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Improving Vaccine-Preventable Disease Reporting through Health Information Exchange

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Introduction

Vaccine preventable disease (VPD) outbreaks require immediate, effective response. Although clinical providers are legally obligated to report VPD cases under state law, provider reporting is frequently incomplete, error-prone, and delayed. We seek to explore whether an intervention, aimed at providers and delivered electronically through a health information exchange (HIE), can improve VPD reporting rates as well as how such an intervention can be implemented in an integrated infrastructure that includes heterogeneous electronic health record (EHR) systems.

Methods

We are implementing an intervention designed to pre-populate the official state health department VPD reporting form with patient demographics, lab results, and provider information available from EHR system messages routinely captured in a regional HIE. The pre-populated form will be delivered electronically to providers via fax, an EHR system, or HIE-provided inbox based on clinic-preferred workflow. Prior to deploying the intervention, we gathered baseline reporting information from fax, paper, and electronic reports that constitute a reported case and were submitted by both providers and labs to a local health department. We measured the completeness of key reporting data elements separately for paper, fax, and electronic reports, stratifying by report type. We also calculated reporting rates and examined the results stratified by clinical source, disease and report type.

Population Studied

The Marion County Public Health Department (MCPHD) serves a population of 928,000 individuals living in 396 square miles. More than one-quarter of residents (28%) are African American and 10% are Hispanic or Latino.

Results

We collected 4,135 reports (documents) submitted to public health for 3,556 cases of Hepatitis B. Completeness of data elements varied by report type: data element completeness for lab reports averaged 67.6% with a range from 21.9% to 100% (except ethnicity which is less than 1%), while data element completeness for provider reports averaged 64.9% with a range from 20.8% to 100%. Lab report completeness was higher than corresponding provider report fields for 8 of 15 critical fields. Physicians reported in less than 1% of the cases reported by labs, and all physician-reported cases were also reported by labs. We have collected more than 600 additional reports for other VPD cases, including measles, mumps, chickenpox, and pertussis. Analysis of completeness, timeliness, and reporting rates for these diseases is ongoing. We anticipate the analysis will be completed before fall, making the preliminary results available for the poster along with those for HBV.

Conclusion

The rise of EHR and electronic lab reporting (ELR) reporting capacity among health departments due to meaningful use (MU) may improve assessment of disease incidence and burden. Yet data completeness remains problematic for both lab and provider reports, frequently necessitating calls to health systems to investigate and respond to VPD cases. Health information exchanges may help support more complete capture of information while reducing burden for both clinical and public health organizations.

Abstract

Although clinical providers are obligated to report Vaccine-Preventable Disease (VPD) cases to public health authorities, provider reporting is frequently incomplete, error-prone, and delayed. We seek to explore whether an intervention, aimed at providers and delivered electronically through a health information exchange (HIE), can improve VPD reporting rates as well as how such an intervention can be implemented in an integrated infrastructure involving heterogeneous electronic health record (EHR) systems. Baseline data suggest there is a significant need for informatics solutions to the challenge of provider reporting.