

Representation of Public Health Emergency Message Terms in UMLS

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Purpose: During urgent events clear-cut public health risk messages must be developed rapidly and disseminated broadly. Computerized decision support can assist message development based on structured message templates using standardized terminologies. We identified public health risk message terms in the National Library of Medicine Unified Medical Language System (UMLS). We used these terms to populate message elements in the Common Alerting Protocol (CAP), an electronic message standard used by public agencies, and recently adopted by Centers for Disease Control and Prevention's (CDC) Public Health Information Network (PHIN).

Methods: 254 concepts were extracted from a sample of 3 urgent public health messages. Concepts were mapped to UMLS terms using the metathesaurus search engine. Mapped terms were assigned to CAP message elements.

Results: 181 concepts (69%) mapped to UMLS terms, most frequently in Read Codes (37%) and SNOMED Intl 1998 (32%), followed by the Alcohol and Other Drug Thesaurus (AODT) at 23%, and Library of Congress Subject Headings (17%). LOINC terms matched 6% of concepts. Most terms (90%) populated free text CAP 'info' elements, specifically 'event description' (39%) and 'instructions' (46%) sub elements.

Conclusions and Implications: UMLS terminologies do not adequately represent public health concepts found in 3 sample messages. SNOMED and Read Codes are conjoined in SNOMED-CT and a federal license exists for its free public use. It is a preferred terminology for CDC PHIN Enterprise Vocabulary Services (EVS), a tool for managing public health terminologies and value sets. Public health needs to submit terms to enhance SNOMED-CT. LOINC, the other EVS preferred terminology, matched few concepts. LOINC is important for public health lab reporting, but for risk messages PHIN developers should consider including AODT and Library of Congress terms in EVS. Standardized public health terms were most frequently assigned to CAP free text elements, but have potential for greater use.