

Problem-Centered Care Delivery: How Interface Terminology Makes Standardized Health Information Possible

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Terminologies ensure that the 'languages of medicine' can be understood by both humans and machines.

Electronic health records (EHRs) are the industry standard for documenting patient care. Industry initiatives and government legislation have facilitated EHR implementation and use. Most notable among them is the Health Information Technology for Economic and Clinical Health Act (HITECH) legislation, which incentivizes providers toward implementation and demonstration of meaningful EHR use. Ultimately, all of these efforts aim to improve patient outcomes.

Keeping the patient at the center of healthcare is vital. In order to provide patient-centered care, providers must be able to document patient care with sufficient clinical specificity. Sound EHR practices allow all providers to effectively engage in a patient's care delivery because electronic documentation supports patient-centered care in multiple fashions, most notably for decision-support capabilities and the exchange of data across providers and settings. A fundamental aspect of patient-centered care is having access to dependable data in order to make sound decisions. Accurate and reliable information in an electronic format requires all stakeholders to be engaged with the record.

An aspect of reliable and accurate information is ensuring that providers have the ability to capture their clinical intentions regarding patient care through terminologies. Healthcare terminology has long been called "the language of medicine," but, in the electronic age, this language has to be readable by both humans and computers. Various terminologies are used in defining associated terms. This article offers an overview of the different terminologies and how they affect documentation and, ultimately, patient care.

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<http://journal.ahima.org>. Hear authors June Bronnert and Chip Masarie discuss how terminology assists HIM professionals.

Terminology

Terminology is a set of descriptions used to represent concepts specific to a particular discipline. It's also the foundation of EHR data. For example, the terms "heart attack" and "MI" describe the same concept of myocardial infarction. These concepts are in turn associated with codes that are used for a variety of purposes.

Different healthcare terminologies have their own unique features and purposes. For example, RxNorm encodes medications and Logical Observation Identifiers Names and Codes (LOINC) is used for laboratory results.

Many terminologies are required in today's healthcare environment which results in multiple coding systems being used in a single patient's electronic record. This creates an environment where the disparate systems must exchange as well as understand information to provide an effective, integrated healthcare system.

Terms related to terminology include:

- Administrative code sets
- Clinical code sets
- Reference terminologies
- Interface terminologies

Administrative code sets are designed to support administrative functions of healthcare, such as reimbursement and other secondary data aggregation. Common examples are the International Classification of Diseases (ICD) and the Current Procedural Terminology (CPT).¹ Each system is fundamentally different; ICD's purpose is to aggregate, group, and classify conditions, whereas CPT is used for reporting medical services and procedures.

Clinical code sets have been developed to encode specific clinical entities involved in clinical work flow, such as LOINC and RxNorm. Clinical code sets have been developed to allow for meaningful electronic exchange and aggregation of clinical data for better patient care. For example, sending a laboratory test result using LOINC facilitates the receiving facility's ability to understand the result sent and make appropriate treatment choices based upon the laboratory result.

A reference terminology is defined as a "concept-based, controlled medical terminology."² The Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT) is an example of this kind of terminology. It maintains a common reference point in the healthcare industry. Reference terminologies also identify relationships between their concepts. Relationships can be hierarchically defined, such as a parent/child relationship. The reference terminology contains concept A and concept B, with a defined relationship of B as a child of A. SNOMED CT includes concepts such as heart disease and heart valve disorder, and their defined relationship identifies heart valve disorder as a child of heart disease.

