BACKGROUND SHEET

RODS (Real-time Outbreak Detection System): What it does

RODS is an early warning system to assist health care personnel in the early interception and treatment of an outbreak – not just from bioterrorism. Since September 11, however, bioterrorism has taken center stage. "Almost any organism or pathogen can be weaponized and contaminate lots of people simultaneously," explains RODS principal investigator Michael Wagner, M.D., Director of the Biomedical Security Institute and a faculty member at the University of Pittsburgh. "By the time a clinician diagnoses it correctly, it could be too late to do anything because it could be so far advanced and very widespread by contagion. Catching the first case or two can have enormous value in preventing contagious second and third waves."

The RODS system collects and analyzes relevant data such as emergency room registration data and lab results. It uses several Artificial Intelligence techniques for machine learning, natural language and data mining.

Public health services using RODS can review vast amounts of data from very large geographical areas to detect alarming trends across a number of patients quickly. If the system finds a number of patients complaining of respiratory problems, a rash, or a collapse, for instance, RODS automatically pages the public health official on call who can review the individual cases and take appropriate action.

RODS was initially installed in Western Pennsylvania in August of 1999 for public health surveillance for the 3 million residents of 13 counties. So far, the system has detected only a naturally occurring outbreak of influenza. It is now being extended to all of Pennsylvania. Other public health departments in the U.S. are now showing interest in RODS. Given how quickly it was installed in Utah, Wagner believes it could also be implemented in other states fairly quickly.

Research funding has come from DARPA (Defense Advanced Research Projects Agency), the Centers for Disease Control and Prevention, the National Library of Medicine, and the Agency for Healthcare Research and Quality.

Related Web sites:

President's speech: http://www.whitehouse.gov/news/releases/2002/02/20020205-4.html

RODS Home Page: http://www.health.pitt/edu/RODS/rods.htm