

## **Abstract**

The importance of public health surveillance and action is summed by the Director General of WHO who states “Outbreaks are inevitable, but epidemics are preventable. If epidemics happen, it’s our mistake” (Dr Ghebreyesus, 2018).

This mixed method study aims to investigate the data collection challenges and data quality issues that exist within the current laboratory notification process of notifiable infectious diseases in Ireland. This research seeks to answer whether and how a national medical laboratory information system (MedLIS) is likely to improve the laboratory notification process of notifiable infectious diseases into the Department of Public Health in Ireland.

A literature review indicated that under-reporting, timeliness of reporting and completeness of reporting are common issues in the notification process of notifiable infectious diseases internationally and therefore these three quality measures are the focus of this study.

The research describes the laboratory notification process in Ireland using a country HSE hospital and a large voluntary hospital as examples. The inherent data collection issues, data quality issues, under-reporting issues, completeness of reporting issues and timeliness reporting issues are described and solutions proposed. The potential for real-time electronic laboratory reporting (ELR) and recommendations that the MedLIS project should consider in the design of national laboratory system are also described.

The key findings indicate that MedLIS will improve the overall laboratory notification process but will have minimal positive impact to under-reporting and timeliness of reporting and a much larger positive impact to completeness of reporting.