

Swine Flu Outbreak Puts Attention on Pandemic Planning at Universities

May 22, 2009, By Elaine Rundle

Three historic pandemic flus have changed the way the world views the rapid, global spreading of disease: the Spanish flu that killed between 40 million and 50 million people in 1918; the Asian flu that killed approximately 2 million people in 1957; and the 1968 Hong Kong flu that killed an estimated 1 million people.

Although there hasn't been a pandemic in more than 40 years, the current swine flu outbreak - which has infected 73 people worldwide and killed seven people - has focused attention on the need to prepare for such an event. On April 25 the World Health Organization deemed the swine flu a public health emergency of international concern, and the United States declared a national public health emergency.

Colleges and universities are in a unique position when planning for a pandemic. Many students are housed in residence halls, and therefore are provided shelter and food. Should dormitories be closed during a pandemic? Should infected students be quarantined? Should campuses be closed? These are important, difficult questions put to campus emergency managers.



When the deadly H5N1 strain of bird flu - which had a total of 120 outbreaks in 2006 and 2007 - found the media's spotlight, campus emergency managers suddenly focused on pandemic plans for their organizations. Although many knew a pandemic could be imminent, other emergency topics, like preventing campus violence and creating emergency-notification systems, kept it on the back burner. Three years later, officials are still planning for pandemics and new technologies are aiding the process.



Looming Issue

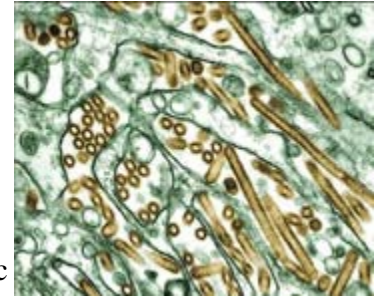
The spotlight on bird flu brought increased knowledge about the dangers of pandemics and the understanding that it's a real, imminent threat.

"I have been in this business for almost 20 years, and I remember 15 years ago sitting in meetings and trying to talk to people about the danger of having a pandemic and people couldn't grasp it - they just couldn't see it," said Valerie Lucas, emergency manager of the University of California at Davis. "I think the H5N1 scare we all had about three years ago brought it more into the consciousness. People recognize it as a hazard that they really need to think about and address for themselves."

In April 2006, the UC Davis provost issued a "charge letter" that discussed the threat of a bird flu pandemic. The letter asked each school, college or unit within the university to create pandemic plans. Lucas provided a template that included identifying the chain of command, determining how

communications would continue during an emergency, and recognizing critical functions that would have to be maintained and the level of staffing they would require. Lucus wanted the units to understand their critical functions that could be delayed one week, one month and more than one month.

Lucus also touched on a critical issue caused by pandemics: excessive absenteeism. "The issues that excessive absenteeism bring to a campus emergency are different because it's not like your buildings are flooded and you can't go in them anymore," she explained. "It's that you don't have enough people around to keep the systems and processes going."



Bob Lang, the assistant vice president of strategic security and safety for Georgia's Kennesaw State University, said it's important for every pandemic plan to identify essential support functions like human resources, facilities, the health clinic, payroll and the campus police department. "Those people are going to have to come up with not only plans as to how they would support the university when people don't show up, but how they are going to actually maintain adequate levels of support internally," he said.

Identifying critical roles is easy enough, but cross-training workers to take on those responsibilities is the challenge. Lang said people mistakenly think they can just step into the role, but he said they must be aware of certification requirements and be prepared to fully do that job in addition to their own.

Officials also must realize that they become first responders in a full-blown pandemic because the university's and city's health and medical staff also will be affected. "Staffing and being able to get support is something that's going to be very tough to get," Lang said. "That's why your internal procedures are going to have to try to support as much as you can without relying on outside entities."



The Trouble With Templates

Once the templates for an organization's pandemic plan are completed, people tend to forget about the importance of keeping them updated. Lucus said that has changed within the UC system of campuses because of the addition of UC Ready, a Web-based business continuity tool developed by the University of California at Berkeley that aids disaster planning. "Since it's online, you only have to go in and do it once," Lucus said. "Then it's easy to keep up-to-date and it collects information in a more consistent way. We can pull the information out and it's sorted." UC Ready is being used by the UC system's 10 campuses and five medical centers.

Lang said keeping the plans current is a challenge. "It's tough getting a handle on putting it all together and finalizing," he said. "And then once you have your full plan in place, the dynamics of maintaining accuracies is another effort you have to work on."

