A Brief Report: Outbreak Management System (OMS)

In an effort to enhance preparedness for public health emergencies in the United States, federal funding to public health was substantially increased after the 2001 intentional anthrax outbreaks. Recognizing the importance of robust data management capacities during large or complex outbreaks due to natural (e.g., SARS, West Nile) or other causes (e.g., terrorism), the Centers for Disease Control and Prevention (CDC) required that state and local health departments receiving emergency preparedness funds develop outbreak management systems with specific capabilities. In 2002, CDC, in collaboration with state and local partners, undertook the development of a software application designed to help health departments handle large-scale outbreaks – this application is called the CDC Outbreak Management System (CDC-OMS).

The tools of CDC-OMS support many functions important during the initial characterization, investigation, response, and containment of an outbreak. Since 2005, a working group composed of representatives from interested state and local health departments worked closely with CDC to evaluate existing functions and prioritize new features. In September, 2006, CDC announced that it was pausing development and support for CDC-OMS in order to assess the need for such a system, as well as evaluate CDC-OMS's capacity to meet that need.

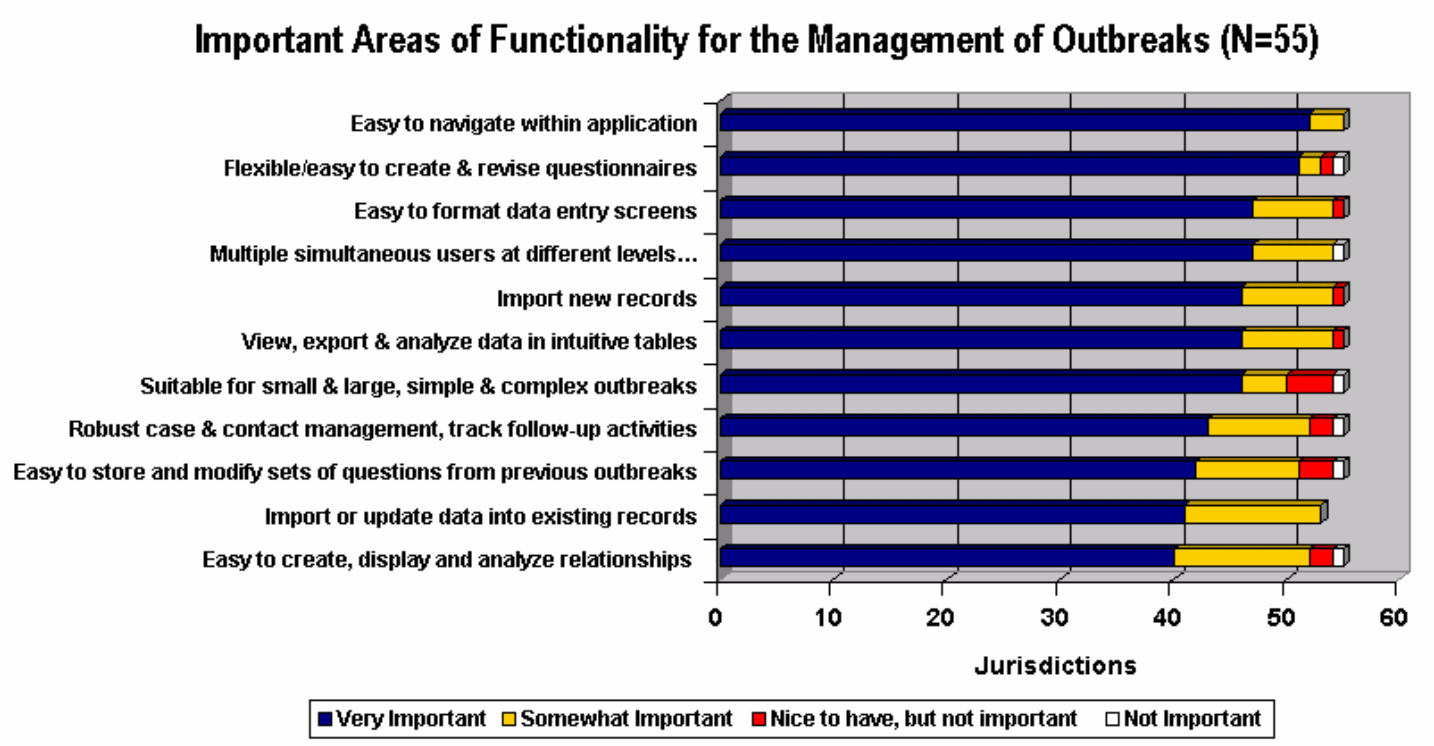
To assist in the planning for future development and support for CDC-OMS or for alternative database systems for outbreak management, in February, 2007, CSTE assessed the need for an outbreak management system in state and large city public health jurisdictions and gathered data on which features were considered most important. A survey was distributed to 61 state and local health departments; fifty-six of 61 (92%) states and cities submitted responses (50/50 states, 6/11 cities). This report summarizes the results of this survey.