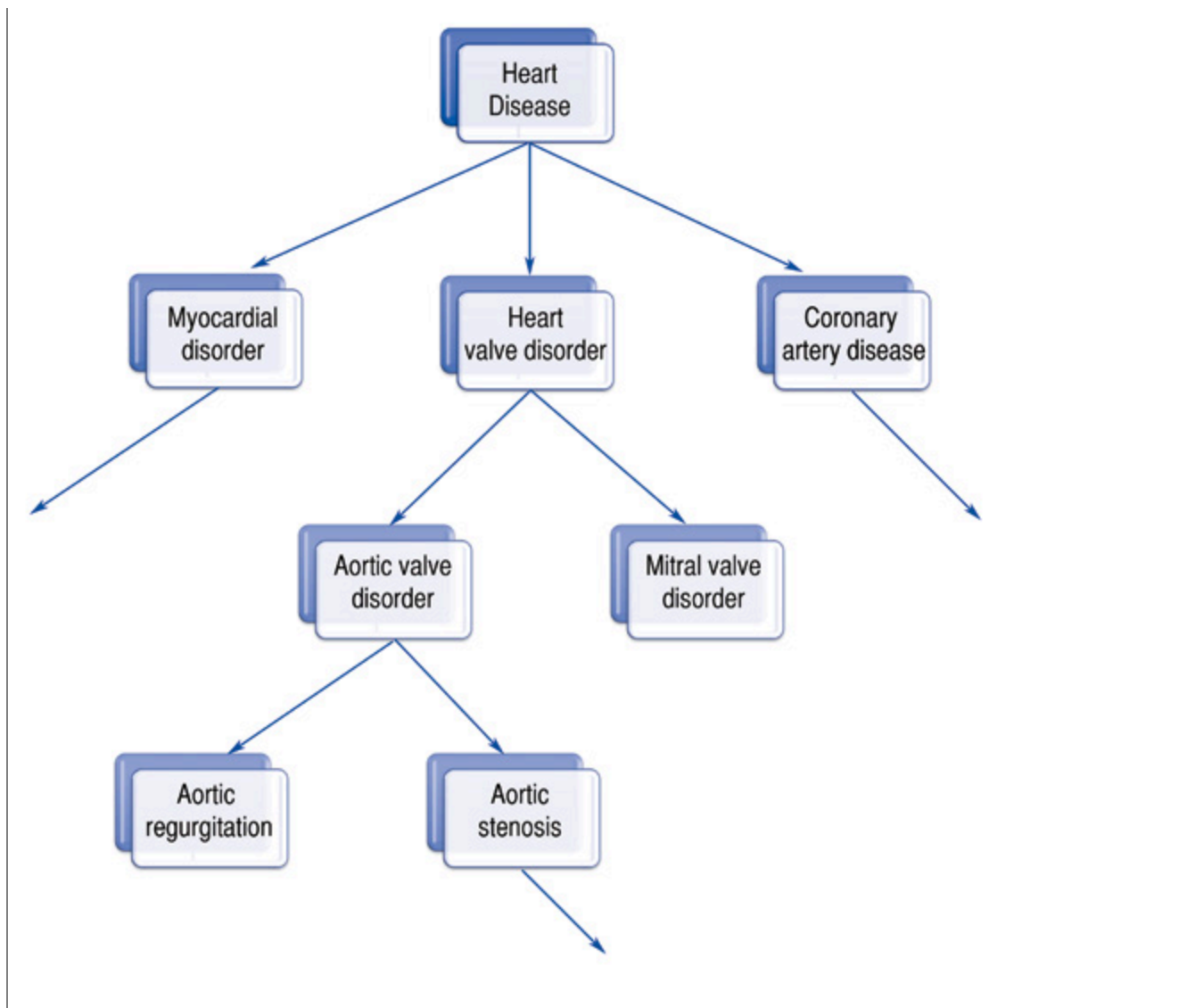
Reference terminology allows healthcare systems to get value from clinical data coded at the point of care. In general, reference terms are useful for decision support and aggregate reporting and are more general than the highly detailed descriptions of actual patient conditions. For example, one patient may have severe calcific aortic stenosis and another might have mild aortic insufficiency; however, a healthcare enterprise might be interested in finding all patients with aortic valve disease. The reference terminology creates links between "medical concepts" that allow these types of data queries.

An important aspect of a well-constructed terminology is a concept, typically granular by nature and defined as "a unit of knowledge or thought created by a unique combination of characteristics." An example of a SNOMED CT concept is aortic valve disorder. Refer to the figure "Example of SNOMED CT Hierarchy Relationship" for the aortic valve hierarchical relationship.

Interface terminology is a set of clinically relevant terms mapped to the industry standard administrative and clinical code sets. Clinically relevant terms capture granularity and clinical intent in the documentation.

Example of SNOMED CT Hierarchy Relationship

SNOMED CT is an example of a reference terminology, a concept-based kind of terminology. Below is an example of the aortic valve hierarchical relationship in SNOMED CT.



