

Create public health surveillance dashboard using laboratory analytics: Leverage Visiun to support COVID-19 pandemic response

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Background: Pandemics are unpredictable and can rapidly spread worldwide. Proper planning and preparation for managing the impact of outbreak is only achievable through continuous and systematic collection and analysis of health-related data. We describe our experience on how to comply with the reporting requirement and develop a robust and consistent platform for surveillance data during an outbreaks.

Methods: We applied Visiun, a lab analytic dashboard, to support main response activities. EPIC SliderDicer module was used to develop clinical and research reports. We followed World Health Organization (WHO), federal and state guidelines, departmental policies, and expert consultation to create the framework.

Results:

The developed dashboard integrates the data from scattered sources to be seamlessly distributed to major key stakeholders. The main report categories include federal, state, laboratory, clinical, employee's health, and research. The federal and state reports are required to meet the government and state reporting requirements. The laboratory group is the most comprehensive category including operational reports such as performance metrics, technician performance assessment, and analyzer metrics. The close monitoring of testing volumes and lab operational efficiency is essential to manage the increasing demands and provide timely and accurate results. The clinical data and employee health reports are valuable to properly manage medical surge requirements such as the health care workforce and medical supplies. The reports included in the research category are highly variable and depend on the health care setting, research priorities and available funding. Table 1 shows the list of developed reports, the information system that data are extracted from, the frequency of distribution, and the list of external and internal recipients of reports. This study also includes multiple designed reports for quality assurance and additional reports for clinical, employee health, and research reports to be added to the current dashboard to optimize the reporting system.

Conclusion:

In this paper, we reviewed the key components of a surveillance framework required for a robust response to COVID-19 pandemics. We demonstrated leveraging a lab analytics dashboard, Visiun, combined with EPIC reporting tools to function as a public health surveillance system. The designed framework could also be used as a generic template for possible future outbreak events.

