Using Cultural Modeling to Inform a NEDSS-Compatible System Functionality Evaluation

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Objective

The culture by which public health professionals work defines their organizational objectives, expectations, policies, and values. These aspects of culture are often intangible and difficult to qualify. The introduction of an information system could further complicate the culture of a jurisdiction if the intangibles of a culture are not clearly understood. This report describes how cultural modeling can be used to capture intangible elements or factors that may affect NEDSS-compatible (NC) system functionalities within the culture of public health jurisdictions.

Introduction

The National Notifiable Disease Surveillance System (NNDSS) comprises many activities including collaborations, processes, standards, and systems which support gathering data from US states and territories. As part of NNDSS, the National Electronic Disease Surveillance System (NEDSS) provides the standards, tools, and resources to support reporting public health jurisdictions (jurisdictions). The NEDSS Base System (NBS) is a CDC-developed, software application available to jurisdictions to collect, manage, analyze and report national notifiable disease (NND) data. An evaluation of NEDSS with the objective of identifying the functionalities of NC systems and the impact of these features on the user's culture is underway.

Methods

We used cultural models to capture additional NC system functionality gaps within the culture of the user. Cultural modeling is a process of graphically depicting people and organizations referred to as influencers and the intangible factors that affect the user's operations or work as influences. Influencers are denoted as bubbles while influences are depicted as arrows penetrating the bubbles. In the cultural model, influence can be seen by the size and proximity (or lack of) in the model. We restricted the models to secondary data sources and interviews of CDC programs (data users) and public health jurisdictions (data reporters).

Results

Three cultural models were developed from the secondary information sources; these models include the NBS vendor, public health jurisdiction (jurisdiction) activities, and NEDSS technical consultants. The vendor cultural model identified channels of communication about functionalities flowing from the vendor and the NBS users with CDC as the approval mechanism. The jurisdiction activities model highlighted perceived issues external to the organization that had some impact in their organization. Key disconnecting issues in the jurisdiction model included situational awareness, data competency, and bureaucracy. This model also identified poor coordination as a major influencer of the jurisdiction's activities. The NEDSS technical model identified major issues and disconnects among data ac-

cess, capture and reporting, processing, and ELR functionalities (Figure 1). The data processing functionality resulted in the largest negative influencer with issues that included: loss of data specificity, lengthy submission strategies, and risk of data use. Collectively, the models depict issues with the system functionality but mostly identify other factors that may influence how jurisdictions use the system, moreover determining the functionalities to be included.

Conclusions

By using the cultural model as a guide, we are able to clarify complex relationships using multiple data sources and improve our understanding of the impacts of the NC system functionalities on user's operations. Modeling the recipients of the data (e.g. CDC programs) will provide insight on additional factors that may inform the NEDSS evaluation.
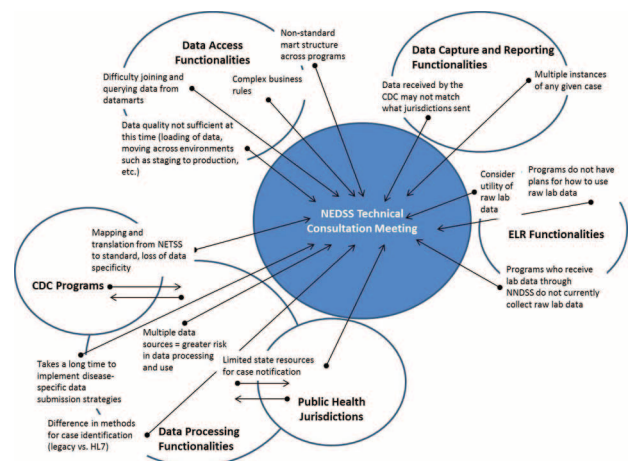

Figure 1. Cultural model from a NEDSS technical consultation meeting.

Keywords

evaluation; cultural modeling; functionality; NEDSS

References

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