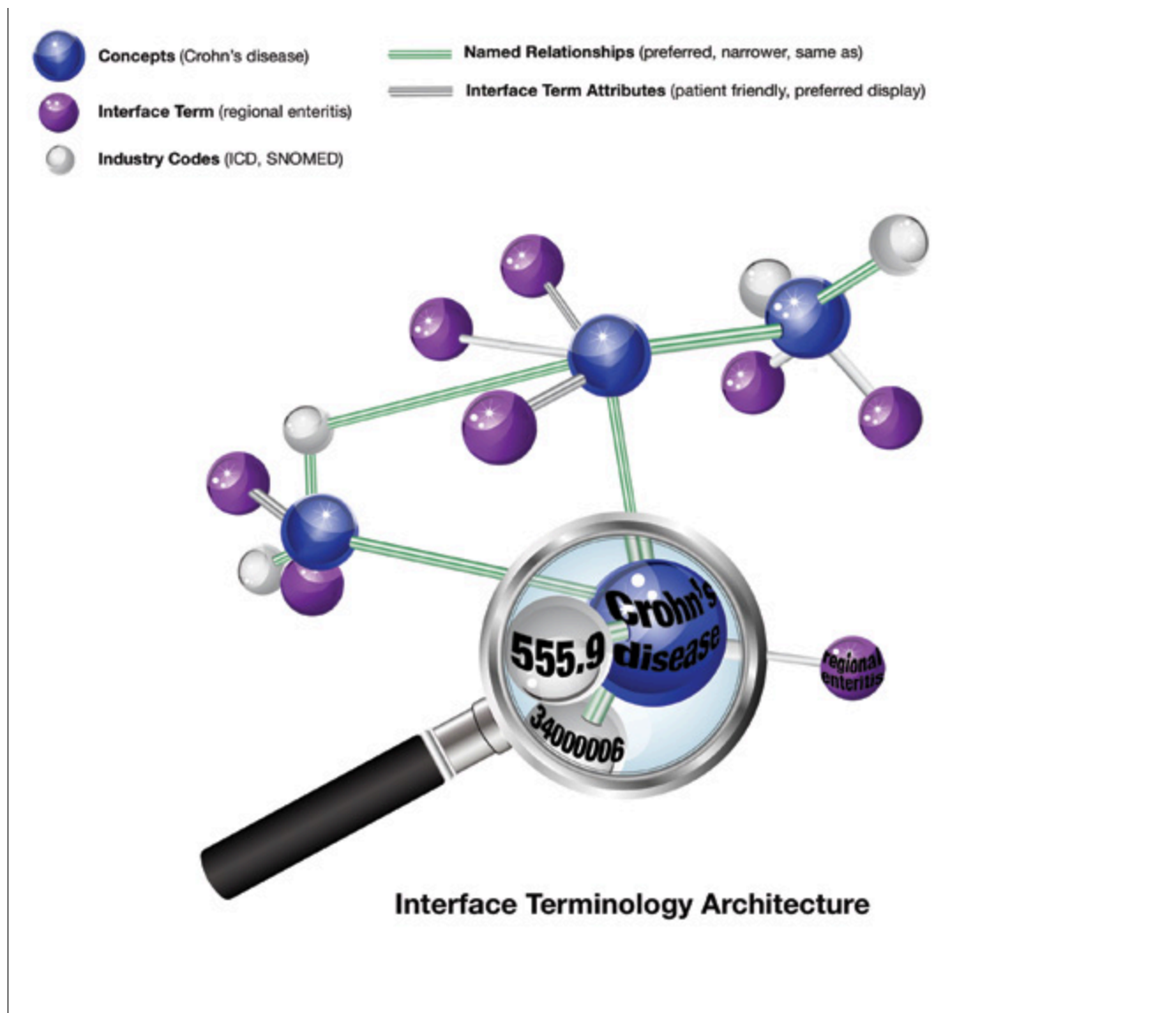
Interface Terminology

Many clinicians are forced to use administrative coding sets (CPT, HCPCS, and ICD-9-CM codes) to capture clinical data. However, administrative code sets were designed to either group diagnoses and procedures or to contain broad categories with administrative technical terms with complex rules and guidelines. Examples of this are time durations or vascular branch orders directly stated in various terms.

Administrative codes and terms typically use language that is not natural or familiar for clinicians. For example, in ICD-10-PCS the root operation term "extirpation" is not routinely stated by surgeons. Administrative codes and descriptors also do not contain the different clinical, administrative, and colloquial terms used in healthcare, making it difficult for clinicians, information management professionals, and patients to find the terms they need when performing simple text searches. This disconnect between clinician language and coding sets creates concern over losing clinical intent in the documentation.

Forcing a physician to document in administrative terms is uncomfortable and disruptive. Interface terminology "bridges the gap between information that is in the physician's mind and information that can be interpreted by computer applications."³ Interface terminology helps clinicians find the right diagnosis and procedure terms to document and code more comprehensively and accurately within their normal workflow.

