses and were better prepared to handle real-life disasters. It was extremely helpful to have the AT there to assist in the care that was given. The trainers facilitates as well as teaching the student nurses things.”

"As the day went on I noticed how everyone and myself improved in our communication and techniques...we were able to learn from previous mistakes and approached the scenes with greater confidence and teamwork.”

"Where the student nurse was clueless, the AT student knew exactly what to do...grateful for interdisciplinary teams...reassuring knowing another individual had the back.”

"I went in with anxiety and left with confidence.”

"I felt that by the time that we completed the last scenario that we had ironed out our abilities and learned to function as a team.”
Reflections from Athletic Training Students

“I think what went well was before we started the situations we had a chance to talk to our team members and get an idea of what skills they have and what they felt the most confident in doing.”

“This was a great way to help us [athletic training students] really get to see what we know, and what they [nursing students] know, and how we can benefit from each other’s different skills.”

“We were able to trust each others abilities and knowledge and strengths. We did face issues as a group where we had to make decisions in the best interest of our patients.”

“I like being able to put our skills to practice somewhere other then the lab and with others that we are not use to working with.”

“As we went through the scenarios we got better with communication and we started utilizing our team members more wisely. We saw the mistakes we did, and corrected them as we moved forward.”

“I truly appreciated the fact that the patients have visible deformities and wounds. It makes the scenario that much more realistic.”
Lessons Learned/Challenges

1. Assign roles within scope of practice and scope of the course objectives
2. Faculty supervision important – over involvement of faculty
3. Preparation of victims
4. Funding
5. Minimum number of scenarios
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References

American Academy of Colleges of Nurses

American Nurses Association


http://armyrotc.msu.edu/resources/TC25-10lanetraining.pdf

