A Standards-Based Solution for Public Health Reporting and Surveillance

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Abstract

Our team built a standards-based prototype system for multi-national public health reporting and surveillance. It uses interoperability specifications from Integrating the Healthcare Enterprise (IHE) and open source technologies from Eclipse OHF. Public health organizations leveraging interoperability standards implemented within the clinical domain will have the most standardized data ever achieved; allowing them to focus attention on creating new tools to better visualize population health, detect outbreaks, determine policy effectiveness, and perform forecast modeling.

Description

Regional and national public health organizations are significant consumers of clinical data as well as producers of clinically relevant reports. By leveraging the same technical infrastructure and interoperability specifications being created and actively adopted worldwide within the clinical domain, public health organizations can centralize laboratory data of interest like never before. Emerging standards-based clinical infrastructure has a wide array of public health partners and is an ongoing investment these partners are undertaking irrespective of public health interest. Taking advantage of this infrastructure will translate to improvement in reporting compliance, report completeness, and report accuracy due to the negligible cost overhead as a result of shared reporting standards.

A Public Health Affinity Domain (PHAD) is the concept of private and public organizations, working together under a common set of policies and infrastructure to share information. The team from the IBM Haifa Research Lab and the IBM Almaden Research Lab has built an initial prototype of a PHAD for public health reporting and surveillance.

This implementation uses the same standards-based interoperability specifications from Integrating the Healthcare Enterprise (IHE) and open source technologies from Eclipse Open Healthcare Framework (OHF) currently being adopted by the clinical domain.

The PHAD concept supports hierarchical data flow across different domains, a feature that parallels the nature of public health reporting in the United States and worldwide. Each regional PHAD collects data from local sources. Public health partners, such as hospitals and physician offices, report data to their regional PHAD in the same way they report to their Regional Health Information Organization (RHIO). The regional PHAD then forwards appropriate information to a national PHAD, administered by an organization such as the Centers for Disease Control (CDC). PHAD can extend this hierarchy of data sharing to new international partnerships where at each level different data sharing policies concerning person identification, location identification, authorship, and result granularity can be implemented.

Adoption of IHE is growing and should be leveraged. In January 2007 over 350 participants from over 77 companies and 16 countries gathered in Chicago, Illinois for the IHE North American Connectathon to rigorously test and confirm system interoperability. IHE holds similar annual testing events in Europe and Japan. It is our firm belief is that once data of interest is standardized and centralized, public health organizations can better focus attention on creating new tools to better visualize population health, detect outbreaks, determine policy effectiveness, and perform forecast modeling.