

Comparison of Ambulatory Electronic Health Record and Emergency Department Visit Log Data for Respiratory, Fever, and GI Syndromes

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OBJECTIVE

This paper describes three years of electronic health record (EHR) data from a network of urban ambulatory care clinics in New York City.

BACKGROUND

Emergency Department visit logs¹ have been the most useful source of data to date for monitoring seasonal respiratory, fever, and GI illness trends in NYC. Recently, the NYCDOHMH has undertaken an ambitious project to extend EHR systems for 2000 providers community based providers in the NYC metropolitan area through the Primary Care Information Project (PCIP). The PCIP's vision is to address challenges and improve population health through careful application of health information technology and health information exchange- providing information and tools that can empower public health practitioners, clinical providers, and the public to make better decisions. This paper explores the potential utility of this data for syndromic surveillance.

METHODS

EHR data from the Institute for Urban Family Health (IUFH) from July 1st, 2003 to June 30th, 2006 was examined. Patient encounter data including reason for visit, measured temperature, and diagnoses (ICD9) were examined for the presence of fever, respiratory symptoms (RESP), and gastrointestinal symptoms (GI). Seven-day running proportions were calculated for fever, RESP, and GI. These were then compared to the NYC emergency department syndromic surveillance fever/flu syndrome over the same three year period. Isolate data for Influenza A & B from WHO collaborating laboratories for NYC were then examined. ED data were selected from 3 hospitals in close vicinity to IUFH clinics and then randomly sampled to approximate a 1:1 ratio.

RESULTS

There were approximately 337,000 office visits to the IUFH for the study time period. Fever was found in 4.69% of those patients and respiratory symptoms in 11.75%. For the same time period the 335,000 showed about 7.84% fever/flu symptoms and 8.58% respiratory symptoms. When examined over time EHR data for respiratory, fever, and GI syndromes tracked ED data very closely.

CONCLUSIONS

EHR data is useful for monitoring syndromic trends in GI illness, as well as fever and respiratory syndromes which correspond well with influenza season. Additional information contained within the EHR such medical history, problem list, social history,

medications, and procedures may provide added utility for public health monitoring.

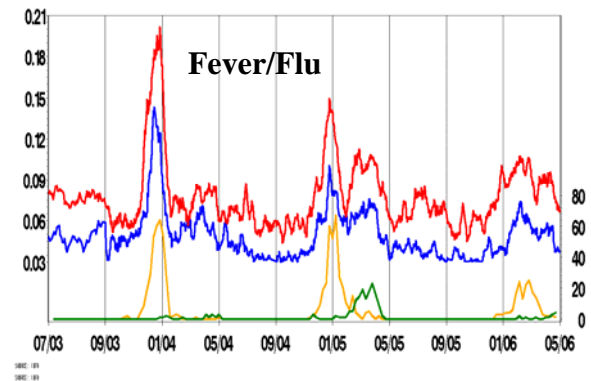
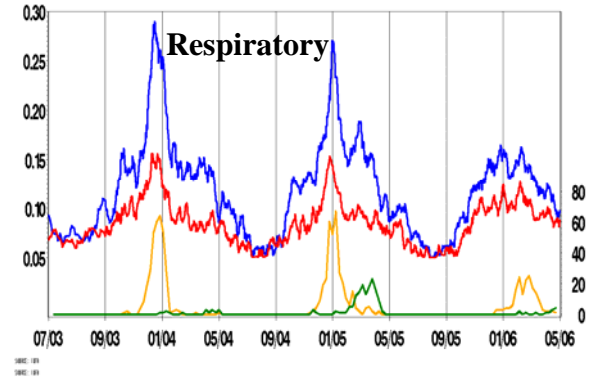


Figure 1 – 7-day running proportions of visits with respiratory (a) and fever (b) symptoms. IUFH visits (blue) overlaid with ED visits (red) for July, 2003 – May, 2006. Counts of WHO isolates of Flu A (orange) and Flu B (green) are also included.

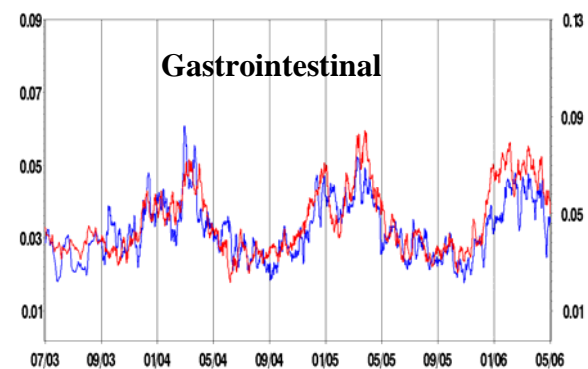


Figure 2 – 7-day running proportions of visits with GI syndrome. IUFH visits (blue) overlaid with ED visits (red) for July, 2003 – May, 2006

REFERENCES

[1] Heffernan R, Mostashari F, Das D, Karpati A, Kulldorff M, Weiss D. Syndromic surveillance in public health practice, New York City. *Emerg Infect Dis.* 2004 May;10(5):858-64.

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