World's largest open source health information technology project tackles Ebola

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An accurate, up to the minute, accessible medical record system is fundamental to effective treatment and tracking of the Ebola virus. But how to create this type of system in the rudimentary, overwhelmed Ebola care centers of West Africa where paper records or computers—even if they were available—couldn't be carried in and out of treatment areas?

As Ebola surged in resource-constrained Sierra Leone, Liberia and Guinea in the fall of 2014, the ingenious concept of a tablet computer usable by individuals in bulky protective gear and encased in polycarbonate enabling simple and repeated disinfection was developed and implemented by Google and Doctors Without Borders teams, solving the hardware part of the problem.

But what software to use on the specialized tablets and on the server where critical information is stored? Enter the OpenMRS community, who drives the world's largest open source project to develop health information technology for resource-constrained environments.

"An effective, longitudinal medical record is an essential requirement for Ebola treatment and these records can't be carried in and out of infected areas. A networked electronic medical record is essential—and OpenMRS offers a cost-effective, well-tested system that has been deployed in multiple sites in dozens of countries in a sustainable way," said OpenMRS co-founder and project leader Paul Biondich, M.D., a Regenstrief Institute investigator and Indiana University School of Medicine associate professor of pediatrics.

"Commercial electronic medical record systems aren't equipped to handle the problems encountered in the Ebola outbreak in West Africa. One size doesn't fit all. You need customizable software that can be matched to the task at hand. The OpenMRS platform provides a foundation on which to build an effective system to meet the urgent needs of public health officials as well as the daunting demands of treating and managing large numbers of Ebola patients in primitive conditions."

In October, the OpenMRS community put out the call to action to respond to the outbreak, and volunteers from around the world responded. Several projects were launched to assist organizations providing care on the ground, including the Google-Doctors Without Borders partnership. Their engineers, working with OpenMRS volunteers around the world, customized the functionality and user interface of OpenMRS to be used on these specialized tablets.

The solutions developed for the projects included standardized terminology related to Ebola, order entry for medications and intravenous fluids, lab test ordering and reporting, tracking lab samples from the community and alerting clinicians to the results, and observations of intensive care management, as well as tools for contact tracing and community outreach.

"OpenMRS, which is a free and open source software project focused on building an electronic medical record platform, is powered by individuals and organizations with a wide variety of user experiences. This collaborative community reduces barriers so people can innovate and build on the OpenMRS platform in ways that are sensitive to a specific environment. This is exactly what they did for those working within the unbelievable constraints of treating Ebola in West Africa," said Dr. Biondich.

More information: openmrs.org/

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