

# **Integrated Surveillance Model for improving Completeness of Notifiable Disease Surveillance in Jaffna, Sri Lanka**

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## **ABSTRACT**

Across the world, health systems grapple with the burden of infectious diseases, particularly in low and middle-income countries. In Sri Lanka, the effectiveness of notifiable disease surveillance heavily relies on the data collected from government hospitals within the Western medical system. Unfortunately, the absence of notifications from other pertinent sources hinders comprehensive reporting of notifiable diseases, consequently compromising the quality of epidemiological data. To address this issue, an exploratory study was undertaken to identify alternative notification sources, examine the challenges associated with these sources, and propose an integrated surveillance model (using Soft Systems Methodology) for infectious disease notification.

The study employed a qualitative approach, involving interviews with 38 healthcare professionals engaged in notifiable disease surveillance activities in Jaffna, Sri Lanka. The gathered information was transcribed and analysed using thematic analysis techniques. The findings of the study highlighted incompleteness as a major factor contributing to the substandard reporting of surveillance data in Jaffna. To enhance the completeness of reporting in the region, it is crucial to involve various stakeholders in the notification system. This includes indigenous medical practitioners, private sector Western medical practitioners, public health workers, medical laboratories, educational institutions, civil service officers, and the general public. Incorporating these additional sources would result in more comprehensive reporting of notifiable diseases, thereby strengthening the overall surveillance efforts in Jaffna, Sri Lanka.

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## **1. BACKGROUND**

Infectious disease outbreaks continue to burden health systems worldwide, leading to significant mortality rates. Recent incidents such as the Novel Coronavirus (2019-nCoV) pandemic, Ebola Virus Disease (EVD), Lassa fever (in West Africa), Marburg fever (in East Africa), Zika virus (in the America), and Middle East Respiratory Syndrome (in Asia) have highlighted the severity of this issue [1-3]. Low and middle-income countries (LMICs), in particular, bear a greater burden compared to developed nations [4].

The population of Sri Lanka, as reported by the Department of Census and Statistics, stands at approximately twenty-one million, with a density of 335 people per square kilometre [5-6]. In Sri Lanka, certain infectious diseases are more prevalent than others and are classified as notifiable based on their incidence [7-9]. The occurrence of these notifiable diseases varies across different regions of the country. In this study site, namely Jaffna district, where food- and water-borne diseases and viral infections are more widespread.

Effective prevention and control of these diseases in the community necessitate close surveillance and prompt reporting [10-12]. Disease reporting systems play a vital role in infectious disease surveillance [13-17], yet studies related to surveillance systems in Sri Lanka [18-20] are limited compared to other countries [21-48].

The Quarantine and Prevention of Diseases Ordinance, established in Sri Lanka in 1897, serves as a legal framework for disease notification. Medical practitioners are legally obligated to report the diagnosis of specific infectious diseases, referred to as notifiable diseases, to the Preventive Health Services of Sri Lanka. However, the current organisation in Sri Lanka exhibits inaccuracies and inadequacies in morbidity and mortality statistics at national and regional levels, largely due to poor recording and reporting practices within the health information system. Completeness of reporting, indicating the proportion of diagnosed cases reported to public health authorities, remains a significant challenge.

Previous studies in Sri Lanka have identified issues related to incomplete reporting of notifiable diseases. For instance, a study conducted at a private hospital in Colombo revealed that only 38% of notifiable disease cases were reported during the six-month period from January to June in 1989 [49]. Amarasekera (2007) highlighted the imperfections within healthcare institutions in the Kurunegala district, such as low availability of notification registers (less than 10%), complete absence of notification from the Out-Patient Department, and