



Introduction

The Canadian Institute for Health Information (CIHI) is developing a pan-Canadian value set using SNOMED CT that will support primary care data collection needs in Canada. CIHI does not collect primary care data on a pan-Canadian scale, creating an information gap. As electronic medical records (EMRs) evolve to use SNOMED CT to capture structured health concern data in primary care, there is an opportunity to bridge the data gap by mapping clinical terms to the ICD-10-CA and ICD-9 classifications. These maps will support national reporting needs for primary care and will also meet physician billing needs in Canada.



Background

CIHI has developed the Pan-Canadian Primary Health Care EMR Minimum Data Set (MDS). This data set defines a focused set of EMR data elements to be collected at the point of care, one of which is Health Concern. A subset of SNOMED CT terms (value set) of the most common primary care health concerns will meet the need for the MDS to have a standardized list of permissible values to capture data on health concerns. Using a standardized subset allows for consistent data capture, and provides the ability to share comparable data across primary health care systems and to submit it to CIHI.

Currently in most Canadian provinces, primary care data is commonly captured as free text (hand-written, unstructured), which is difficult to access and analyze. Structured and standardized data would support secondary use of primary health care information when mapped to the ICD-10-CA classification that is readily acceptable for submission to CIHI.

There is also a need to support physician billing. In most Canadian provinces, primary care physicians use ICD-9 codes for reimbursement for fee-for-service payment by provincial and territorial governments. In order to support physician use of SNOMED CT for point-of-care data capture, the terms must also be mapped to the ICD-9 classification. ICD-9 data captured in billing practices is not optimal for analysis and does not provide the same level of granularity when compared with ICD-10-CA.





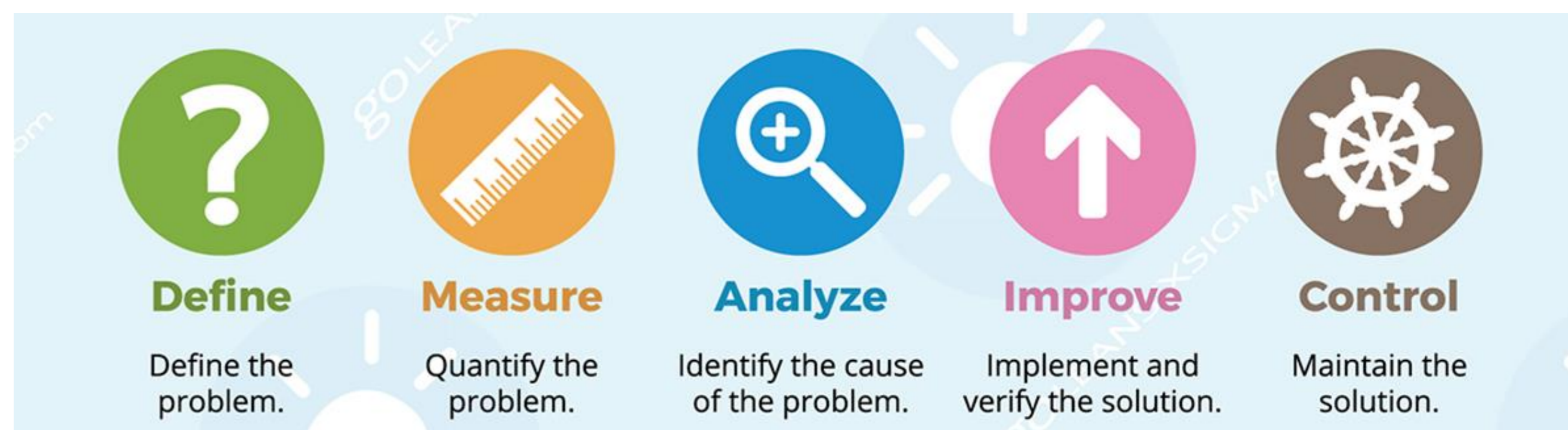
Approach

Introducing a standardized clinical terminology, such as SNOMED CT, in an EMR provides a way to collect structured data. From a database architecture perspective, CIHI is not able to accept SNOMED CT concepts; however, CIHI can accept administrative ICD-10-CA codes through submissions from health care facilities, thus creating the need for maps. The SNOMED CT terms can be mapped to the ICD-10-CA classification for aggregated submission to CIHI to meet national reporting needs and to develop health indicators. The same SNOMED CT terms can also be mapped to ICD-9 to meet pan-Canadian physician billing needs.



Developing a pan-Canadian primary care health concern value set requires research and clinical input to determine the most common clinical terms/terminology used in primary care settings. With physician input and guidance, 2 provinces in Canada have developed their own primary care value sets for use in EMR systems. These value sets are based on SNOMED CT terms mapped to ICD-10-CA and/or ICD-9. CIHI has worked closely with these jurisdictions to leverage existing value sets with the goal of developing a more comprehensive list to meet pan-Canadian needs.

