

Identification and Assessment of Public Health Surveillance Gaps under the IHR (2005)

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Objective

To conceive and develop a model to identify gaps in public health surveillance performance and provide a toolset to assess interventions, cost, and return on investment (ROI).

Introduction

Under the revised International Health Regulations (IHR [2005]) one of the eight core capacities is public health surveillance. In May 2012, despite a concerted effort by the global community, the World Health Organization (WHO) reported out that a significant number of member states would not achieve targeted capacity in the IHR (2005) surveillance core capacity.

Currently, there is no model to identify and measure these gaps in surveillance performance. Likewise, there is no toolset to assess interventions by cost and estimate the ROI.

We developed a new conceptual framework that: (1) described the work practices to achieve effective and efficient public health surveillance; (2) could identify impediments or gaps in performance; and (3) will assist program managers in decision making.

Methods

Published articles and grey-literature reports, manuals and logic model examples were gathered through a literature review of PubMed, Web of Science, Google Scholar, and other databases. Logic models were conceived by categorizing discrete surveillance inputs, activities, outputs, and outcomes. Indicators were selected from authoritative sources or developed and then mapped to the logic model elements. These indicators will be weighted using the principle component analysis (PCA), a method for enhanced precision of statistical analysis. Finally, on the front end of the tool, indicators will graphically measure the surveillance gap expressed through the tool's architecture and provide information using an integrated cost-impact analysis.

Results

We developed five public health surveillance logic models: for IHR (2005) compliance; event-based; indicator-based; syndromic; and predictive surveillance domains. The IHR (2005) domain focused on national-level functionality, and the others described the complexities of their specific surveillance work practices. Indicators were then mapped and linked to all logic model elements.

Conclusions

This new framework, intended for self-administration at the national and subnational levels, measured public health surveillance gaps in performance and provided cost and ROI information by intervention. The logic model framework and PCA methodology are tools that both describe work processes and define appropriate variables used for evaluation. However, both require real-world data. We

recommend pilot testing and validation of this new framework. Once piloted, the framework could be adapted for the other IHR (2005) core capacities.

Keywords

Public health surveillance; Evaluation; IHR (2005); Gaps assessment; Cost-impact analysis

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