Defining Clinical Condition Categories for Biosurveillance

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OBJECTIVE

The goal of this project is to create a set of clinical condition categories based on explicit criteria for use in biosurveillance programs. The categories will be defined and keywords and ICD-9-CM diagnosis codes for implementation will be proposed.

BACKGROUND

In October 2003, a multi-agency working group, including representatives from the Centers for Disease Control and Prevention (CDC) and the Department of Defense, published a set of definitions and associated ICD-9 diagnosis codes for 11 broad syndromes groups recommended for syndromic surveillance of bioterrorism-associated agents[1]. Biosurveillance programs have also created diverse sets of more granular clinical categories (called "sub-syndromes" in the BioSense and ESSENCE programs) for analysis of electronic health data in greater detail. The disparity in selection and definition of categories among biosurveillance programs allows great flexibility for analysis of electronic health data according to local preferences. However, this disparity may also hinder comparison of biosurveillance data from different systems. Harmonizing clinical condition categories in BioSense and ESSENCE will allow more consistency in interpretation of results from the two systems while allowing each system to build its own unique syndromes and queries.

METHODS

Criteria for selection of categories are as follows: 1) must support biosurveillance of disease outbreaks due to bioterrorism category A, B, and C agents and other nationally notifiable infectious diseases; 2) must support post-disaster surveillance; 3) must have sufficient range and level of granularity to allow biosurveillance users to build unique queries according to the condition of interest; and 4) must support the syndromes currently used by ESSENCE and BioSense.

A spreadsheet was populated with clinical findings related to: 1) bioterrorism category A, B, and C agents[2]; 2) selected nationally notifiable infectious diseases; 3) reasons for visit from CDC's Hurricane Morbidity Report Form for Active Surveillance in Clinical Care Settings[3]; and 4) text-based definitions of the syndromes currently in use by BioSense And ESSENCE[1Error! Bookmark not defined.]. These clinical findings were aggregated into clinical categories and labeled with the most appropriate SNOMED-CT term.

Each category was clarified using a brief text-based definition. The categories were mapped to ICD-9-CM diagnosis codes and keywords for chief complaint text parsing. Keyword sets for selected clinical categories were tested for appropriateness against sample biosurveillance data.

RESULTS

Explicit criteria and process for selection of clinical condition categories were developed and applied to generate 73 conditions of interest, 629 associated symptom/sign/illness, and 79 clinical condition categories.

CONCLUSIONS

This project presents a knowledge-based framework for defining clinical categories for biosurveillance in order to improve public health situational awareness through more consistent interpretation and communication of findings from diverse biosurveillance systems. BioSense and ESSENCE will move towards using a common set of clinical condition categories.

REFERENCES

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