



SNOMED CT | ICD-9

# CIHI SNOMED CT to ICD-9 Pan-Canadian Health Concern Value Set Implementation Guide

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- West Coast Informatics

## 1 Introduction

SNOMED CT (Systematized Nomenclature of Medicine — Clinical Terms) is a widely used health care terminology designed to be used within an electronic health record (EHR) or electronic medical record (EMR) system to capture diagnostic, procedural and related information. SNOMED CT's standardized vocabulary supports direct care and management of the patient and can enable the sharing of patient information within and across all health care settings.

The Canadian Institute for Health Information (CIHI) provides comparable and actionable data and information to support health system decision-making. CIHI does not collect primary care health-concern data on a pan-Canadian scale, thereby creating an information gap. As EMRs evolve to use SNOMED CT to collect structured health-concern data in primary care, there is an opportunity to “bridge the data gap” through reuse of the data collected by mapping clinical terms to a classification. Once these have been mapped, the data is available to meet the data needs for reporting on primary care health concerns and for development of health indicators.

To support the integration and flow of this information, CIHI has developed the Pan-Canadian Health Concern Value Set (PHCVS). The SNOMED CT concepts within this value set have been mapped to the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada* (ICD-10-CA), ICD-9 and the Canadian Emergency Department Diagnosis Shortlist (CED-DxS). The maps have been produced as a value set to be used for the collection of primary care health-concern data in Canada.

This implementation guide is intended to inform vendors and interested parties about the availability of the PHCVS to describe use cases and to provide guidance on key considerations for implementation in an EMR system.

To use the CIHI value set, SNOMED CT must already be implemented in the EMR system. It is recommended that readers of this guide first familiarize themselves with SNOMED CT guides to understand what is important from a user perspective. Information about SNOMED CT and its implementation can be found at [SNOMED.org](http://SNOMED.org).

## 2 SNOMED CT Canadian Edition

Canada Health Infoway maintains and makes available a Canadian (CA) edition of SNOMED CT, which is published quarterly, in February, May, August and November each year. SNOMED CT CA is a comprehensive clinical reference terminology that includes English and French descriptions, the most recent SNOMED CT International Edition and Canadian-specific content developed with stakeholders to support digital health implementations across the country. This includes communicable disease tracking, sharing of diagnostic imaging content, immunization recording, public health surveillance and primary care content standards. It is highly recommended to use SNOMED CT CA when utilizing the CIHI value set.

For more information, email [standards@infoway-inforoute.ca](mailto:standards@infoway-inforoute.ca).

## 3 About ICD

CIHI is an independent, not-for-profit organization that provides essential information on Canada's health systems and the health of Canadians. The *International Classification of Diseases* (ICD) is the base classification system developed and published by the World Health Organization (WHO) and is used for statistical reporting of diseases and health conditions. ICD-10 is the 10th revision of the classification, and ICD-9 was the previous version. ICD-9 is currently used in most provinces and territories for physician billing purposes.

ICD-10-CA is the enhanced Canadian version of ICD-10. It is the national standard for morbidity data reporting in Canada and is released on a 3-year cycle.

For more information, email [classifications@cihi.ca](mailto:classifications@cihi.ca).

## 4 About CED-DxS

The Canadian Emergency Department Diagnosis Shortlist (CED-DxS) is an excerpt from ICD-10-CA. This list includes terms and corresponding codes for conditions that are frequently seen in an emergency department (ED). CED-DxS is updated and released on a 3-year cycle.

For more information, email [nacrspicklists@cihi.ca](mailto:nacrspicklists@cihi.ca).

## 5 About the maps

The PHCVS is a subset of concepts from SNOMED CT CA and supports a structured, standardized pan-Canadian approach to the collection of primary health care data.

CIHI collaborated with provinces and territories in Canada to leverage existing value sets in use for primary care to create the PHCVS. Following a review of the existing provincial value sets, a gap analysis was performed using other primary care data to ensure broad coverage of health concern data.

The concepts within this value set are from the following SNOMED CT domains:

- Clinical findings (disorders and findings) SCTID404684003 and descendants; and
- Events SCTID 272379006 and descendants.

Each concept is mapped to codes within ICD-10-CA, ICD-9 and CED-DxS.

When implemented in point-of-care systems, the standardized value set and the maps to ICD-10-CA, ICD-9 and CED-DxS will enable the generation of comparable primary health care EMR data and support performance measurement for clinical and health system use.

The maps support direct submission of data to CIHI using ICD-10-CA and meet physician billing requirements with maps to ICD-9. The maps also support data collection for facilities that wish to use the maps in an ED setting.

The maps can yield a one-to-one lexical match of a single SNOMED CT CA concept to a single target code. In some cases, a single SNOMED CT CA concept is mapped to 2 or more target codes (a one-to-many map). When there is an alternative target code that is context dependent (i.e., gender or age), a default map is provided based on physician input.

The maps between SNOMED CT CA and the classifications/shortlist are not a completely automated data source and do not account for all ICD-10-CA codes.

## Why map to ICD-10-CA?

Mapping to ICD-10-CA supports direct submission of data to CIHI in an acceptable, standardized format that is conducive to aggregated reporting and analysis. This addresses the primary care health-concern data gap. Mapping to ICD-10-CA also allows for consistency and alignment with the same concepts used in mapping for acute and ambulatory care.

## Why map to ICD-9?

Mapping to ICD-9 supports the majority of provinces and territories that use ICD-9 to collect and report primary care data for physician billing. The maps support the billing data because the billing code is automated at the point of care.

## Why map to CED-DxS?

Mapping to CED-DxS supports the reuse of SNOMED CT captured at the point of care to automate the capture of data of ED diagnoses for facilities that use CED-DxS to report National Ambulatory Care Reporting System level 2 data.

