

Components of Inter-hospital Variability in Chief Complaints Assigned to a Gastrointestinal Syndrome

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Introduction

Patient's chief complaint (CC) is often used for syndromic surveillance for bioterrorism and outbreak detection, but little is known about the inter-hospital variability in the sensitivity of this method.

Objectives

Our objective was to characterize the variability of a gastrointestinal (GI) CC text-matching algorithm.

Methods

Design: Retrospective cohort. Setting: 16 urban and suburban EDs. Participants: Consecutive patients seen by ED physicians January to November of 2003. Protocol: We tested a CC-based algorithm modified from the NY City and State Departments of Health against a criterion standard modified from the CDC-ESSENCE ICD9-based GI algorithm. For each hospital, we determined the baseline sensitivity of the CC algorithm as well as list of "false negative" (FN) CC that we then manually categorized as shown in Table 1. The FN CC were then successively added to the CC filter definition and the incremental improvement to the sensitivity measured, until 100% of the FN CC were included. We tested for non-uniformity in each category using Chi Square. ED personnel were contacted to explore sources of non-uniformity.

Results

The database contained 432,290 patients. The baseline sensitivities varied by hospital from 0.56 to 0.74. The contributions to the sensitivities are shown in Table 1 and Fig 1. All categories demonstrated significant non-uniformity ($p < 0.001$). The one hospital that used a CC pick-list showed an average sensitivity and had the least improvement from manual correction. The highest use of the OB-Gyn category appeared related to a local triage protocol.

Conclusion

Local differences in the capture of patient's CC are associated with variability in the sensitivity of a CC method for gastrointestinal illness and place limits on the maximum sensitivity that can be achieved.

Category of False Negative Patient Chief Complaint	Increase in sensitivity if added
Manually correctable (misspelled or synonym)	5% to 9%
Correctable using expanded GI syndrome definition	2% to 9%
OB-Gyn patients	1% to 4%
Fever-Cold patients	1% to 6%
Specific other patients (e.g. "headache")	13 to 18%
Non-specific patients (e.g. "weak")	1% to 6%

