**A Cloud Based Epidemiology Network to Track Gastrointestinal Pathogens in Real Time**

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**Introduction:** Real-time monitoring of gastrointestinal (GI) infectious disease (ID) has the potential to benefit public health by facilitating the early detection of pathogen outbreaks. Efficient tracking of ID requires 1) broadly-distributed, comprehensive diagnostic testing and 2) rapid electronic collection, analysis and distribution of data. Several FDA-cleared diagnostic platforms are in use in clinical laboratories, which have assays for many of the large groups of infectious agents known to cause diarrhea. BioFire’s FilmArray® (FA) is one such system. The FA® GI panel detects 22 pathogens. While the first condition for tracking GI disease has been met, the second condition has not; there is no general, automated electronic mechanism for aggregating GI test results from across the United States in real-time. **Methods:** We have implemented a cloud-based epidemiology network, **FA-Trend**. The system connects FA Instruments directly to the cloud, automatically exporting electronic de-identified test results to a secure, HIPAA-compliant database. Web-based views of the aggregated data are accessible to various user groups: clinical users can track institutional and local trends, and the public can monitor bacteria, viruses and parasites causing infectious GI disease. This automated approach does not require labor intensive manual processing or data extraction from information systems that vary by hospital. **Results:** Four US sites are participants in the initial GI **FA Trend** pilot study, Medical University of South Carolina (SC), Primary Children’s Medical Center (UT), UC San Diego Medical Center (CA), and NYU Langone Medical Center (NY), with more than 15 FA Instruments in the cohort. Automated export of the electronic results and archival data began in the fall of 2015 and collectively the group will contribute over 4,000 test results to the project this year. Data presented will include: 1) GI pathogen prevalence, including fluctuations in the prevalence of diarrheagenic *E. coli/Shigella* among other organisms; 2) Polymicrobial detections, which indicate, at the population level, interactions between pathogens that occur in a patient; 3) Rotavirus prevalence trends compared to CDC NREVSS Rotavirus surveillance. **Conclusions:** We demonstrate that, when appropriate care is taken to remove protected health information from ID test results, it is possible to address hospital data security concerns and patient privacy issues involving real time, automated data export. With this infrastructure in place it is straightforward to connect FA Instruments directly to the internet and export de-identified GI pathogen results. The resulting data stream gives us unprecedented visibility of the prevalence and spread of GI infectious disease.