CIHI also analyzed primary care physician billing data and other provincial primary care data to identify the most common primary care health concerns that were not included in the provincial subsets. Adding the most common terms from across multiple provinces, in addition to existing value set terms, will ensure broad coverage of health concern data collection across the country.





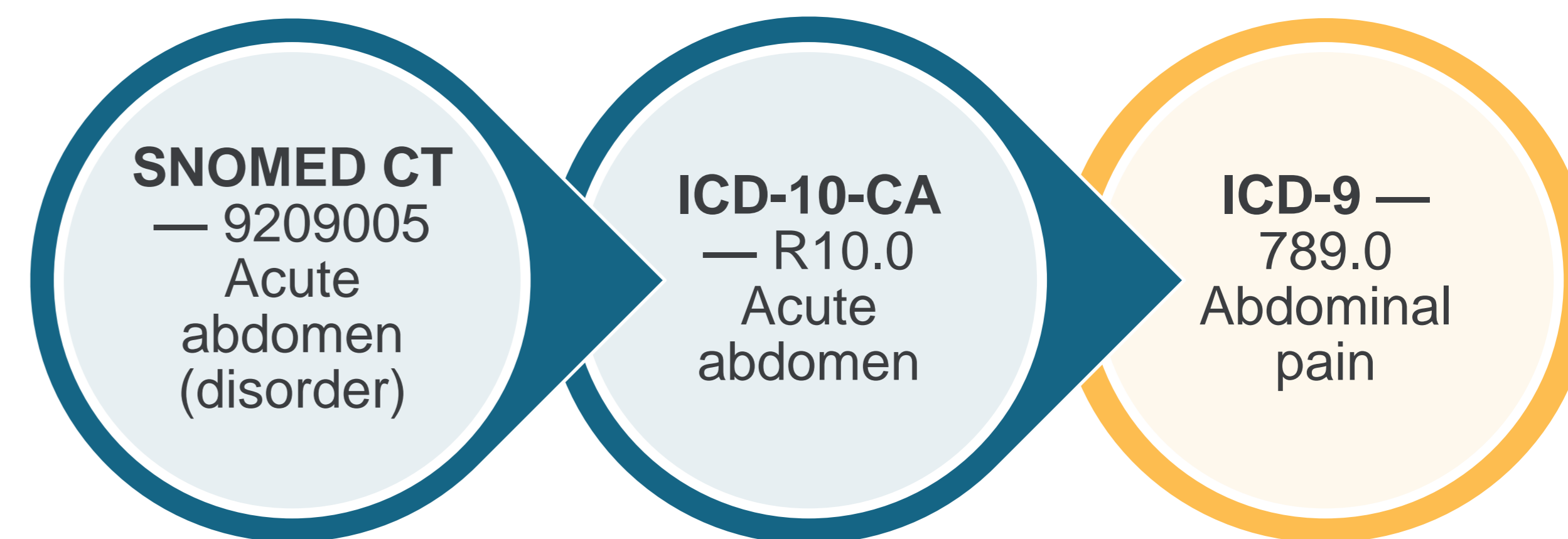
Methods

Developing a value set can be resource intensive. CIHI has procured a mapping tool that provides workflow assistance with creating and validating mappings from SNOMED CT to ICD-10-CA and to ICD-9.

Using a mapping tool

- Promotes quality assurance by enabling dual peer review of maps
- Assists in resolving disagreements between mappers by assigning conflicting maps to lead mappers to ensure quality and consistency
- Generates outputs in formats conducive to vendor implementation in EMR systems
- Allows additional SNOMED CT concepts (terms) to be added, mapped and validated to meet the needs for a pan-Canadian value set
- Allows automated updating of target codes with the most current SNOMED CT release and changes in the ICD-10-CA classification (ICD-9 codes will remain stable since the classification is no longer updated)

