Impact of a notifiable condition reporting intervention within a Health Information Exchange on clinical and public health partners: a mixed methods perspective Regenstrief Center for Biomedical Informatics



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Objective Determine the impact of pre-populating notifiable condition report forms with available Electronic Health Record (EHR) data on: Provider reporting rates; Report data quality; Time for public health to close cases; Perceptions of clinical and public health partners on impact of reporting change on workflow & burden

Background: Ongoing, systematic collection, analysis, and interpretation of communicable and infectious disease data forms a cornerstone of public health practice [1]. Studies have found that paper-based reporting (from providers to public health) is burdensome; produces reports that are incomplete, delayed, and vary in data quality [2-3]; and may require additional follow-up by the public health agencies [3]. As the number of clinicians using EHR systems grow, one way to enhance surveillance is to electronically complete or pre-populate the fields in Notifiable Condition **Report (NCR) forms with data available in the EHR** [4]. Pre-populated NCR forms could improve NCR data quality, streamline reporting by clinicians, and make case processing and investigation more efficient for public health [5]. We are studying the use of a prepopulated NCR form and using quantitative, qualitative and mixed methods to assess the impact on public health and providers.

Methods: Pre- and post-intervention NCR data for seven notifiable conditions—Chlamydia, Gonorrhea, Syphilis, Chronic Hepatitis C, Acute Hepatitis B, Salmonella, and Histoplasmosis were extracted from public health case files. NCR data were quantitatively assessed for timeliness of reporting and completeness of reports with respect to 15 specific report form fields. In addition, semi-structured interviews with clinic representatives and public health agencies focused on work practices, perceptions of burden, and expected impact of the intervention.

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Data Collection

Analy

From Provider NCR Forms Disease Date lab sample taken

- Date lab-confirmed diagnosis
- Date patient receives treatment
- Date report sent to public health (PH)

From Lab Report Forms Date of lab test Date report sent to PH

From PH Date PH receives clinic NCR •Date PH receives lab report •Date PH closes case

Report Data Quality (DQ) Missing data in NCR fields Data field entry errors Duplications Data anomalies/outliers From Interviews Provider reporting practices

- Provider perceptions of reporting burden
- •PH perceptions of lab & provider reporting processes, timeliness & DQ Provider & PH perceptions of intervention: concerns & perceived benefits

Quant

Qual

- Perceived benefits & util Barriers & facilitators to
- forms
- Perceptions of report cor timeliness
- Perceived reporting burg
- Reporting workflow impation
- Level of acceptance & sa ntervention
- Perceptions of impact of reporting burden, DQ, tim

Mixed N



Analyses	Results/ Outcomes
Quantitative Volume of reporting to PH overall & stratified by ondition, lab, provider/clinic Timeliness of reporting to PH overall & stratified by condition, lab, provider/clinic Data completeness of provider reports overall & tratified by condition, provider/clinic Data completeness of lab reports overall & tratified by condition, lab Timeliness to close PH cases overall & stratified by condition, provider/clinic Qualitative Perceived benefits & utility of intervention Barriers & facilitators to adopting & using new orms Perceptions of report completeness, accuracy, imeliness Perceived reporting burden Reporting workflow impacts Level of acceptance & satisfaction with intervention Perceptions of impact of intervention on eporting burden, DQ, timeliness & volume <u>Mixed Methods</u> Triangulation of quantitative & qualitative results o discover convergence or agreement Cross-validation & stratification of analyses by ondition, provider/clinic, PH	Quantitative •11,997 submitted reports for 8,754 unique cases •Lab reporting rates greater than or equal to provider reporting rates •Lab report completeness higher than provider reports for 12/15 critical fields •PH receives lab reports prior to provider reports <u>Qualitative</u> •Difference in perceptions of burden in clinical and PH setting •Time spent on information seeking by clinical and PH •Confusion about reporting requirements for providers •All see potential benefit of pre- populated form <u>Potential Outcomes</u> •Intervention accepted and fits PH and clinical workflow •Data quality improved •Burden due to poor DQ reduced •Information meets PH needs

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Better Health Through Informatics

Its: Baseline results indicate that laboratory reporting rates are higher than provider reporting rates. In addition, lab reports contain more complete patient and provider demographic and contact information. Qualitative results suggest that PH and clinical workers spend significant time searching for information. Physicians are rarely involved in the reporting process, rather RNs and MAs are primarily responsible for NCR duties. **Clinical interviewees expressed some confusion** about reporting requirements. Both clinicians and PH interviewees were very positive about the potential for a pre-populated form to streamline their work related to NCR.

Progress & Next Steps:

Timeliness and completeness of laboratory reports as compared to provider reports suggests that alternate methods for gathering and collecting information from labs and providers merit further exploration. In addition, the difficulties encountered by providers in submitting timely NCR forms, e.g., waiting on treatment confirmation, may indicate that traditional reporting protocols should be revisited to reduce delays that may impact public health surveillance activities. We continue to collect and analyze quantitative and qualitative data which will be used to examine

changes in timelines, completeness and accuracy of data along with perceived data quality changes and changes to workflow resulting from introducing pre-populated reporting forms.

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