New technologies may aid planning for pandemics and the information that's available when creating tools like templates. Researchers in Georgia Tech's School of Industrial and Systems Engineering (ISyE) created a model that simulates the spread of a pandemic geographically and across time. Julie Swann, a developer and ISyE associate professor, said the model was created as part of a university initiative to study humanitarian logistics in health and other crises, and to use the skills professors teach in areas that have a public impact.

"Our reasons for participating in the research were to have a public impact, and this is one of the areas that we saw where some real help was needed," Swann said.

As part of that initiative, researchers met with officials from the Metropolitan Atlanta Chapter of the American Red Cross as well as the Centers for Disease Control and Prevention to discuss different challenges in the public health arena, including a pandemic.

Pinar Keskinocak, another developer and ISyE associate professor, described the model: "This is a large-scale simulation model, and we essentially simulate each person in a population according to age groups and social groups - such as households, school groups, work groups and community interaction. Taking all of these factors into account, the simulation model mimics the way the disease will spread both geographically and across time."

The developers feed information into the model from the U.S. Census Bureau. They used the public data source so the model could be replicated.

The model has two forms: simulation and optimization. Keskinocak said the simulation model gives a visual view of the disease, and the optimization model is used to help make decisions. For example, the optimization model could be used by the Red Cross to calculate how to plan for food distribution. The model shows where the best place would be to open facilities, like food banks, and how to allocate resources over time.



To Close or Not to Close

College officials also face the difficult decision of closing the university or keeping it open. Keskinocak said the simulation model was used to test the effects of school closures. However, their data came from the Georgia Board of Education - an agency that oversees elementary, middle and high schools - so it was not specifically tailored for a university setting. Nevertheless, the researchers tested the effects of school closures versus a voluntary quarantine.

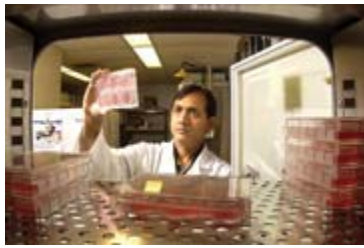
"With voluntary quarantine, we found that it can significantly reduce the spread of the disease and is sometimes more effective than school closures," Keskinocak said. "One of our main recommendations to public officials would be to seriously consider the potential social impact of closing schools versus educating the public and convincing them to stay home while they are sick."

Swann added that a major challenge of school closures is the time frame of a pandemic. That's because the disease will persist at some level in the population for months. "Whether it is a university or elementary, middle or high school, closure would be difficult because the pandemic's peak period may be for a couple of months, but there would be a significant number of people infected for several months. We look at the course of a year in our planning period," she said.

Lucus of UC Davis said you can't really close a campus because it's like a city. The university would suspend classes, which in effect is asking the students to go home. Suspending classes would also halt many of the university's normal business operations, making it function with less staff and faculty. "We would still be operating, but we would be operating with only the people who need to be here to keep the facility running," she said.

For students who live in the dorms, Lucus said the university would help students return home by transporting them to the airport and other efforts. She said they would have time to get many students home because chances are, the disease would originate in the Far East or in another continent. By the time a pandemic from overseas reached the United States, there would be many warnings. Students who are unable to leave, like foreign students, would be housed in residence halls. The university stores a week's worth of food for the campus in case of an emergency.

Kennesaw's Lang said for his university to close there would have to be a total, full-blown epidemic - or at least a rapidly spreading disease in the region. He asked rhetorically whether it's best to quarantine students in the dorms or only set up quarantine areas for those who are infected: "I think there are a lot of questions that many people will have when it gets to be that severe, and you'd better have a lot of people involved when it comes to making those decisions," he said.



Real-Life Predictions

Swann and Keskinocak have used their model to examine the way a pandemic would affect the entire state of Georgia. Aside from the American Red Cross, other organizations have reached out to them for help with pandemic planning. "They've seen our results and actually asked for the details of the expected number of persons infected over time and region for the state of Georgia, so that they can make their plans based on what the work force and the critical infrastructure of the state might be," Swann said.

They have not used the data for other states yet, but the two of them said the information would be comparable for states like Illinois that have similar population density. However, they said the simulation and optimization models are flexible and can be run with data from other states. "We certainly would be open to exploring those types of possibilities if there are states that are interested," Keskinocak said. "It's a matter of inputting the right data into the model."

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