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SNOMED ClinicalTerms

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Clinicians and information technology experts have made steady progress towards developing fully electronic health information systems where technical standards, such as HL7 and DICOM, are essential. As Electronic Health Record (EHR) systems continue to develop and evolve, a standard clinical terminology is a necessary component to support clinical documentation, decision support and workflow.

Standardised terminology is not used uniformly in medicine. Clinicians often use different terms to mean the same thing or the same term to mean different things. Myocardial infarction may be used interchangeably with heart attack, cardiac infarction and infarction of the heart. Standardisation using concept-based clinical terminology resolves this situation by creating a common platform for clinicians to render care while allowing a basis for comparison and communication.

:::What is SNOMED CT?

SNOMED Clinical Terms (SNOMED CT) provides standard terminology for the EHR. When implemented into software applications, SNOMED CT provides clinically relevant information to populate an EHR's drop-down menus, templates, etc., that drive the user interface.

SNOMED CT offers clarity and precision in conveying what is meant. For example, in radiology, an upper GI series can be performed using a contrast medium (oral administration) or a nasogastric tube to administer the contrast medium. Using a comprehensive standard terminology to describe these procedures allows radiologists to explicitly and accurately express the care needed for both oral and intubated studies. Employing standardised terminology also helps define and thus identify patients at risk, such as those who might have allergies, and allows for the retrieval and aggregation of more complete and useful data for analysis of patients, disease states, treatments, and outcomes – something conventional paper records make difficult at best.

Consider this scenario: research indicates that women with a genetic predisposition for breast cancer benefit from additional screening with ultrasound, regardless of their breast density. Using an information system that incorporates standardised clinical terminology, a radiologist or other clinician could more readily review the medical records of patients who have a genetic predisposition for breast cancer and recommend an additional ultrasound screening. As this example attempts to illustrate, the electronic format helps to improve the quality of care by giving radiologists the capability to search for, and act upon, risk factors that could lead to a more timely and accurate diagnosis.

::: Use of SNOMED CT Within the EHR

Coordination and continuity of care typically necessitate that relevant information about a patient be integrated from several different clinicians and settings of care. The divergent health information technology employed within and across settings, however, presents an added hurdle that must be cleared before accurate and reliable electronic communication of medical information can occur.

SNOMED CT makes this possible by enabling system interoperability, that is, the ability for data to be exchanged between systems and to be interpreted automatically according to the meaning of the encoded clinical data, regardless of the technology used. Without standardisation, custom interfaces and other work-arounds become necessary. Even more of a barrier, the clinical information remains locked within textual statements that cannot be fully interpreted by computer. This makes sharing, comparing, and retrieving patient or population-based data within and among different settings and information systems difficult at best, error prone at worst.

Furthermore, an EHR with standardised terminology facilitates effective communication within and across health care settings and organisations. It enables data to be entered in a consistent and more complete manner, which, in turn, enables it to be retrieved in a consistent manner and used over and over again. For example, EHR systems are often typically designed with built-in prompts to remind users to enter required information. Moreover, these systems typically will not allow users to proceed unless the required information is provided.

An EHR also allows for more efficient and efficacious care delivery between a team of primary care providers, specialists, nurses, pharmacists and others involved in a patient's care. Having a digitised record at your fingertips helps avoid duplicate tests and procedures, saving time and healthcare expense. Other advantages include:

- More rapid information retrieval—depending, of course, on timely, complete, and accurate data entry,
- Enhanced readability,
- Reduced record keeping costs,
- Reduced or eliminated duplicate records,
- Reduced storage costs, and
- Continuity of record-keeping.

An EHR also helps create and support much-needed research databases within a healthcare enterprise. Researchers can draw upon de-identified patient data from such a database for a wide range of health care quality and safety-related efforts, including:

- Quality management, such as preventing complications through more complete and more accurate pre-procedural patient histories,
- Outcomes studies,
- Quality improvement projects,
- Benchmarking and the identification of best practices, and
- Patient safety efforts.

Eventual world-wide application of standardised EHRs would enable immediate and fast retrieval and preservation of medical files in emergency situations. Also, new threats, such as anthrax, can be communicated and contained in standardised medical records' environments. Finally, common language would enhance academic studies over large populations tremendously.

::: International Adoption of SNOMED CT

SNOMED International, a division of the College of American Pathologists (CAP), currently owns and maintains SNOMED CT. As more countries begin to establish national health information networks, they rely on SNOMED International for its terminology standards. Three countries license SNOMED nationally:

- The United States Department of Health and Human Service (DHHS) signed an agreement in July 2003,
- The United Kingdom's National Health Service (NHS) in April 1999, and
- Australia's National E-Health Transition Authority (NEHTA) in July 2006.

The most recent agreement in Australia will give the country national access to SNOMED CT and allows NEHTA to pursue its national health information management projects utilising SNOMED CT. The agreement will terminate upon the establishment of the SNOMED Standards Development Organisation (SNOMED SDO), that will then provide Australia and other countries who join the SNOMED SDO access to SNOMED CT.

In November 2005, CAP and the NHS Connecting for Health, an executive agency of the Department of Health in England, began working together to launch an international SDO to offer countries the opportunity to take a leading role in the development, ownership and maintenance of SNOMED CT. Ownership of SNOMED CT would then transfer to the SDO.

"The agreement with NEHTA and the imminent creation of the SDO are further evidence of the value of SNOMED CT as the most powerful clinical terminology for building electronic health records," said Franklin A. Elevitch, MD, FCAP, Chair of the SNOMED International Authority, the CAP committee that oversees SNOMED International and its business on behalf of the CAP Board of Governors and the UK's NHS.

::: Conclusion

Efforts to internationalise the use and implementation of SNOMED CT in the EHR along with technical standards will move us toward achieving better patient care while optimising the use of information technologies that employ internationally recognised standards such as SNOMED CT

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