Interface Terminology Architecture



Clinical Workflow

Clinicians interact with interface terminology when documenting diagnoses and procedures in the patient's electronic record. The physician performs searches using the search functionality in designated locations in the EHR, which returns terms to the provider to select the appropriate problem or procedure. The physician selects the appropriate term to capture the clinical intent. The term(s) populate predetermined fields in the electronic record. The selected term contains mappings to one or more industry standard terminologies, such as ICD or SNOMED CT. The "behind-the-scenes" mappings allow the physician to focus on patient care while at the same time capturing the necessary administrative and reference codes.

Each EHR vendor determines which codes are actually stored in the patient's record. By storing the interface terminology code, an EHR can always retrieve the most up-to-date administrative and reference codes in the future.

With interface terminology in place within an EHR, physicians find a number of beneficial impacts to their clinical workflow:

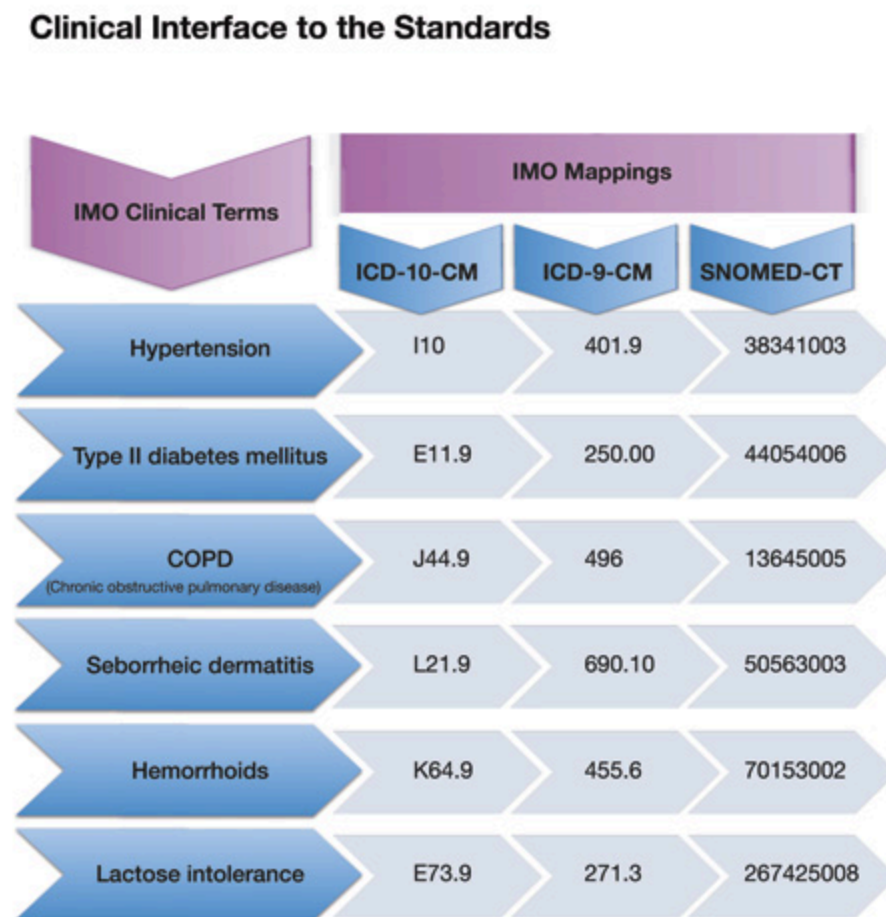
- Improved diagnostic search results for physicians to locate problems
- More clinically meaningful physician documentation
- Better and more complete problem lists are created
- Improved coding accuracy and reliability

The Problem List

Interface terminologies are important for problem lists. In practice, clinicians use many different synonyms, acronyms, eponyms, abbreviations, and other terms to describe the same diseases and problems. These alternate forms are often more familiar and frequently used in the clinical domain rather than the standard ICD-9-CM or ICD-10-CM terms. Interface terminology provides an interface to the standard ICD-9-CM-driven terminology in the EHR search. If the diagnosis was in standard ICD language, the clinician might have to alter the description or, depending upon the term, might even be unable to initially locate the diagnosis for selection.

The physician selects an interface terminology diagnosis. The selected diagnosis populates the patient's problem list. The associated ICD-9-CM mappings populate the organization's billing system for review and claims generation to increase efficiency and accuracy in the revenue cycle.

Clinical Interface to the Standards



Importance of Interface Terminology

The goal of interface terminology is to facilitate clinical documentation while streamlining other administrative functions of healthcare. Clinician-friendly terms with associated industry standard terminologies facilitate this goal. Interface terminology also supports the "capture once, use many times" philosophy of electronic health information. For example, if the term "CHF (congestive heart failure)" is captured with an associated ICD-9-CM code (428.0) or ICD-10-CM code (I50.9) and SNOMED CT code (42343007), the ICD code is routed to the financial system for review and claims generation, while the SNOMED CT code is available for other reporting.

