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News by specialty
Drug guide
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Travel nursing
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Education & development
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Caring for yourself
Relationships
Feature stories
Getting away
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Dispatch Surveillance System Can Provide Early Bioterrorism Warning

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By Kelly Phillips, feature writer

The FirstWatch system monitors emergency calls to detect possible cases of anthrax, smallpox or other bioterrorism-related illnesses. Promoters say the system could buy valuable time in the event of an attack.

With bioterrorism at the top of many worry lists, a system in use in more than 100 communities is aimed at ferreting out possible attacks as soon as patients begin reporting symptoms.

FirstWatch monitors 911 calls, comparing patients' reported symptoms to historical data and to symptoms that could signal exposure to smallpox, anthrax or other bioterrorism agents. The system also watches for non-terrorism public health trends.

When the system detects a suspicious pattern, an alert is automatically sent to public health officials by e-mail, pager, fax or wireless message.

The system is akin to "an eye in the sky or a community public health radar," said Dr. Laurie Romig, FACEP, medical director of Pinellas County Emergency Medical Services, which recently began using FirstWatch.

"With the events of September 11, everybody's consciousness has been raised about the possibility of different kinds of terrorism," Romig said.

The agency decided FirstWatch would provide "an important supplement to what already

exists in the county," through hospitals and the county health department.

"As a society we're more concerned than ever about the threat of bioterrorism," said FirstWatch spokesman Jeff Lucia, citing a National League of Cities study that found officials in 95 percent of large cities cited bioterrorism as their top terrorism concern.

Nurses and other caregivers can benefit from the system by getting a head start on treatment.

"No matter what, the best defense against any threat to public health—whether it's bioterrorism or a virus outbreak—is early detection," Lucia said. "So the earlier they find out about it, the sooner the nurses and other health professionals can take action."

That may mean putting in place immunization programs, educating the public, identifying the population most at risk for a particular threat or taking other actions they deem appropriate to reduce morbidity and mortality.

"The more advance notification and warning we get, the more quickly we can determine what's going on, isolate it, treat patients and prevent more people from getting it," Romig said.

Without an EMS-based early warning system, patients with similar symptoms could turn up at a number of different hospitals and there would be no immediate way of knowing how widespread a problem was.

"I would expect that for the most part we would probably get anywhere from 12 hours to a couple of days of a head start on detecting an unusual surge in certain types of symptoms," Romig said.

EMS tends to see the sickest patients, "and we take them to all the hospital," Romig said.

"You don't have to wait a couple days for that 'Aha' factor and for somebody to realize it's a communitywide issue and not just a neighborhood issue," she said.

Some of the symptoms that could trigger a

potential bioterrorism alert if present in unusual numbers or clusters include flulike symptoms, gastrointestinal problems, rashes and difficulty breathing, Lucia said.

"FirstWatch works on the idea that a stealth biological attack could take days or even weeks to become apparent," Lucia said. "It monitors those trends and will notice when there's a statistically significant increase in calls before any human would notice."

The system also monitors 911 calls for increases or clusters of other kinds of health calls beyond bioterrorism. In addition, the system can be customized to analyze other public safety calls, including looking for fire and arson patterns or providing real-time crime analysis, Lucia said.

In use in more than 125 communities and covering a total population of more than 7.5 million, FirstWatch has already alerted health officials to an outbreak of Norwalk virus in a senior community and a rash of carbon monoxide poisonings, Lucia said.

In the latter case in Kansas City, a winter power outage had prompted many to use space heaters to stay warm. The FirstWatch alert enabled public health officials to quickly see what was going on and warn residents about "the potential lethal dangers of using space heaters," Lucia said.
Lucia called most epidemiological tracking systems "true antiques" developed in the 1950s and based on end-of-month reporting to a county health system, all on paper.

"(FirstWatch) gives them early warning of trends they probably would not otherwise notice until much later when the consequences are much greater," Lucia said. "It gives them early warning and buys them time to act."

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