

# SNOMED CT Helps Drive EHR Success

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With the advent of electronic health record (EHR) systems, IT solutions are needed to ease the recording of standard codes for clinical encounters. The basis for these products is a standard terminology, without which the full benefits of an EHR are unlikely to be realized. One expert notes that a controlled vocabulary “supports collection of structured data within the provider’s own environment and promotes standardization of terminology for external uses. Internally, the vocabulary aids data capture, enhances database management, and helps build a data warehouse for use in executive and clinical decision support.”<sup>1</sup>

Recognizing a possible delay in EHR implementation due to the lack of a standard terminology, the US Department of Health and Human Services purchased a license for the Systematized Nomenclature of Medicine, Clinical Terms (SNOMED CT) in 2003, allowing all federal and private developers of EHR systems to freely incorporate the vocabulary system. The National Committee on Vital and Health Statistics then recommended that the federal government recognize a core set of patient medical record information terminologies as a national standard, one of which was SNOMED CT.<sup>2</sup> After review, SNOMED CT was adopted as a federal Consolidated Health Informatics standard. Nonetheless, use of SNOMED CT by providers is not yet a common practice.

The healthcare IT market, however, is seeing an increase in clinical practice applications that incorporate this terminology in EHR systems, and physician practices that have embraced this application find it physician friendly and useful in everyday practice. Northwestern Memorial Physician Group (NMPG), a multisite practice of primary care physicians affiliated with Northwestern Memorial Hospital in Chicago, is one practice that has become a part of this growing trend.

## Valuable Clinical Applications

NMPG’s EHR application allows physicians to enter a diagnostic term and select the terminology system they wish to search during a patient encounter. More than one coding system can be searched at a time (e.g., physicians often search within both SNOMED CT and ICD-9-CM). After reviewing the options, the physician selects the code that represents the patient’s problem. The application prompts physicians to enter additional data, such as status information, and provides an option to add free-text annotations or comments. One click transfers the code, description, and source terminology for the diagnosis onto the patient’s problem list.

What makes this an effective physician tool is its ability to locate terms familiar to physicians. In fact, NMPG physicians have found that using the SNOMED CT nomenclature provides a treasure trove of synonyms that helps them choose their patient’s problems faster and more accurately. Additionally, by doing so, they bring their EHR directly into clinical practice.

## Linking Terminologies

Maps provide a crosswalk between systems, linking the content from one terminology or classification scheme to another. They allow data collected for one purpose to be used for another. Mapping employs a standard method in which the terminology context or classification description principles are interpreted between systems. Each map is created with a specific purpose and must be refined for particular use cases and users in diverse settings.

In general, a map from SNOMED CT to ICD-9-CM allows translation of more granular clinical data into classifications for administrative and statistical purposes. SNOMED International has developed and made available maps from SNOMED CT to ICD-9-CM. The National Library of Medicine and various EHR vendors also provide SNOMED CT to ICD-9-CM maps. However, their use is limited in scope. New maps are under development by SNOMED International. The National Library of Medicine has contracted with AHIMA to review and revise as appropriate the map between SNOMED CT and ICD-9-CM

that SNOMED International is creating to ensure that it accurately reflects the business cases identified and the meaning and use of SNOMED CT and ICD-9-CM.

Here's how this process works in practice. Once physicians at NMPG select a problem from the search results screen, a quick click brings up the cross-mapping pop-up window, showing the term, code, and mapped type (e.g., one to one) for review and validation. The physician then chooses the preferred code for the problem list.

## Looking Ahead

It may not yet be common practice for physicians to have an EHR—and those that do may not have a fully integrated reference terminology with maps from SNOMED CT to ICD-9-CM—but there is a growing awareness of the advantages of having both.

For example, the President's Information Technology Advisory Committee states, "Federal incentives are needed to enable the incorporation of SNOMED CT into EHR systems so that those systems can exchange normalized expressions of clinical concepts, implement standard computer-aided decision-support protocols to reduce medical errors, and provide more detailed information for quality-improvement programs."<sup>3</sup> The Institute of Medicine expects that a common clinical reference terminology will result in reduced cost, increased efficiency, and improved quality of data exchange, clinical research, patient safety, sharing of computer guidelines, and public health monitoring.<sup>4</sup> The [table](#) below provides some examples of what encoded data, based on a standard clinical terminology, might allow in an EHR system.

NMPG plans to incorporate the map contained in its EHR into the billing process, which it expects will reduce duplicate data entry and permit automated service capture.

In the meantime, NMPG reports positive results in daily clinical tasks including improved efficiency and productivity and more precise communication, resulting in higher quality information exchange. It expects future benefits to include using terminologies to identify people for wellness and disease management programs.

With so much buzz surrounding bringing information tools into clinical practice, NMPG physicians have discovered they are already ahead of the curve with the implementation of SNOMED CT as a core set of specialized standardized terms. They also see this terminology as having the potential to be a seamless component of a larger clinical application in their EHR. And since SNOMED CT forms the familiar language physicians were looking for, NMPG physicians are finding it helps make their hectic lives a little less so.

<b>Expanding the Reach of EHR Systems with Standardized Terminology</b>	
<b>EHR System Use</b>	<b>Based on a Standard Clinical Terminology, Encoded Data Allows...</b>
Patient care delivery	The ability to send and receive medical data in an understandable and usable manner, thereby speeding care delivery and reducing duplicate testing and prescribing
Patient care management	The development of outcomes measures and other clinically relevant observations about the patient
Patient care support processes	An organized system of data collection and retrieval resulting in the linkage of published research with clinical care, thereby improving the quality of care
Financial and other administrative processes	Access to complete information that can be used to improve financial and administrative performance
Patient self-management	Consumer access to data regarding costs and outcomes of treatment options
Education	The means to develop evidence-based guidelines and protocols
Regulation	The identification of resources that can be used to design payment systems
Research	The information needed to conduct clinical trials
Public health and homeland security	The ability to formulate statistics to track public health and risks such as disease outbreaks and bioterrorism events

Policy support	The capture of facts and figures to help set health policy
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Source: EHR system uses as defined by the Institute of Medicine in “Key Capabilities of an Electronic Health Record System.” Available online at <http://books.nap.edu/html/ehr/NI000427.pdf>.

## Notes

1. Amatayakul, Margret. *Electronic Health Records: A Practical Guide for Professionals and Organizations*. AHIMA, 2004.
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3. President’s Information Technology Advisory Committee. “Revolutionizing Health Care through Information Technology.” June 2004. Available online at [www.itrd.gov/pitac/reports/20040721\\_hit\\_report.pdf](http://www.itrd.gov/pitac/reports/20040721_hit_report.pdf).
4. Institute of Medicine. “Patient Safety: Achieving a New Standard for Care.” November 20, 2003. Available online at [www.iom.edu/report.asp?id=16663](http://www.iom.edu/report.asp?id=16663).

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