ICD-10-CM/PCS codes may also be associated with the terms in an interface terminology. Having both ICD-9-CM and ICD-10-CM/PCS codes available for the terms frequently documented by an organization's providers can facilitate ICD-10-

CM/PCS preparation. Interface terminology provides a stable and constant pivot point to meet the changing coding requirements of the healthcare industry. Depending upon the EHR functionality, organizations can extract the terms and associated codes for analysis.

Maintenance

Maintaining up-to-date and accurate information is just as vital to an organization as the implementation and design of the EHR. As industry standard terminologies are updated, organizations engage in a maintenance process. Interface terminology eases the maintenance process for organizations.

What happens if a diagnosis appears in a medical record, but the ICD code for that diagnosis is replaced? Interface terminology has the ability to have the diagnostic term remain active while the associated ICD code is updated to reflect the new code. No longer can physicians select diagnoses linked to out-of-date, incorrect, or non-billable codes. This helps reduce the amount of running back-and-forth between billing and clinicians to determine clinical intent and adjudicate coding discrepancies. The historical tags between the term and the prior ICD code stay intact for historical purposes.

Benefits of Interface Terminology

While there are many benefits of interface terminology, the most notable are:

- Uses familiar medical terms, which reduces search time and increases precision
- Improves charge capture as a result of accurate diagnostic codes
- Minimizes maintenance, which saves the expense of creating and maintaining a term dictionary and complicated term-to-code mappings
- Provides meaningful use compliance
- Enables accurate data capture at the point of care
- Increases patient safety through clarity of diagnosis, problem, and procedure descriptions

Health information management (HIM) professionals need to recognize the role of interface terminology in the EHR. Knowing how the terminology works in the EHR will help to ensure the organization is reaping all the benefits of the system.

The interface terminology affects how information is managed, from impacting the revenue cycle to the design of the physician's search experience and preservation of the clinical intent within the longitudinal EHR. HIM professionals, at a minimum, should be knowledgeable regarding:

- Which industry standard terminologies are associated with the terms
- The search functionality and the physician's search experience
- Where the coded information flows in the EHR once the physicians select the term
- How interface terminology is maintained along with documented procedures to resolve mapping discrepancies
- The use of interface terminology in natural language processing and auto-coding applications
- Where associated terminology is stored for secondary data uses and other data management activities as related to documentation workflow, data warehouse, patient active summary sheet, template, and other EHR documentation tools.

Interface Terminology and Patient-Centered Care

Patients are the heart of healthcare. Today there is a renewed focus on patients as the driving force behind their received care, as the industry is striving for a holistic, patient-centered approach to providing care. Recent government regulations, such as accountable care organizations (ACOs), support and reinforce this idea. The ACO is a new care delivery model focused on a provider team to coordinate and manage healthcare services for a defined patient population. This coordinated care team is the designed point of contact to ensure that all of the patient's healthcare needs are being addressed regardless of setting or specialty. Accurate information is critical to managing patient populations effectively. This drives the need for longitudinal data sharing, which has been a challenge for the healthcare industry.

Interface terminologies can play a large role in the ability to store and share data across provider settings, impacting these recent government regulations. They have the ability to capture clinical intent and create historical data to be available for

longitudinal records. The needed level of clinical granularity is captured, which is important for continuity of care between providers. Having all associated maps for the terms also allows providers to know and manage their patient population. This robust data enables sound business practices for providers in addition to making the best decisions for their patients.

Interface terminology is vital to healthcare today and tomorrow, as terminology is the foundation of documentation improvements that will in turn improve patient care. The role of documentation does not change from paper to electronic. The saying "if it is not documented, it was not done" still applies. But how the documentation is accomplished does change in the electronic environment, and efficiencies are gained by using an interface terminology.

Notes

1. Bowman, Sue. "Coordination of SNOMED-CT and ICD-10: Getting the Most out of Electronic Health Record Systems." *Perspectives in Health Information Management*, spring 2005 (May 25, 2005). Available at <http://perspectives.ahima.org>.
2. Kanter, Andrew S., et al. "Interface Terminologies: Bridging the Gap between Theory and Reality for Africa." *Studies in Health Technology and Informatics*, vol. 136 (2008): p. 27-32. Available online at <http://www.sim.hcuge.ch/helina/25.pdf>.
3. Ibid.

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