## Release and maintenance schedule

The value set will be updated twice annually, on January 31 and July 31, as a derivative of the SNOMED CT International and SNOMED CT CA release schedule. ICD-10-CA and CED-DxS will be updated according to CIHI's revision cycle.

Note: WHO and CIHI no longer support updates to ICD-9. Within Canada, physicians use this classification based on provincial/territorial billing codes. Each province/territory has its own set of billing codes.

## The mapping process

CIHI mapping specialists reviewed and validated each map to ensure the accurate assignment of target codes in accordance with each classification/shortlist (ICD-10-CA, ICD-9 and CED-DxS). The maps act as a link between the SNOMED CT CA concept and the most accurate target codes.

## 6 Benefits to vendors and their clients

SNOMED CT supports the consistent representation of comprehensive, high-quality clinical content in EMRs. The value of SNOMED CT is strengthened by its solid clinical validation and a design that facilitates evolutionary growth to meet emerging requirements, such as data analytics. The use of an EMR improves communication and increases the availability of relevant information. If clinical information is stored in ways that allow for meaning-based retrieval, the benefits are greatly increased. Added benefits range from increased opportunities for real-time decision support and more accurate retrospective reporting for research and management, to enhanced data quality and consistency at the point of data collection.

There are many benefits to incorporating the PHCVS in an EMR system, including the following:

- Standardizing data that can be shared across health care systems;
- Identifying local and national needs for access to services and health care;
- Improving research and treatment plan development;
- Identifying areas of disease outbreak for population health monitoring; and
- Providing a clear picture of chronic disease across Canada.

Using the maps allows for the reuse of data captured at the point of care by a clinician — such as for direct submission to CIHI, physician billing and CED-DxS data entry.

This reuse of data will

- Enable real-time data analysis for statistical purposes;
- Support physician billing within Canada; and
- Bridge the gap in national primary care data by enabling submission of primary care data directly to CIHI, thereby providing data on a pan-Canadian scale.

## 7 Practical use cases

These maps can be employed in an EMR solution when clinicians are using SNOMED CT to record diagnoses and develop problem lists for patient care. Once the maps are implemented in the EMR system, the intent is for clinicians to accept the appropriate concept from the available list of terms. These selected concepts are then “translated” (i.e., mapped) to appropriate target codes for submission to CIHI to support pan-Canadian primary care data (an ICD-10-CA code), ED data submissions using CED-DxS and physician billing in Canada (ICD-9 code).



## 8 Map implementation expectations

The intent is for clinicians to select the SNOMED CT term from the value set at the point of care. Vendors must ensure that the background codes are available to submit for physician billing, and that they support CED-DxS and ICD-10-CA submissions to CIHI related to primary health care data collection.

The vendor employs the map in the EHR and, following the sequential computable mapping rules, uses available administrative data to help identify an accurate code. Mapping rules are identified within the maps and provide an opportunity to employ an algorithm to use administrative data (e.g., patient's age and/or gender) or clinician input to support automated code selection.

## 9 Licensing

The use of CIHI value set maps requires licensing agreements for both ICD-10-CA (from CIHI) and SNOMED CT (from Canada Health Infoway).

ICD-10-CA is available at no charge to Core Plan subscribers or for purchase by non-Core Plan clients. To request a licence for ICD-10-CA, email [help@cihi.ca](mailto:help@cihi.ca).

For questions related to the use of the ICD-10-CA classification or about its application, visit CIHI's [Codes and Classifications web page](#).

To access the SNOMED CT Canadian Edition (SNOMED CT CA), an implementer must [create a Canada Health Infoway account](#) and confirm acceptance, annually, of the Terms of Use and Licence Agreements. Once a licence agreement is in place, release package files are made available for download by Canada Health Infoway to Canadian organizations at no cost via the Terminology Gateway.

# 10 Release files (RF2 files)

The [SNOMED International Confluence web page](#) describes the data contained in the map files and provides examples of data in a table format (see Table 5.2.10-5).

The following descriptions are associated with a map file:

- **Map member:** A single Refset MAP data record, which assembles knowledge-based data required to validate the link between a single SNOMED CT concept and, at most, 1 code. The Map member includes a link to the source SNOMED CT concept identifier, a mapGroup integer, a mapPriority integer, a mapCategoryId status concept reference, a mapRule and a link to, at most, 1 mapTarget code.
- **mapGroup:** An integer assigned to each set of Map members, which are coordinated to specify 1 target code for the map, or the null map if the source concept does not require an additional code for proper classification. Each mapGroup collates and orders the rules, which are sequentially evaluated to yield at most a single target code. The first mapGroup designates the set of records used to specify the first (primary) target code. This mapGroup is a valid ICD-10-CA code. The second mapGroup identifies the set of data records for the second target code. This second mapGroup is a valid ICD-9 code. A third mapGroup identifies the set of records for the third target code. This third mapGroup is a valid ICD-10-CA code from the CED-DxS. These are repeated as required to specify a complete set of mapping target codes.
- **mapPriority:** An integer that designates the sequence of run-time Map member processing within each mapGroup. Each data record may include a rule that is designed to be processed to provide knowledge-based mapping. Only the first Map member meeting the run-time criteria is taken for the target code within the mapGroup data records.
- **mapCategoryId:** A SNOMED CT foundation metadata concept identifier that indicates the process state for run-time use, including the editorial status of the Map member:
  - The map source concept is properly classified (447637006 |Map source concept is properly classified|) within the target classification/shortlist for this Map member, so no additional data is necessary for selection of this target code of the map (Exemplar: One to one: #1-10).



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