Importance of Having an Outbreak Management System

The majority of responding jurisdictions—78%, indicated that having access to a system such as OMS to manage large, complex outbreaks (e.g., Anthrax, SARS) was very important. A further 20% indicated that it was somewhat important; only one jurisdiction (2%) felt it was not important.

Functions Important in the Management of Outbreaks

States and cities were asked to indicate the importance of certain features in the management of outbreaks— both simple and large scale. These features included: ease of use; ability to support multiple simultaneous users; ease of creating and modifying investigation tools rapidly; easy data retrieval and summary; robust case and contact management; linkage of patient data to laboratory specimens and results, vaccinations, and treatments or prophylaxis; tracking of patients in isolation/quarantine; support for multiple versions of questionnaires; use of PHIN–compliant standard vocabulary and other functions as shown below. Almost all these capacities were considered very important by the large majority of respondents.



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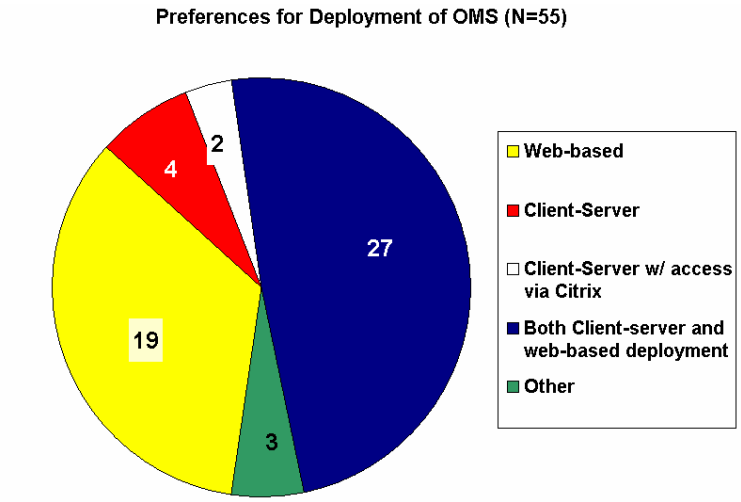
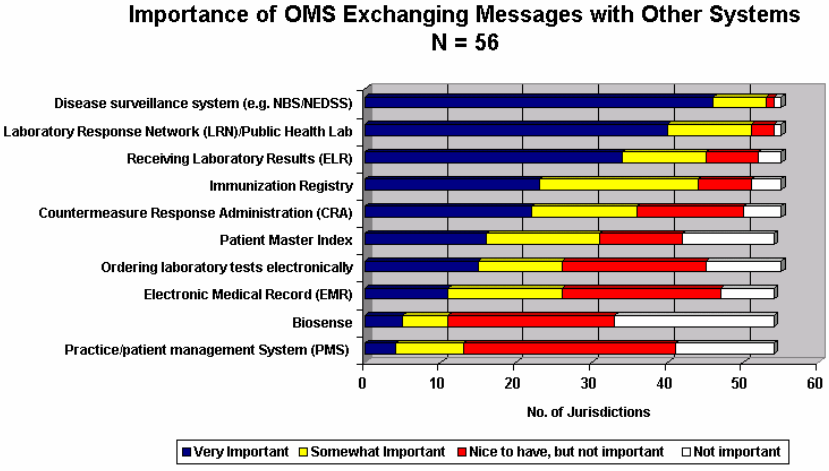
Functions Important in the Management of Outbreaks (continued)

