

Tabletop exercise to prepare institutions of higher education for an outbreak of COVID-19

Aaron M. Wendelboe, PhD; Amanda Miller, JD, CRM
Douglas Drevets, MD; Linda Salinas, MD; E. J. Miller; Dalton Jackson
Ann Chou, PhD; Jill Raines, JD; Public Health Working Group

Preparing for public health emergencies is an ongoing process and involves a variety of approaches and tools. Tabletop exercises are one of the tools designed to simulate the emergence of a public health emergency and address some or all of the phases of emergency management: mitigation, preparedness, response, and recovery.¹ They typically are designed to include participation of stakeholders from diverse and complementary backgrounds, including command, operations, logistics, planning, and finance.² Effective tabletop exercises provide a plausible scenario that require cooperation and communication from these functional areas. Tabletops also require forward thinking and planning in a variety of scenarios. When a public health emergency occurs, decision makers may be overwhelmed with decisions that need their immediate attention. Tabletop exercises can provide a framework to help decision makers anticipate future challenges, which may provide the mental model encompassing knowledge and insights that inform both current and future decisions.

Dr. Li WenLiang, a 34-year-old ophthalmologist in Wuhan, first alerted his medical school classmates on December 30, 2019 of a SARS-like virus. He was quickly silenced three days later as he was detained by the local police and agreed to “stop the illegal behavior” of spreading “rumors.” In his interview with the *New York Times* on January 31 and February 1, 2020, a few days before his death, he indicated that he was infected by a patient whom he was treating for glaucoma and became concerned as the patient had infected her family. The patient was asymptomatic at the time so Dr. Li did not take protective measures. He also reported that there had already been other patients under quarantine for symptoms resembling pneumonia and there were discussions

among his colleagues to take precautions. Dr. Li began showing symptoms on January 10th and died on Friday, February 7, 2020. He advocated for more transparency during his *New York Times* interview and believed that the epidemic would have been better controlled had information been disseminated earlier. His death unleashed an outpouring of anger and grief in social media as well as demands for freedom of speech in China. Moreover, Dr. Li’s death exposed a “troubling aspect of the epidemic that goes unmentioned in official statistics: the number of doctors, nurses, and medical workers infected by the virus.”³ Hundreds of health care workers may have been infected in Wuhan, according to government data; an anecdotal report noted a single patient had infected 14 health care workers at one hospital.⁴

This novel coronavirus was later named SARS-CoV-2 and the disease it causes is COVID-19.⁵ On January 30, 2020, the World Health Organization (WHO) announced the outbreak to be a public health emergency of international concern⁶ and on March 11, 2020, WHO designated the outbreak as a pandemic.⁷ At the time of this writing, SARS-CoV-2 had spread to all 6 inhabited continents across 123 countries, caused more than 126,000 reported cases of disease, and more than 4,633 reported deaths.⁸ The emergence of this novel coronavirus appears to be overwhelming a number of countries, has the potential to reach every country, and will test the infrastructure of many governments, institutions, and businesses. While tabletop exercises have been published in preparation for pandemic influenza,^{9,10} to our knowledge, no tabletop exercises specific to the COVID-19 have been developed for universities or similar size institutions. WHO has made a COVID-19-related tabletop available on their website,¹¹ but its target

audience is government officials at the national level. Therefore, we aimed to design a tabletop exercise for institutions to assist them in their preparedness efforts.

Using the tabletop manual here: <https://www.wmpllc.org/ojs/index.php/jem/article/view/2724> or <https://doi.org/10.5055/jem.2020.0464>, we conducted a tabletop exercise among senior administrators at the University of Oklahoma (OU) the week of March 9, 2020. The primary goal of this exercise was to identify and apply areas in the emergency response plan that address the COVID-19 outbreak scenario. Exercise objectives included identifying 1) triggers and thresholds that affect policy changes, and 2) areas for further development in the institution's continuity of operation plans. Although it was designed to be conducted in 2.5 hours, because of urgent COVID-19-related issues, we completed the exercise within 2 hours. It is organized into four modules: 1) Introduction of cases of COVID-19 with known travel-related exposure, 2) Introduction of cases of COVID-19 with no known (ie, community) exposure, 3) Outbreak of COVID-19 in the region, and 4) Recovery and "looking ahead." It also contains detailed instructions, objectives, a timeline of events relating to the emergence of SARS-CoV-2, a table of events a university may have scheduled during their spring semester, and debriefing questions for the hot wash session.

While this manual is likely most easily adapted to other universities, it may also be adapted for non-academic organizations, societies, and large businesses. It is designed to generate discussion among participants with the recognition that there may not be a correct answer. Approximately 70 people participated in our exercise from all three OU campuses: Norman, Oklahoma City, and Tulsa. While the advantage of having a large number of participants assured inclusion of those with needed expertise, one challenge was the insufficient opportunities for everyone to engage in discussion. Considerations may also be made about the comfort level of participants in discussing challenging issues in a large group and the potential for groupthink.

This tabletop exercise is a timely contribution as the world community continues to tackle containment of SARS-CoV-2. It is designed to promote competencies in public health emergency preparedness. Decision makers acting in emergency response roles may adapt and

implement this manual to facilitate effective communication among participating agencies and personnel, and disseminate information to the community to fully achieve the aims of emergency response.

Aaron M. Wendelboe, PhD, Hudson College of Public Health, Department of Biostatistics and Epidemiology, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

Amanda Miller, JD, CRM, Enterprise Risk Management, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

Douglas Drevets, MD, College of Medicine, Department of Internal Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

Linda Salinas, MD, College of Medicine, Department of Internal Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

E. J. Miller, Enterprise Risk Management, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

Dalton Jackson, Campus Police Department, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

Ann Chou, PhD, College of Medicine, Department of Family and Preventive Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

Jill Raines, JD, Office of the Senior Vice President and Provost, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

Public Health Working Group: Slate Boyer, Jessica Beetch, Jennifer Dilley, Adam Hassoun, John G. Heller, Blakeley Pearson, and Andrew Schaff.

REFERENCES

1. Federal Emergency Management Agency: *Emergency Management in the United States*. 1998.
2. Public Health Emergency: Emergency Management and the Incident Command System. US Department of Health and Human Services. 2012. Available at <https://www.phe.gov/Preparedness/planning/mscc/handbook/chapter1/Pages/emergencymanagement.aspx>. Published 2012. Accessed March 11, 2020.
3. He Warned of Coronavirus. Here's What He Told Us Before He Died. *New York Times*. February 7, 2020.
4. Buckley C: Chinese Doctor, Silenced After Warning of Outbreak, Dies from Coronavirus. *New York Times*. February 7, 2020.
5. World Health Organization: *Naming the coronavirus disease (COVID-19) and the virus that causes it*. 2020.
6. World Health Organization: Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV). Geneva, Switzerland, 2020.
7. World Health Organization: WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. Geneva, Switzerland, 2020.
8. Worldometer: COVID-19 CORONAVIRUS OUTBREAK. 2020.
9. Beaton R, Stergachis A, Thompson J, et al: Pandemic policy and planning considerations for universities: findings from a tabletop exercise. *Biosecur Bioterror*. 2007; 5(4): 327-334.
10. Taylor JL, Roup BJ, Blythe D, et al.: Pandemic influenza preparedness in Maryland: improving readiness through a tabletop exercise. *Biosecur Bioterror*. 2005; 3(1): 61-69.
11. World Health Organization: Coronavirus disease (COVID-19) training: Simulation exercise. In: Programme HE, ed. Geneva, Switzerland 2020.