Tips and tricks for equine emergency scenario simulation in pre-clinical student training

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Introduction

- Emergency and disaster management simulation is a frequently used teaching tool in human medical, volunteer and emergency responder training and has more recently been implemented in veterinary medicine[1].
- At the University of Calgary, an equine emergency scenario simulation has been a part of the second year curriculum since the inception of the school ten years ago.
- Students at this stage in their veterinary training have limited clinical and technical skills. The scenarios therefore encourage problem solving, leadership, teamwork and deliberate communication, without the need for significant clinical experience.

UCVM equine emergency scenarios:
Trailer accident
Barbed-wire entrapment
Barn fire

Scenarios

- Scenarios are designed to simulate a common equine emergency that an ambulatory practitioner would attend.
- Learning objectives for the simulation should be pre-defined to ensure that the scenario will allow for student demonstration of the knowledge and/or skills.

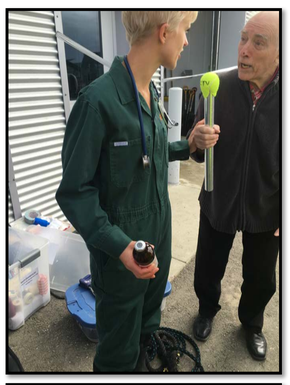
Key components and associated objectives to all UCVM equine emergency scenarios:

- A down and severely injured horse
  - Decision making for triage, analgesia, sedation, and anesthesia
  - Decision making and demonstration of trauma management
  - Movement of a down horse
- Secondary patients
  - Triage and evaluation of horses
  - Demonstration of physical examination and basic veterinary first aid
- A frantic and emotional horse owner
  - Communication skills: gathering a history, explanation and planning, obtaining informed consent, management of extreme emotions
- Dangerous location
  - Locational awareness, management of scene dangers
- Media personnel, emergency responders, other horse owners
  - Leadership, teamwork, and delegation of tasks, client confidentiality, ensuring safety of all individuals

Simulation Set Up

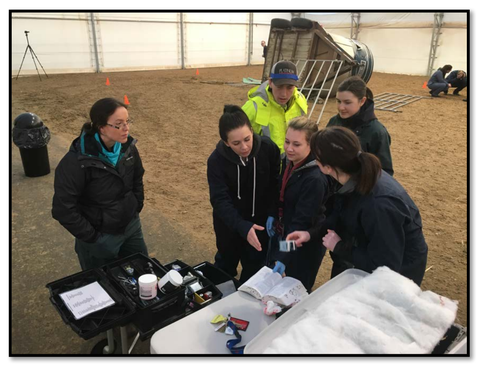
The People

- The actors need not have previous experience (ours are typically veterinarians, technicians, or family).
- Actors are given a basic story of the scenario and have some specific information to convey to the students.
  - *Horse owners:*
    - Owner's emotional response to scenario is distress, frustration, followed by sadness or aggression.
  - *Media:*
    - The media are usually asked to be "in your face" and ignore requests by students.
  - *Emergency response* (paramedic, fire, police – depending on scenario):
    - Emergency response individuals are helpful and follow directions well.
  - *"On-call" veterinarian*:
    - This is a faculty veterinarian who remains at the vet box and is available to answer questions from the students. The students are instructed to have direct, well thought out questions since their cell phone is dying and they only have a few minutes of time with the "on-call vet".
  - *Scenario recorder:*
    - Throughout the simulation a smartphone is used to record the student activities in both photos and video. Interspersed pictures of a watch document the time passage during the interaction.



The Interaction

- Students are pre-briefed with basic information about the scene and the available resources.
- Once the simulation starts, students are given a few minutes to assess the situation and start to organize themselves. Gradually, actors arrive on the scene and the complexity of the simulation increases.
- Students must work as a team to triage the horses and manage the scene. Other than the "on call" veterinarian, the students do not have any veterinary assistance during the simulation. Emergency response personnel may provide assistance if directed by the students.
- Actors are instructed to maintain character throughout the interaction, however, if the students appear too overwhelmed, they may back off to allow students time to think and make decisions.
- The simulation lasts about 40 minutes or until all animals and people are cared for.
- Depending on the scenario, a demonstration of appropriate scene management is performed by the faculty on completion of the simulation.

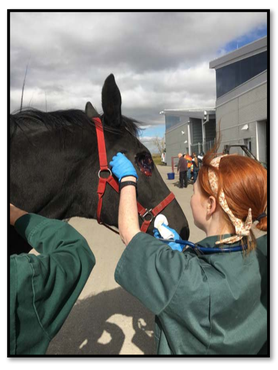


Debrief

- Debriefing after a scenario is the arguably the most important part of the simulation[2]. The debrief provides a safe and trusting environment for self-refection, ongoing learning and a framework for self-correction.
- The facilitator reviews the photos and video in sequence and asks the students to reflect on the simulation. Important questions during this review include:
  - What was happening at this time?
  - What were you thinking when this happened?
  - Why was this done? Did it help the outcome?
  - What would you do differently at this time in the interaction?
  - How safe are you at this time?
- An interactive discussion of clinical topics that arose during the simulation provides students with context and promote critical thinking.
- Topics discussed during debriefing also include: effective communication, safety (for victims, animals, and responders), incident command protocols, ethical considerations, euthanasia logistics, legal implications, and insurance and liability.

Conclusion

- Emergency scenario simulation provides students with a safe environment to prepare for a high-risk and low frequency event.
- Scenarios are moderately realistic to allow "buy in" by students and involve sufficient activities for each student to be engaged.
- Learning objectives for an emergency scenario simulation can be tailored to any year of veterinary student and can easily incorporate multiple species.
- Emergency simulations provide an active learning environment for clinical and non-technical skills. Simulation training for students in health care professions has demonstrated increased ability in critical thinking, functionality within the health care team and learning from their mistakes[3].
- At UCVM, the equine emergency scenario simulation laboratory has grown from the first delivery but the simulations remain fairly simple to set-up and deliver and are low cost after the initial horse model (and trailer) investment.



References:
1. Bissett WT, Zoran DL, Clendenin A, Espitia NF, Moyer W, Rogers KS. How a disaster preparedness rotation helps teach the seven NAVMEC professional competencies: The Texas A&M experience. *J Vet Med Educ. 2013; 40(4):378-388.*
2. Groom JA, Henderson D, Sittner BJ. NLN/Jeffries simulation framework state of the science project: Simulation design characteristics. *Clin Simul Nurs.* 2014; 10: 337-344.
3. Shannon CC. Using simulated mass casualty incident to teach response readiness: A case study. *J Nurs Educ*. 2015: 54(4):215-219.

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