

## Improving Population Health Through Enhanced Targeted Regional Decision Support

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<b>Organization:</b>	Indiana University
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**Summary:** Clinical providers often underreport population-level disease burden or their reporting is incomplete, inaccurate, or delayed. Causes for this include: 1) a lack of knowledge on reporting requirements and process; 2) a lack of resources to facilitate the reporting process; and 3) a perceived lack of value for reporting. Underreporting and incomplete reporting can lead to inaccurate assessments of the disease burden in a community, which can hinder population health interventions and preventive care to individual patients.

As clinical data is captured increasingly in electronic form, there is potential for more comprehensive assessment of disease burden and increased automation of electronic public health reporting. Health information exchanges (HIEs) are an emerging source of health care and clinical data that can be used to facilitate information-sharing and improve data quality. An automated electronic laboratory reporting system that uses data from an integrated HIE can overcome some of the disease burden reporting limitations by enhancing population-based reporting with additional data such as recent laboratory results, enhanced patient and provider demographics, and medication history.

In an effort to improve clinician reporting of notifiable conditions to public health and the quality of the data collected, Dr. Dixon and his research team are implementing novel clinical decision support (CDS) and clinical messaging tools. The team has developed a standard notifiable condition case reporting form to serve as a CDS tool pre-populated with patient demographic data and pertinent case management information. The form will remind clinicians to report notifiable cases to the appropriate public health stakeholders and will provide guidance on the reporting information needed. A clinical messaging system will deliver the forms, allowing them to be integrated more seamlessly into health care providers' workflow. The clinical messaging system will build on an existing HIE known as the Indiana Network for Patient Care (INPC). When forms are flagged as reportable, they will be sent to appropriate clinical providers and public health agencies and submitted to the INPC. An interrupted time-series design will evaluate the effects of the standard pre-populated form reminder intervention on a variety of outcomes, including the rate of provider reporting, data quality, and timeliness of reporting to public health officials.

An enhanced pre-populated form that includes supplemental clinical case data will also be developed and deployed. A group of public health stakeholders are determining which supplemental data elements are needed for a selected set of reportable conditions. The research team will evaluate the quality and feasibility of the supplemental data. The enhanced pre-populated form will be compared to both pre-intervention data and the standard pre-populated form on various outcomes.

Lastly, the research team is administering a series of surveys and interviews throughout the research project to collect quantitative and qualitative data from clinical settings to identify factors that influence the adoption and impact of the tools on workflow, provider awareness, data quality, and user satisfaction.

### Specific Aims:

- Evaluate the process and operational outcomes of deploying an advanced technical framework and methodology in the context of a long-standing operational HIE that enhances management of population-level notifiable condition reporting and bidirectional communication among providers and population health stakeholders using decision support tools. **(Ongoing)**
- Evaluate the quality of existing health care data and the capacity of an advanced technical framework to enhance data quality by measuring baseline, pre-implementation, and post-implementation data quality statistics including accuracy, completeness, and timeliness for provider and patient demographic information, and additional relevant clinical data. **(Ongoing)**
- Identify and assess facilitators and barriers—including social, behavioral, and environmental—that are associated with the implementation and utilization of an advanced technical framework both within single organizations and across multiple organizations within an HIE. **(Ongoing)**

**2012 Activities:** The research team developed the standard pre-populated case reporting form and began recruiting clinic sites to participate in the study. Currently, six urban clinic sites have signed on to participate. The research team aims to recruit up to two additional rural clinic sites. Baseline data collection began in the second half of 2012 and forms on the project's seven reportable conditions—chlamydia, gonorrhea, syphilis, histoplasmosis, hepatitis B, hepatitis C, and salmonella—were collected from the Marion County Public Health Department. The research team is using the data to establish retrospective baseline physician reporting rates for each condition. The rates vary by disease according to prevalence, which will impact the length of time necessary for measuring post-intervention effect. The standard pre-populated reporting forms will be implemented in 2013.

The team is in the process of determining the data elements, features, and information to include on the enhanced pre-populated forms, which will vary by reported disease. The team will receive input and feedback from local health department stakeholders through a series of focus groups to be conducted in 2013. Baseline surveys were distributed to health care providers and interviews were conducted with clinic nursing staff and managers at the six study sites to assess the facilitators and barriers associated with use and impact of the CDS and clinical messaging tools. Data analysis will be ongoing in 2013.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are on track, and project budget spending is roughly on target.

**Preliminary Impact and Findings:** Information needs of local and State health departments were assessed with respect to disease reporting and surveillance by conducting two independent surveys of health department epidemiologists and communicable disease nurses. The findings indicated that there was greater than 70 percent agreement for several case report information elements (e.g., patient name, county of residence), but there was wide variation in reported importance and desired completeness for a number of information elements. Variation must be reconciled to effectively develop policies, procedures, technologies, and systems that use integrated population data to support public health use cases.

**Target Population:** General

**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to support patient-centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care.

**Business Goal:** Implementation and Use

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