

Chapter 7

The RTBP – Collective Intelligence Driving Health for the User

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ABSTRACT

The Real Time Biosurveillance Program (RTBP) Pilot, is an active collaboration between multipartners that is utilizing collective intelligence to improve rural health outcomes, in Sri Lanka and Tamil Nadu, India. This paper presents how the RTBP is detecting, preventing, and therefore, improving the health systems of these two nations through the use of ICT to strengthen health reporting systems. It puts forth the challenges that the RTBP pilot has faced initially, and how they have been addressed. The RTBP is also differentiated from other mHealth initiatives by acknowledging how it is not disease specific and how it engages all stakeholders, from the recipients, the health workers, and the government.

INTRODUCTION

Tamil Nadu, India and Sri Lanka are currently serving as the testing ground for a multi-partner initiative, the Real Time Biosurveillance Program (RTBP). This is an action research aimed at improving the healthcare systems of these two nations through the introduction and use of mobile Health (m-Health) Technologies. It is especially focused on improving health outcomes for the rural

populations of Sri Lanka and India, by introducing the means to quickly detect adverse health events in these populations thereby mitigating unwanted deaths and loss of human capital. The project achieves this through a feedback loop. While health workers are entering patient data, the data of multiple patients is being analyzed for health events, should an event appear multiple times, health workers are alerted by a text message. Consequently they are able to treat patients accordingly. Thus this paper will present how the RTBP is utilizing collective intelligence to drive

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improvements in the health care system resulting in better outcomes for users, which includes health workers and patients. Proving this case will involve presenting the project as it currently stands, describing how it is a form of collective intelligence and finally by presenting how users are driving the health system through the RTBP.

REAL TIME BIOSURVEILLANCE: HEALTH FOR THE USER BY THE COLLECTIVE

This paper will present the case of the RTBP as collective intelligence creating a future where users are driving health care. Thus creating a health care system that is responsive to the needs of patients (and health workers) resulting in a reduction of outbreaks, improved diagnostic outcomes and rapid responses. The definition of collective intelligence to be used in this paper, is one centred on the ideas of knowledge exchange and collaboration that leads to improvement.

Real Time Biosurveillance Program: The Pilot

The multipartner initiative between LIRNEasia, Indian Institute of Technology, Madras's Rural Technology and Business Incubator, Ministry of Health and Nutrition (Sri Lanka), Ministry of Health and Family Welfare (Tamil Nadu), National Center for Biological Sciences, Lanka Jathika Sarvodaya Sharamadana Society, Carnegie Mellon University's Auton Lab, Respere Lanka, University of Alberta and the International Development Research Centre of Canada, that resulted in the RTBP was born out of a recognition of inefficiencies in the health care systems of Sri Lanka and Tamil Nadu, India. Particularly in Sri Lanka where an outbreak of Chukungu in 2007 went unnoticed until a month after the fact as the analysis that stemmed from the paper based reporting system took a month to complete (Waidyanatha, Ganesan,

Weerakoon, Gow, Maheshkumar, and Dubrawski, 2010). What is inherent in this example is *time*. In a month the number of deaths or disability that could have been prevented are numerous. A brief demonstration of the RTBP contributing benefits is the 2009 Dengue outbreak. A spatial and seasonal analysis of the Dengue outbreak of 2009 compared to the outbreaks in 2007 and 2008 has demonstrated the benefits of early detection and prevention stemming from the RTBP pilot with a visible reduction in the number of cases (Waidayanatha, 2010).

In the RTBP data is analyzed almost instantaneously, under the condition that data is entered on the spot and correctly. Currently in India the analysis delay has been minimised to minutes from 7-30 days and in Sri Lanka to minutes from 15-30 days (Waidayantha, 2010). Real time is the entering of data the same day as the patient's visitation and delayed or off time is entering of data the next day or later. Corrupt data (or miscoding of clinical information) currently pose a challenge for this project, which needs to be addressed through training and evaluating the program for ways of simplifying data entry. The argument for training stems from the fact that the majority of frontline healthworkers' ability to use a mobile phone is limited to voice, 'complex' tasks such as texting are relatively novel. Corrupt data is the result of either incorrect diagnosis, differences in terminology and simple spelling errors. Therefore identifying ways to ensure that all healthcare workers from the frontline to the back office data analysts are using the same language will minimize corrupt data, while simplifying the data entry process. Regardless this reduction in wasted time is significant. Having the capability and access to reports pertaining to detrimental health events has significant positive externalities beyond improved health status of local populations such as lowered operating costs. We expect to over time demonstrate the impact of this program in other areas such as the environment and sustainability practices.

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