States and cities prefer the system to be able to be deployed in a flexible manner as shown below. Currently CDC-OMS is client-server based, and optionally web-enabled using Citrix. The strongest preference was for the system to be able to be deployed in BOTH a client-server and web-based mode.



An additional important feature was the ability of OMS to interface/exchange messages with other systems (e.g. National Electronic Disease Surveillance System [NEDDS], Laboratory Response Network [LRN], receive electronic laboratory records [ELR]) and others as shown in the figure below.



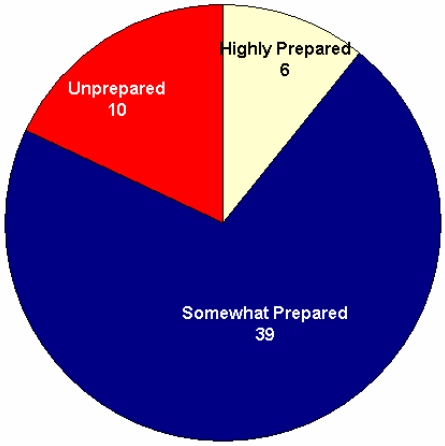
Jurisdictional Development of In House Solutions

Of the ten jurisdictions that have completed building an in-house solution— only five (50%) stated that it met their needs. An additional 11 jurisdictions stated that in-house development is currently in progress. Thirty-one jurisdictions did not attempt to develop an in-house solution.

Level of Data-Management Preparedness

Only 6 (11%) jurisdictions stated that they were highly prepared from a data-management perspective if they had to manage a large complex outbreak. Seventy-one percent were somewhat prepared, and 18% unprepared.

How well equipped is your jurisdiction for data-management today if you had to manage a large complex outbreak? (N = 55)



Interest in and Commitment to CDC-OMS

Although 71% of respondents were aware of CDC-OMS and had seen a demonstration of the most recent version (version 1.2), fewer than 4% of respondents had actually seen or used the current version. Of those familiar with previous versions, 48% had participated in the OMS workgroup or are development jurisdictions currently using CDC-OMS version 1.2. Thirty-three (60%) jurisdictions were interested in implementing CDC-OMS version 1.2, but most had not had a chance to evaluate it yet. When asked about future commitment to CDC-OMS, 10 (19%) indicted they had alternative plans, 12 (22%) stated they were committed to implementing CDC-OMS, and 17 (31%) indicated that though they had planned to implement CDC-OMS, they were concerned about future development and support for OMS from CDC.

Interpretation

- *Most jurisdictions do not currently feel prepared for data-management of a large, complex outbreak.*
- *States and local health departments stated that it is very important to have a system such as CDC's OMS.*
- *Many jurisdictions have not developed an in-house solution and were planning to evaluate/ implement CDC-OMS 1.2.*
- *There is strong interest in CDC-OMS as a possible solution, but limited exposure to the most recent version, and concerns over whether the application will continue to be developed and supported to meet the outbreak management needs of state and local health departments.*
- *States and public health jurisdictions want OMS to be able to exchange messages with surveillance and laboratory systems.*
- *Strong interest was expressed in having OMS able to be deployed as a web-based and client-server application.*

Recommendations

- *Federal support for CDC-OMS 1.2 (deployment, training) should be reinstated.*
- *The OMS working group should be reconvened.*
- *Evaluation of future enhancements should await feedback from experience of CDC-OMS 1.2 in the field and input from the OMS working group.*
- *Specific high value enhancements (e.g., messaging) should be prioritized.*