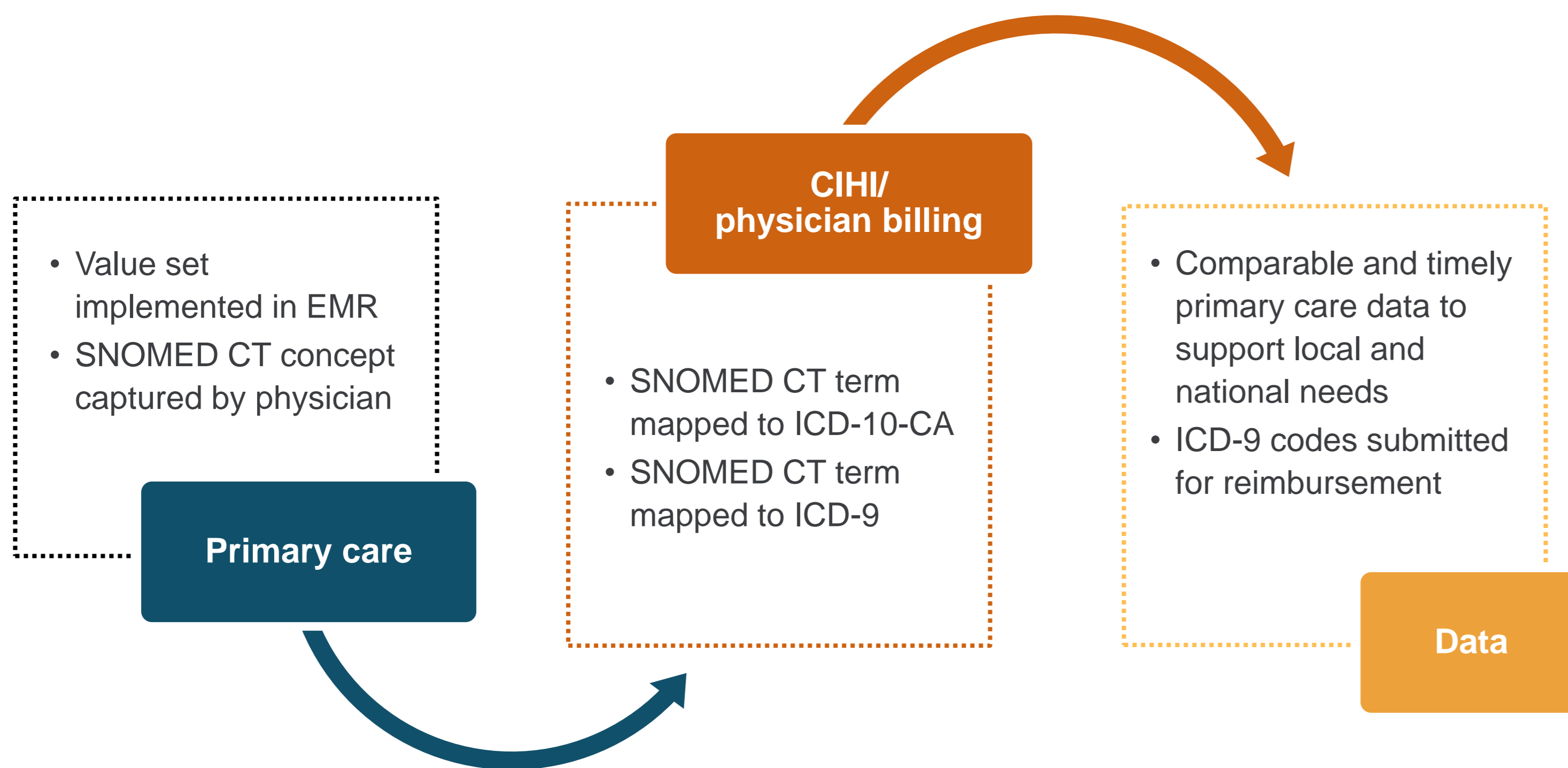
Each SNOMED CT clinical term is mapped in the mapping tool to an ICD-10-CA target code and to an ICD-9 target code, resulting in a 1:1 mapping for each classification. Each SNOMED CT concept is dual mapped; if the 2 mappers do not agree, the map is automatically sent to a lead mapper for resolution. The maps will undergo additional quality assurance reviews prior to their release to ensure quality and consistency across the maps.





Results

Mapping SNOMED CT to ICD-9 to support Canadian physician billing needs and to ICD-10-CA to support administrative data needs presents the opportunity to close the primary care data gap. When implemented in point-of-care systems, the standardized value set will enable the generation of comparable primary health care EMR data and will support performance measurement for clinical and health system use — including clinical and health system program management, research and population health monitoring.



Conclusions

Primary health care services are typically the first point of contact for many patients across Canada. Currently, the data that is captured is often ambiguous and difficult to access, analyze and process, making comparability and sharing across health care systems challenging. Using an EMR, digital data can be standardized, which provides an opportunity to collect, analyze, compare and share data. SNOMED CT is evolving as the clinical terminology of choice in many EMRs and mapping to a classification allows the data to be available for submission to CIHI and aggregated for reporting.

Future directions

Primary care data that is comparable and timely can provide information to support local and national needs for access to services and health care. The data can be used in many ways, including research to improve health and treatment plans, identify areas of disease outbreak and provide a clear picture of chronic disease prevalence across health care systems. A pan-Canadian primary care health concern value set that can be enhanced to continuously meet current primary care data collection needs will provide a standardized way to collect meaningful primary care data.

CIHI wishes to acknowledge and thank the British Columbia Ministry of Health and the British Columbia Health Information Standards Standing Committee for their contributions to the pan-Canadian primary care health concern value set. We also gratefully acknowledge the contributions of West Coast Informatics to this project.

