Information Sheet

Canadian Stability Analysis: Assessment of Canadian-Specific Codes in ICD-10-CA (Version 2018) — Evaluating Equivalency With and Without Postcoordination

Introduction

The *International Statistical Classification of Diseases and Related Health Problems* (ICD) serves as a foundational tool for tracking global health trends. It includes thousands of unique codes for diseases, injuries and causes of death, allowing for detailed data capture from health encounters. This information is valuable for research, policy development and decision-making. While some World Health Organization (WHO) member states use ICD-10, others have developed their own clinical modifications. In Canada, the national standard for reporting morbidity statistics is ICD-10-CA.

Throughout the development of ICD-11, the Canadian Institute for Health Information (CIHI) has been assessing the specificity of the new classification and providing recommendations for content enhancement by comparing it with ICD-10-CA. With the international release of ICD-11 in 2022, CIHI developed a crosswalk between version 2018 ICD-10-CA and ICD-11 to support the transition to and implementation of ICD-11 in Canada. Specifically, CIHI assessed the 3,848 Canadian-specific codes (concepts) in ICD-10-CA to determine whether they are available at the same level of specificity in ICD-11. This information sheet delves into the Canadian-specific codes and examines whether equivalency can be achieved with or without the use of postcoordination. Postcoordination offers a flexible solution for capturing additional details, and in certain cases it will be necessary to achieve equivalency, particularly for maintaining Canadian-specific health care information.

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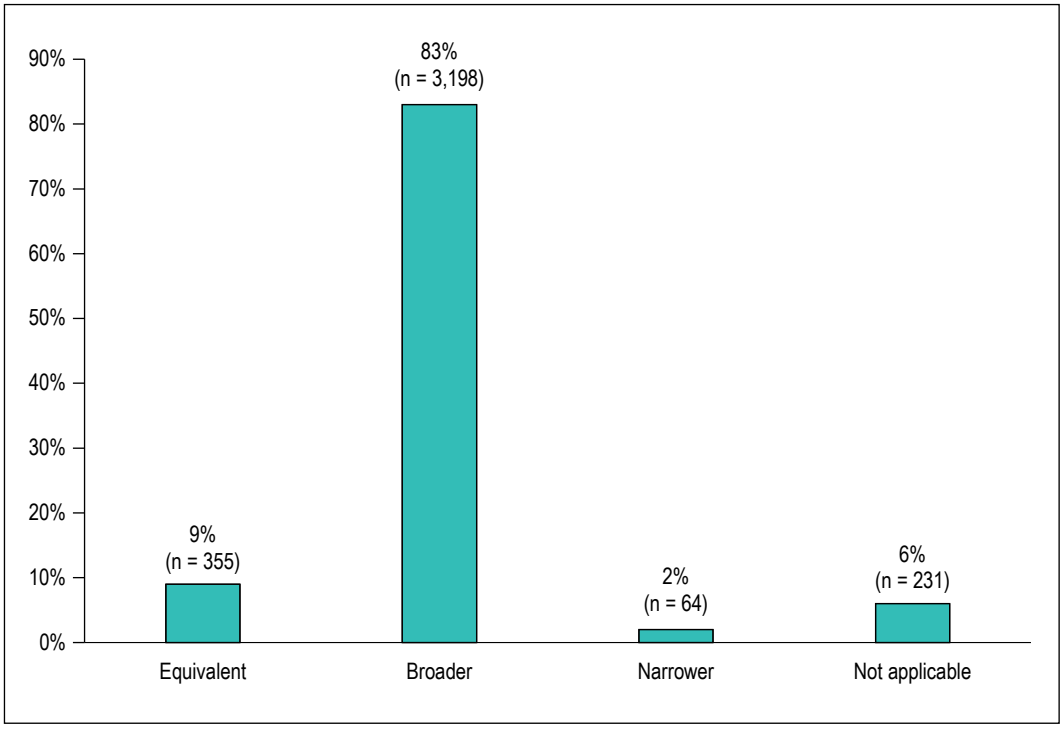
Results

