# Chapter 2
# Disaster Preparedness and Response in Higher Education:
## Applying Lessons Learned From Healthcare

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## ABSTRACT

*There is a paucity of literature on disaster preparedness and response in higher education. The purpose of this chapter is to apply the lessons learned over several decades in healthcare and apply appropriate lessons to higher education institutions. Topics covered include disaster mitigation, disaster planning, disaster response, and recovery. By applying lessons from healthcare, university leaders can craft robust emergency plans and conduct effective exercises that can reduce injury, loss of life, and property damage during an actual disaster.*

## INTRODUCTION

Although health facilities and colleges and universities are quite different, they also have several similarities. Both have large numbers of people moving from place to place throughout a facility or multiple buildings with a larger geographic footprint. Although both facilities have records on who has appointments (in the case of health facilities), or who is to attend classes (in higher education), not everyone can be easily counted. Also, both places are likely to have external visitors, such a friends of family members, who are not easily accounted for in a disaster. In addition, higher education institutions and health facilities tend to have dense population of people in their facilities; both have people that have disabilities, although the instance of a disabled population is more common in health facilities.

There is a plethora of data on disaster preparedness in health facilities, yet there is a significant paucity of literature about disaster preparedness in higher education institutions. The majority of literature about higher education and disasters concerns student perceptions of training and preparedness (Coveleski, 2014; Izumi et al., Goddard et al., 2018; 2020; Kivunga et al., 2017; Matunhay, 2022; Mishra & Suar, 2011, Ozkazanc & Yuksel, 2016, Tan et al., 2016). Since the COVID-19 pandemic of 2020, the disas-

ter preparedness literature in higher education has concentrated primarily on managing pandemics of infectious disease (Izumi et al., 2020; Panganayi, 2020). Patel et al. (2020) and Tan et al. (2016) noted college students are one of the most vulnerable overlooked groups when a disaster occurs in a community because they are not permanent residents. However, there are so many more aspects of disaster preparedness that have been used and practiced in health care for decades that can easily translate to higher education institution disaster preparedness.

The Federal Emergency Management Association (2023a) defines a disaster as "the occurrence of a natural catastrophe, technological accidents or human-caused event that has resulted in severe property damage, deaths and/or multiple injuries" (p. 9). They define a large scale disaster as one that exceeds the response capability of the community and requires possible state or federal involvement. Natural catastrophes include things such as: tornadoes, severe drought, earthquakes, blizzards, hurricanes, pandemics, tsunamis, forest fires, etc. Technological accidents include things such as nuclear accidents, chemical accidents, industrial pollution, train or airplane accidents, release of biological agents from laboratories, and factory explosions or fires (Texas DEM, 2023). Human-caused events include acts of war, terrorism, biological warfare, crime, arson, civil disorder and cyber-attacks (Emergency Management, 2023). Klein and Irizarry (2023) note disasters can cause "injury, disease, illness, loss of life, destruction or property, damage to critical infrastructure and essential services" (p. 1). According to FEMA (2023b), disasters have four phases: mitigation, preparedness, response and recovery.

Disaster preparation in higher education institutions was led by the Disaster Resistant University Initiative which set aside funds for university planning for disasters in 2000 in the United States (Yamaiel, 2006). In addition, 34 CFR 668.49(d) requires that any university that has on-campus housing must maintain a fire log and fire safety report (Office of the Federal Register, 2023). However, just these items are likely not sufficient. The purpose of this proposed chapter is to present best practices in disaster preparedness and response that can be applied in higher education.

## History of Disaster Preparedness and Emergency Management

Man has been attempting to deal with disasters since prehistoric times. France's Chauvet cave contains cave paintings which are thought to be 37,000 years old that depict the eruption of local volcanos (Callaway, 2016). In Genesis 6:17 in the Old Testament, God told Noah that he would bring a flood upon the earth and gave him directions on how to survive the flood and save other living creatures (Bible Gateway, n.d.) This same flood is also described in the Islamic Quran (Understanding Islam, n.d.). In 79 AD, Mount Vesuvius erupted destroying the city of Pompeii in Italy (Povoledo, 2022).

In 526 AD, Antioch was destroyed by an earthquake and buildings crumbled and burned. In 563, Geneva Switzerland was devastated by a landslide which caused a tsunami on Lake Geneva. In 1092, a tornado struck London, England. In 1257, a volcano erupted on Lombok Island and it caused cold temperatures due to ash in the air that caused a famine in Europe by preventing plant growth, which in turn, caused the death of animals such as cattle and sheep. In 1287, a massive storm destroyed dikes and changed the landscape of the Netherlands permanently; this was called St. Lucia's Flood. On January 16, 1362, an Atlantic gale flooded much of northwestern Europe. In the east in 1274 and 1281 Kublai Khan's fleets were destroyed by typhoons. There were many other disasters in medieval times (Medievalists, n.d.).

As people began to live more in town and cities, more disasters occurred. In 1665, bubonic plague decimated must of Europe (Johnson, n.d.). The Great Fire of London destroyed 13,200 houses and 87

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