

Researchers develop tool to counter public health IT challenges

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Front-line protection of U.S. communities against disease epidemics relies on seamless information sharing between public health officials and doctors, plus the wherewithal to act on that data. But health departments have faltered in this mission by lacking guidance to effectively strategize about appropriate "IT investments. And incidents like the current Zika crisis bring the issue to the forefront," says Ritu Agarwal, Robert H. Smith Dean's Chair of Information Systems and Senior Associate Dean for Faculty and Research at the University of Maryland's Robert H. Smith School of Business.

Agarwal, with a team of UMD researchers, recently finished a two-year "intensive analysis" of the rollout of an [electronic health records](#) system in Montgomery County, Md., and a local primary care coalition, which works with a system of hospitals and clinics designed to provide safety net services to low-income patients.

"We uncovered a host of barriers and obstacles to effective use of information, including the complexity and usability of the software, the inability of the software to support certain unique public health reporting needs, the learning curve for public health workers, and the lack of standards for effective data exchange," Agarwal says. "All of this does not bode well, either for crisis response or for proactive crisis anticipation."

Their findings are published in *Frontiers in Public Health Services and Systems Research* and detail a new tool, a Public Health Information

Technology (PHIT) Maturity Index, to better understand and counter the shortcomings they observed.

"Health departments can apply the index to assessing their IT capabilities, benchmarking with their peers, setting specific goals and fostering a cycle of continuous improvement," says coauthor and researcher Kenyon Crowley, deputy director of the Center for Health Information and Decision Systems (CHIDS) in the Smith School.

Prior to late-July confirmation of U.S. Zika cases, Centers for Disease Control and Prevention director Thomas Frieden warned: "Make no mistake: The Zika virus is an emergency that we need to address." But Congress recessed for summer without approving emergency funding to combat the virus linked to microcephaly-stricken newborns.

But the challenges facing public health managers run deeper than a lack of funding, says Agarwal. "Health officials need to know the source of the infection, who the infected individual has contacted, where it occurred and the circumstances under which it occurred. The list goes on," she says. "In other words, a complete and accurate picture of every incident is the foundation for developing an effective response strategy."

"Public health managers can deploy the [PHIT Maturity] index to "measure their departments' progress in using IT to support its public health mission, or in other words, its journey towards maturity," Agarwal says.

Agarwal says "fulfilling the mission" broadly would mean information from Zika diagnoses, for example, is flowing to the right public health official whether it's from patient-hospital encounters stored in a state health information exchange or a primary care setting when a patient presents for treatment or even when such cases are documented at a public health care service location.

Funded by the Robert Wood Johnson Foundation, the researchers collected data through staff interviews, staff observations, patient focus groups, and staff surveys to create the index with a questionnaire and scoring guide. It's divided into four IT-based categories: Scale and scope of use; quality; human capital, policy and resources; and community infrastructure.

History Lesson "The early-2000s SARS epidemic is a good illustrator of information as one of the most critical tools in addressing any type of public health crisis," says Agarwal. "[Cases] spread like wildfire with more than 8,000 people becoming infected globally over a three-year time frame. "That number may have been substantially lower if information about new cases had been monitored and shared to get an accurate picture of the prevalence and spread of the disease."

More recently, a Texas Ebola case illustrated a public health worker as unprepared to act on access to a hospital's electronic health records containing information about the patient's travels that could have resulted in immediate action, Agarwal says. "But no one paid attention to it."

Both cases, collectively, show the importance of "seamless data integration across acute care (hospitals), primary care (clinics and other ambulatory facilities), and public health delivery locations," she says. "And of course, all of this has to occur while simultaneously maintaining the privacy of pertinent patient data."

In positive trends, Agarwal says "syndromic surveillance" has been a core aspect of the Meaningful Use standards enforced by the Centers for Medicare and Medicaid Services, and electronic health records adoption is on the rise by as much as 55 percent, according to estimates. "But resource-strapped departments remain unable to utilize the data effectively," Agarwal says. "We have a long way to go."

Read MoreThe Public Health Information Technology Maturity Index: An Approach to Evaluating the Adoption and Use of Public Health Information Technology by Kenyon Crowley, UMD's Robert H. Smith School of Business; Robert S. Gold, UMD School of Public Health; Sruthi Bandi, UMD's iSchool; and Ritu Agarwal, UMD's Robert H. Smith School of Business, appears in the April 2016 issue of *Frontiers in Public Health Services and Systems Research*.

Forthcoming ConferenceCHIDS will host its annual Workshop on Health IT and Economics on Oct. 21-22, 2016, at the Westin Georgetown in Washington, D.C. The event is designed to deepen the understanding of health IT design and its resultant impact and to stimulate new ideas with both policy and business implications.

Provided by University of Maryland

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