



2010 mHealth Summit

Real-Time Disease Surveillance using Affordable mHealth Technology

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Abstract

Late 2007 and early 2008 witnessed an alarming number of deaths from Leptospirosis in Sri Lanka. This disease initially presents with flu-like symptoms and it can be easily confused with more common ailments that emerge naturally during monsoon seasons. Scattered number of patients with characteristic complaints went unnoticed until a few deaths occurred at individual hospitals. In the follow-up analysis, unusually high concentrations of cases with flu-like symptoms were found in two neighboring regions. If these clusters were identified in time, epidemiologists could have been warned of an emerging health event and they could have taken actions to mitigate its spread. The current paper-based disease notification systems in Sri Lanka and India are confined to tracking a limited set of notifiable diseases. They typically require 15-30 days to assemble, interpret, and communicate field data, making its utility in addressing emerging health crises problematic. The Real-Time Biosurveillance Program (RTBP) is a pilot project implemented in Tamil Nadu, India, and Sri Lanka, to complement the existing disease surveillance and notification systems. Outpatient health records, including preliminary diagnoses, symptoms, signs, and patients' demographics, are collected in the field using a mobile phone application and immediately transferred to a central database. Then the data is aggregated and visualized using dedicated software designed for fast retrieval, interactive display and statistical analysis of multivariate spatiotemporal data. The users review daily findings from automated anomaly detection algorithms, sorted by their statistical significance. After review, alerts of emerging events are disseminated to targeted health personnel via SMS, Email, and the Web. RTBP is proving its utility in the field. Latencies of data acquisition, communication and analysis are minimized. More diseases can be surveyed more comprehensively at lower overall cost. RTBP emerges as an affordable m-Health solution that can improve efficiency of managing public health in developing countries.

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Presentation Title: Real-Time Disease Surveillance using Affordable mHealth Technology

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Disclosures: NONE

Oral Presentation/Poster: Oral Presentation

Technology Applications/Demos: Yes, we could do the demo as well, if the research paper is accepted.

Funding: International Development Research Centre of Canada

Specific Community Addressed: People in Sri Lanka and Southern India, especially in rural underprivileged areas.

Deployment Component: The pilot system is being transferred to practice in Kurunegala district of Sri Lanka with ongoing expansion effort to include 2 of 9 provinces in the country within a few months from now. In India, deployment is ongoing in Sivaganga district of the state of Tamil Nadu

New Investigator: No

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