Data elements:
A strategy for clinical domain and secondary use

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Abstract
Choosing appropriate words or symbols is critical to successful communication in the clinical domain. Words are ambiguous or misleading, the risks of medical errors, misunderstandings, or incorrect decisions loom large. We relate these to successful communication in the clinical domain. If words are chosen carefully, we are more likely to achieve a better understanding of how domain-specific processes actually work. The clinical domain includes numerous medical specialists who use data elements interchangeably, but meaning must be domain-independent to support re-use. Thus, data elements must be created through a collaborative process that involves all interested groups, with the resulting meaning being accepted among all users. This process of creating and sharing sets of data elements must be well-defined and freely accessible. In this presentation, we describe a possible course for attaining these goals.

Methods
Create a national forum for soliciting, defining, and vetting/harmonizing data elements:

1. Create a national master data element set by:
   - Collaboration in place for tooling development
   - Engagement clinical community
   - Forum for maintaining infrastructure
   - Work in progress:
     - Tuberculosis—stakeholders adopting and distributing, notification of all interested persons, one year as trial process
     - Cardiology quality measures
     - Pre-hospital emergency care
     - Anesthesia
     - Diabetes

2. Submitting organization
3. ISO/IEC 11179 Metadata Registry Standard
4. United States Healthcare Information Knowledgebase (USHIK)

Philosophy
1. It is possible to represent clinical concepts and related data in a useful, standardized way.
2. Data elements must have associated controlled terminology.
3. Data elements must be created through a collaborative process that involves all interested groups, with the resulting meaning being accepted among all users.
4. Data elements with secondary use stakeholders will help assure that healthcare data will support secondary uses.

Data elements
- Data element definitions must have associated controlled terminology.
- Data elements must be created through a collaborative process that involves all interested groups, with the resulting meaning being accepted among all users.
- Data elements must be submitted into database. Initial screen entry for computer validation (where appropriate)

Attributes
- Name
- Preferred term/collection
- Short display name
- Synonyms
- Language
- Category
- Classificiation

Well-known data element approaches
- Long-haul with minimum data sets
- ISO/IEC 11179 Metadatta Registry Standard
- Cancer Data Standards Repository (CDR)
- United States Healthcare Information Knowledgebase (USHIK)

Data element creation and maintenance flow chart