

E-health data collection key to tracking swine flu spread

As health agencies rush to analyze data, some companies prep for a pandemic

By Lucas Mearian

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April 29, 2009 (Computerworld) As the prospect of a flu pandemic grew more likely Wednesday -- the World Health Organization raised its threat alert to Level 5 -- data is pouring into federal health care agencies using systems that a decade ago did not even exist.

As of Wednesday afternoon, the U.S. Centers for Disease Control and Prevention (CDC) had [reported 91 cases of swine flu](#) in 10 states. One death in Texas -- a 23-month-old child from Mexico -- has been attributed to the flu, and health officials expect more deaths to follow.

The swiftness with which the influenza strain has spread -- and the speed with which new electronic health surveillance systems have tracked its emergence -- is prompting companies to quickly dust off business continuity plans and warn workers to guard their health.

"Businesses need to take this seriously and put plans in place for personnel," said Michael Croy, director of business continuity solutions at Forsythe Solutions Group Inc., an IT consulting firm in Skokie, Ill. "They need to make sure employees can work from home. They need to tell them about how to take care of their health and be overly cautious by telling workers to stay home if they feel sick. But they also need to do it in way so as not to create panic."

The best antidote for panic is information, and disease-surveillance systems rolled out in recent years are allowing health agencies to track, report and confirm swine flu cases faster than ever. But gaps in the system remain, health care experts said.

While today's electronic reporting systems are vastly more sophisticated than the paper-based methods used as recently as 10 years ago, many community hospitals and private physicians are still not equipped to correlate all the data coming from health providers, insurance companies and laboratories.

"We've gone beyond the early detection," said Doug Hamaker, who manages the data collection for infectious reportable conditions at the Texas Department of State Health Services. "I don't think there's a local health department around that's not aware of the swine flu and is not aware that it either is or could easily be occurring in their local area. What we're transitioning over to now is the use of a case-surveillance system that says for those who have an influenza-like illness ... is that the swine flu variant?"

For at least 100 years, the U.S. government has required states to report potential epidemics. That system was traditionally paper-based, and it could take days, if not weeks, for information to trickle up to the CDC in Atlanta and the U.S. Department of Health and Human Services (HHS), which coordinate health care and epidemic response on a national basis.

Accuracy in reporting remains a problem, because it depends on the sophistication of electronic systems used by local and state health agencies to quickly gather data for the federal government.

In the past few years, electronic tools have begun to transform the reporting system -- reducing or eliminating the burden on doctors, nurses or medical laboratories to fill out reports on potential epidemics, according to Scott Danos, an independent consultant in Atlanta.

Danos, a former senior adviser at the CDC who retired after more than 30 years with the agency, said the basic challenge in tracking epidemics has been that patient diagnosis and treatment data comes in many forms to the local and state health agencies, which in turn must hand it off to the CDC and HHS. Those agencies have to analyze the data and then send back information to the states.

About four years ago, the CDC launched a national program [called BioSense](#), which gave state health agencies an application that can transmit and receive epidemic data with federal agencies in near real time. The data, which comes from larger hospitals, laboratories and other health data sources, is compiled by the CDC and offers states a big-picture view of where a potential epidemic may be spreading.

For example, if a number of people going to hospitals with flu-like symptoms -- or if there's a run on a particular type of medical test -- that data is reported through BioSense to the CDC from the state health agencies. The CDC then cross-references that information with data it receives from large national

health care providers, pharmacies and other government agencies such as the U.S. Department of Veterans Affairs.

"They then overlay it in sophisticated ways in Atlanta along with views back to every state so they can go in and query it to see what's happening where they are," Danos said. But there is no precise data about individual patients and whether specific cases of swine flu have been confirmed. And out of the approximately 7,500 hospitals in the U.S., only several hundred are feeding into the CDC's BioSense health data network.

In 2004, federal officials rolled out the [National Electronic Disease Surveillance System](#) (NEDSS), which allows the exchange of specific, standards-based health data using secure Internet connections. The system data includes patient names, test results, diagnoses and treatments. To boost interoperability, NEDSS relies on standardized reporting templates that can be used with commercial software and minimizes proprietary data. Each state chooses the applications it uses to gather health care data so it can be collected in a central state-level database.

The electronic reports are far more accurate than the paper-based reports of earlier decades because of the standardization of data formats, Danos said. All states are moving toward the use a NEDSS-compliant system, according to Danos, but not all hospitals, medical laboratories or private physician practices are yet on board with the system. Just 16 states are currently live on the NEDSS reporting system.

"We have made great advancements over the last five to 10 years," said Hamaker, who is the NEDSS coordinator at the Texas Department of State Health Services. "But there's always going to be room for improvement. There will always be new technologies and new capabilities. Am I satisfied where we are? I'm impressed in relationship to where we've come."

Texas and the other 15 other states on NEDSS use a product called Orion Health Rhapsody Integration Engine from [Orion Health Inc.](#), which normalizes the data coming in from health facilities for use in regional and state systems and then feeds it through the NEDSS system to the CDC.

That's the same system a hospital will use to accept data from various departments and make it accessible in a patient's electronic health record.

While the U.S. has moved forward with new health data surveillance systems, other countries such as Mexico don't have systems that are as sophisticated. Without accurate reporting, epidemics can spread unchecked, even if some cases are reported up the government chain.

"We do have a lot of concern about Mexican disease surveillance -- especially in a country that doesn't have some of the penetration of high-technology surveillance systems that the U.S. has," Danos said.