



## **Understanding EMR Issues: Codified Medical Nomenclatures**

### ***Medcin and SNOMED: What are the differences?***

The vast majority of EMRs are text-based and template-driven systems. In this regard, they function very much like word processors that have been optimized for the medical office. Like word processors, they create electronic files, and to a limited degree the files can be searched for various text elements. While there are some very good text-based systems, they all have an inherent limitation in the way their data can be aggregated, searched, and shared. Fortunately, the technology exists now to enable code-based EMRs.

“Code” refers to the numerical language that computers speak. There are two primary code sets that underlie code-based EMRs: Medcin and SNOMED. Both are superior to text-based formats because code allows for standardized nomenclatures and a much-enhanced ability to use the data you collect. Dr. David Brailer, the National Health Information Technology Coordinator, is making a concerted push toward interoperability. Interoperability refers to the ability of EMRs produced by different vendors to be able to take in and use information from each other. CTM believes that a codified data format will be that which enables interoperability. Text-based data capture will then become obsolete, and existing text based EMRs will have to be replaced.

#### **Overview of Medcin and SNOMED**

SNOMED-CT (Clinical Terms) is a reference terminology can be used to codify text data after its capture by EMR systems. It was not developed for direct use at the point of care, nor is using it for direct entry of point of care data practical. SNOMED was designed by the College of American Pathologists (CAP) for use by pathologists and epidemiologists as a classification system. While the National Committee on Vital Health and Statistics (NCVHS) has recommended the use of SNOMED as a reference terminology, it has also recommended the use of a ‘point-of-care terminology’ to collect clinical data that could be mapped to SNOMED.

MEDCIN is a point of care terminology and one of the terminologies determined by the NCVHS committee to have met their technical criteria for selection as a core Patient Medical Record Index (PMRI) terminology standard. MEDCIN was developed and compiled over 25 years in collaboration with physicians and teaching institutions such as Cornell, Harvard, and Johns Hopkins. It has since been adopted and fully embedded by the new electronic healthcare record system of the Department of Defense that is now being aggressively deployed in all their point of care locations. Considering the DOD’s EMR alone, Medcin has been field tested in over 1.3 million clinical encounters, testifying to the robustness of the nomenclature.



Each of Medcin's 270,000 terms is a clinically meaningful data concept, all of which are linked to a diagnosis index containing more than 72 million clinically relevant associations. Thus MEDCIN carries an extensive set of tools for dynamic clinical decision support. MedcomSoft, one of the first licensees in 1998, has taken a lead in the development of this new generation of an EMR system that is fully built around the Medcin terminology.

Finally, Medcin terms are fully mapped to the SNOMED terminology database allowing, for interoperability between the two languages. SNOMED, however, cannot map its clinical database to Medcin.

### **Functional differences**

Medcin provides several functionalities that SNOMED cannot. For example, Medcin has a single axis terminology hierarchy; SNOMED is multi-axial. This means users can easily navigate to a Medcin term by going "down the tree" of clinical propositions. Without building one's own associations among the terms, navigation in SNOMED is very difficult.

Additionally, SNOMED has difficulty determining the meaning of a concept, due to the various ways a term can be constructed. Each Medcin proposition is clinically explicit because it was built to help describe a diagnosis as part of the Medcin diagnostic index.

Because SNOMED builds clinical propositions out of smaller units, it cannot map directly to other terminologies, such as CPT, nor can it generate E&M codes or demographic billing items, such as addresses. Medcin, on the other hand, is compiled of clinical propositions that map very clearly to both CPT and E&M code bullets, such as those in the CMS guidelines. Also, unlike SNOMED, each Medcin term has a positive and negative text presentation.

Last, Medcin can build sentence and phrasing for text generation from structured data entry. SNOMED cannot, unless a form explicitly defines the narrative—though SNOMED lacks a narrative engine as in Medcin.

### **Conclusion**

As a point of care terminology, Medcin has no equal. The Medcin nomenclature represents the first time qualitative elements of the patient encounter have been codified. Further, Medcin is structured to present information the same way clinicians are accustomed to gathering it from the patient. Medcin was designed by clinicians in order to help other clinicians chart more quickly, more precisely, and ultimately, more interoperably.



## About Clinical Transformation Management, LLC

CTM is a consultancy that specializes in helping physician offices negotiate the transition from a paper-based to a digital practice environment. Our expertise in both technology and in the documentation, workflow, and reimbursement needs of practices help ensure a smooth implementation and magnify the benefits of implementing an EMR.

