Emergency Preparedness Delivery Model

Kristie Bruesch

Ferris State University

Abstract

Emergencies can happen at any time of day or night. These emergencies can range from a single car accident to a mass casualty event. Health care workers around the nation must be prepared to provide safe quality care. Ensuring the safety of not only the patient but of themselves. Training and education can be performed in various ways. Simulation strategy is one means to educate staff members on events. Events can be from a resuscitation of an ill individual to a mass casualty event from a terrorist attack. Healthcare systems must establish a framework to instill educational methods. Utilizing simulations can provide the most real life scenario outside of the actual scenario. Simulations provide trial and error in the system or can show lack of education to staff members. Errors in the system can be reviewed, discussed and changed to make for a better outcome to provide safe quality care to not only the patient but to themselves.

Emergency Preparedness Delivery Model

In focusing on emergency preparedness, hospitals must have the knowledge and education to provide safe quality care to the patient when an emergency arises. In looking at different emergencies, health care employees must be able to quickly assess patients for exposure to chemical, biological, radiological, nuclear or explosive (CBRNE) materials (Federal Emergency Management Agency, 2017). Assessment is the key to providing safe and quality care not only to the patients but to the hospital staff who may come in contact with the patient who is exposed. When the hospital staff have become exposed to the material, the staff will then become a patient as they are now exposed. The purpose of this paper is to provide a framework for education to hospital staff in regards to patients who are exposed to CBRNE.

**Theoretical Care Delivery Model**

The model which will be delivered for education of emergency preparedness in the health care setting will be the Four-level model (see appendix A) (Reid, Compton, Grossman, & Fanjiang., 2005). The first level is the environment, then the organization, the care team, and then the patient. In adjusting this model for emergency preparedness, the model shows how an exposure will be played out through the event to the patient in the healthcare setting. This model breaks down the process from the environment which is when the exposure begins. After the emergency exposure occurs the next level is the organization. The health care facility which will be taking in the exposed patient must be qualified to assess and care for the emergency. Next on the level is the care team, which will be educating the health care workers how to treat exposed patients. Lastly, the patient is the next level.

In an emergency event, 75 percent of individuals present to the hospital on their own terms (Batey, 2017). When a patient presents on their own this means they do not call ahead of time or they do not come in via an ambulance. This strategy poses a risk for healthcare employees as the patient will come directly into the hospital exposing other individuals. This risk of exposure highlights the need for healthcare employees to be prepared through education of an emergent event such as a CBRNE exposure.

**Educational Strategy**

In order to provide education on a CBRNE exposure event, the most optimal way is through simulations. The most optimal decontamination process is when a patient presents in an ambulance or if there has been a report of an incident in which hospitals can prepare (Shin, 2015). However, advanced preparation cannot always be done. Utilizing the Four level model (see appendix B) for educational purpose, the model has been reconstructed using education, assessment, research, and health system integration (Society for Simulation in Healthcare, 2017). The first level technique is providing education. Providing a simulation of an event will provide the staff with the most real-life situation as possible. In this scenario, a simulation of a patient will present to the Family Birthing Unit at North Ottawa Community Health System. The simulated pregnant patient was a couple blocks away watching a parade. She started to feel nauseated, blurred vision, and vomited which prompted her to go to the hospital. The patient presented directly to the labor and delivery unit.

On arrival, the signs and symptoms mimic problems in a patient who has pre-eclampsia; blurred vision and upset stomach. At the front desk is when the staff gathers a rapid assessment which is the second tier of the four level model. The patient will fail to mention, the parade was shooting out a liquid of some sorts into the crowd prior to becoming sick. This liquid will be visible on the patient. The patient will be brought into a room to be triaged. The triage door will be closed for patient privacy. At this point, the patient will begin seizing and the nurse who is triaging will be handed a note stating they are now exposed and showing immediate signs of sarin exposure (Center for Disease Control, 2013). The simulation will end at this point and research or a debriefing session of the simulation will be educated upon. Debriefing allows those involved in the simulation to ask questions and to understand the process which should have taken place or if the process was performed with excellence (Sawyer, Eppich, Brett-Fleegler, Grant, & Cheng, 2016). The correct method of action will be educated and staff will be shown how to transport the patient back down to the outside of the hospital to where the decontamination process will begin. Staff will also be educated to care for themselves first prior to a contaminated patient who is pregnant and is suffering. This piece can be challenging for some staff knowing an unborn child may or may not make it to life due to these exposures. Staff will be encouraged to remember they need to stay healthy to provide care to current patients and those who will make it through decontamination and then brought to the unit for evaluation.

The last tier for the four level model is the health system integration. Once the simulation is performed. The simulation will be reviewed with positive and negative remarks. Changes will be made or altered to better service the hospital system. This simulation can then be used in other departments providing similar scenarios for CBRNE exposure.

Conclusion

The United States is at risk for terror attacks with attacks being more frequent throughout the world. Sarin was recently used as a nerve agent against innocent adults and children in Syria only a few months ago and in a subway in Japan back in 1995. In the 1995 attack, 12 deaths, 54 were severely injured, 980 people moderately affected and over 5000 people sought medical assistance (Byers, 2014). Providing simulations with referencing terror attacks using CBRNE will provide the best educational technique to health care workers. In hind sight, preparing and accurately assessing patients will provide safe quality care to not only the patient but also to health care workers.

References

Batey, W. (2017). North ottawa community health systems.

Byers, M. (2014). Deliberate chemical attack: revisiting the lessons of the Tokyo subway attack. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, 22.* doi: 10.1186/1757-7241-22-S1-A8.

Center for Disease Control. (2013). *Facts about sarin*. Retrieved from Emergency preparedness and response: https://emergency.cdc.gov/agent/sarin/basics/facts.asp

Federal Emergency Management Agency. (2017). *Hospital emergency response training: basic, indirect delivery.* Washington D.C.: Federal Emergency Management Agency.

Reid, P., Compton, D., Grossman, J., & Fanjiang., G. (2005). *Building a Better Delivery System.* Washington D.C.: National Academie Press.

Sawyer, T., Eppich, W., Brett-Fleegler, M., Grant, V., & Cheng, A. (2016). More than one way to debrief: a critical review of healthcare simulation debriefing methods. *Journal of the Society for Simulation in Healthcare*, *11*(3) 209-217. doi: 10.1097/SIH.0000000000000148.

Shin, D. M. (2015). Prevention and decontamination of chemical, biological, radiological, and nuclear contaminants for the emergency medical personnel during ambulance services . *Hanyang University College of Medicine*. doi.org/10.7599/hmr.2015.35.3.146.

Society for Simulation in Healthcare. (2017). *About simulation*. Retrieved from Society for Simulation in Healthcare: http://www.ssih.org/About-SSH/About-Simulation

Appendix A

Appendix B