ABSTRACT

User requirements for a user-centered design (UCD) redesign of a public health surveillance system: BioSense

REN Sembajwe, TR Farris, OL Rojas-Smith, BL Massoudi, AK Banger, and A Casoglos

RTI International, Research Triangle Park, NC, USA
E-mail: rsembajwe@rti.org

Objective

The objective of this poster presentation is to provide information on the efforts and results of the user requirements gathering process, pursued in the redesign of the BioSense system employing a User-Centered Design (UCD) approach. A UCD system development approach studies the people that the system will serve, and involves them through the planning, design, and development processes.

Introduction

The Centers for Disease Control and Prevention (CDC) launched the BioSense program in 2003 to establish an integrated system of nationwide public health surveillance for the early detection and assessment of potential bioterrorism-related illness. Over the ensuing years, the original aims of BioSense were broadened to meet evolving public health surveillance needs and priorities.

In 2009, CDC embarked on a redesign of the BioSense system that would retain the original purpose of early event (or threat) detection and characterization, but enhance the capacity for situation awareness, event response, and routine public health practice. The BioSense redesign will be accomplished through continuous involvement of state and local users, and technical experts in the planning, design, development, and testing phases of the new BioSense system.

Methods

Information regarding state and local biosurveillance practices was gathered from end users and other stakeholders through user sessions convened at conferences, workshops, and *ad-hoc* meetings throughout 2009 and 2010. Participants in user sessions were primarily state and local health department stakeholders. Information on biosurveillance practices was also gathered from General Accounting Office (GAO) reports, 2009 BioSense evaluations, and Technical Expert Panel feedback. The information was grouped, analyzed, and weighted/ranked on the basis of.frequency, and then prioritized and translated into meaningful user requirements for the system redesign.

Results

The user requirements analysis identified challenges and suggestions in five key areas:[1] capacity (workforce presence, skill set, and funding resources),[2] governance (stakeholder engagement, design, and purpose of system),[3] policy (regulations and legislation),[4] standards and definitions (taxonomies, business rules, and case definitions),[5] data (sources, quality, and access), technological infrastructure, and application design (functionality and usability).

Conclusions

The user requirements gathering process identified gaps in biosurveillance practices and systems that BioSense can directly address in the redesign, which will result in more effective and timely public health surveillance at the local, state, and national levels.

Acknowledgements

References

1 Buehler JW, Whitney EA, Smith D, Prietula MJ, Stanton SH, Isakov AP. Situational uses of syndromic surveillance. *Biosecur Bioterror* 2009;**2**:166–77.
2 Lesesne DB, Leese PJ, Rojas-Smith OL, Rein DB. Characteristics and geographic dispersion of syndromic surveillance in the United States in 2008, 2009. Unpublished manuscript.
3 Uscher-Pines l, Farrell CL, Cattani J, Hsieh YH, Moskal MD, Babin SM. A survey of usage protocols of syndromic surveillance

systems by state public health departments in the United States. *J Public Health Manag Pract* 2009;**5**:432–8.

4 Usability Professionals' Association, Promoting usability concepts and techniques worldwide: What is user-centered design? Available at: http://www.upassoc.org/usability_resources/about_usability/what_is_ucd.html. Accessed September 1, 2010.

5 U.S. General Accounting Office. Health information technology: More detailed plans needed for the Centers for Disease Control and Prevention's redesigned BioSense program. GAO-09-100. Washington, DC: U.S. General Accounting Office, 2008. Available at: http://www.gao.gov. Accessed August 16, 2010.

6 U.S. General Accounting Office. Information technology: Federal agencies face challenges in implementing initiatives to improve public health infrastructure. GAO-05-308. Washington, DC: U.S. General Accounting Office, 2005. Available at: http://www.gao.gov. Accessed August 16, 2010.