Electronic health information exchange improves public health disease reporting

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Disease tracking is an important area of focus for health departments in the midst of the COVID-19 pandemic. A new study from Regenstrief

Institute and Indiana University shows that using electronic health information exchanges (HIE) to prepopulate forms for notifiable disease reports increases reporting and completeness of information.

Typically, health departments wait for hospital, laboratory or clinic staff members to initiate the report, and it is commonly done by fax. This process can be burdensome to those charged with filing the paperwork and the public health officials who analyze it, leading to delays or gaps in reporting.

"Surveillance is the cornerstone of public health," said Brian Dixon, Ph.D., MPA, study first author and director of public health informatics at Regenstrief Institute and Indiana University Richard M. Fairbanks School of Public Health at IUPUI. "The traditional way of reporting can potentially lead to delays in identifying outbreaks. This clinical decision tool leverages information that already exists in the HIE to simplify the process of reporting, ultimately helping to make surveillance more complete to inform public health decisions."

Using HIEs to facilitate reporting

The two-year controlled before-and-after trial analyzed reports submitted to a local health department for seven notifiable diseases. The research scientists compared "usual care," which is the use of paper and fax reports, with HIE-generated forms. They found that provider reporting rates for chlamydia and gonorrhea increased significantly in clinics using the HIE-generated forms, and completeness significantly improved for 4 of the 15 information fields on the reporting forms.

In addition, 75 percent of cases reported by intervention clinics contained a prepopulated form, which indicates that clinics are willing to use the tool.

To create the forms, the research team designed a clinical decision support tool that is triggered when an electronic laboratory message is examined by the Regenstrief Notifiable Condition Detector. The system extracts data from the Indiana Health Information Exchange and fills in the information fields on the official state reporting form. The form is delivered to an ambulatory care clinic using the HIE network, acting as a reminder for the clinician or staff member to review and submit the form to the local health department.

"We know that filling out forms can be challenging for providers and their staff for many reasons," said Shaun Grannis, M.D., M.S., senior author and vice president for data and analytics at Regenstrief. "Our solution facilitates public health reporting, which is crucial, while also allowing providers to do what they do best—providing care for their patients." Dr. Grannis is also a professor of family medicine at Indiana University School of Medicine.

Benefits of HIEs and interoperability

The research team stressed the importance of continuing to build better integration between clinical and public health information systems.

"As demonstrated by the COVID-19 pandemic, timely and complete reporting is crucial to enable quick response to outbreaks that threaten the health of the public," said Dr. Dixon. "As we continue to track the spread of COVID-19 and other diseases, interoperability will play a key role in informing decisions. The healthcare field must continue to push forward in its effort to refine technical and workflow processes to make public health surveillance more efficient."

Improving Notifiable Disease Case Reporting Through Electronic Information Exchange Facilitated Decision Support: A Controlled Before-and-After Trial was published in the May/June edition of *Public*

Health Reports.

More information: Brian E. Dixon et al. Improving Notifiable Disease Case Reporting Through Electronic Information Exchange–Facilitated Decision Support: A Controlled Before-and-After Trial, *Public Health Reports* (2020). DOI: 10.1177/0033354920914318