Integrated Disease Surveillance to Reduce Data Fragmentation – An Application to Malaria Control

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Objective

Driven by the need to bring malaria surveillance data from different sources together to support evidence-based decision making, we are conducting the "Scalable Data Integration for Disease Surveillance" (SDIDS) project. This project aims to foster the integration of existing surveillance data to support evidence-based decision-making in malaria control and demonstrate a model applicable to other diseases. Central to this initiative is collaboration between academia, governmental and NGO sectors.

Introduction

There is growing recognition that an inability to access timely health indicators can hamper both the design and the effective implementation of infectious diseases control interventions. In malaria control, the global use of standard interventions has driven down the burden of disease in many regions. Further gains in high-transmission areas and elimination in lower transmission settings, however, will require an enhanced understanding of malaria epidemiology, population characteristics, and efficacy of clinical and public health programs at the local level. Currently, there is a dearth of information available to fine-tune malaria control interventions at the local level. A key obstacle is the fragmentation of data into silos, as existing data cannot be brought together to estimate accurate and timely health metrics.

Methods

Under this initiative, our overarching aims are to demonstrate an approach to integrating existing data collected by organizations for malaria surveillance in Uganda and The Gambia and to make the resulting information available to guide malaria control activities. In the first phase, we developed a catalogue of data sources for malaria control, describing how malaria control programs and sponsors analyze data, and use information to make programmatic decisions. In the second phase, we aligned these data with indicators and descriptive and analytical epidemiological methods required to guide the delivery and evaluation of disease control interventions. In the third and final phase, we are developing and evaluating software tools to interact with the aligned data sources and calculate and analyze indicators that are of value to malaria control programs and funding agencies.

Results

At the completion of our project, we will have developed an open-access prototype system that will support sharing of comparable surveillance data within and across countries.

Conclusions

A cornerstone of our approach is its ability to employ a common knowledge platform to scale-up and extend structural and semantic mapping across existing data sources to other geographical regions and global health priority diseases in resource-constrained settings. Our multi-sectorial partnership also aims at facilitating the up-stream flow of information from the national to the international level, to effectively contribute to designing evidence-based disease control policies.

Keywords

Integrated disease surveillance; Malaria control; data fragmentation; open-access prototype system

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