When the 3,848 Canadian-specific ICD-10-CA codes were mapped to 1 ICD-11 target stem code,

- 9% (n = 355) of the ICD-11 target stem codes were deemed **equivalent** (same meaning and same specificity as the Canadian-specific code);
- 83% (n = 3,198) of the ICD-11 target stem codes were deemed **broader** (less specificity than the Canadian-specific code, entailing a loss of detail);
- 2% (n = 64) of the ICD-11 target stem codes were deemed **narrower** (greater specificity than the Canadian-specific code); and
- 6% (n = 231) of the codes could not be mapped to an ICD-11 target stem code.

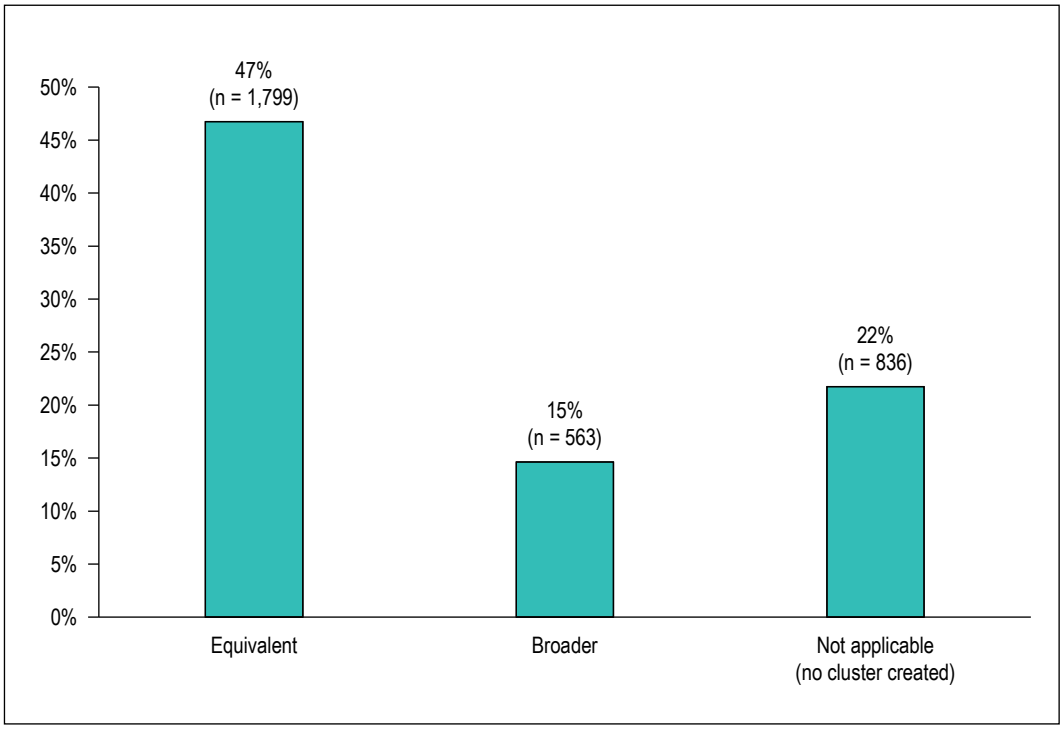
Figure 1 Relation of ICD-11 target stem code and Canadian-specific codes



Further assessment of the 3,198 codes (83%) that mapped to a broader ICD-11 target stem code revealed the following relations between the Canadian-specific codes and the ICD-11 clusters (created with the use of postcoordination):

- 47% (n = 1,799) of the ICD-11 clusters were deemed **equivalent**;
- 15% (n = 563) of the ICD-11 clusters remained **broader**; and
- 22% (n = 836) of codes could not be clustered (**not applicable**).

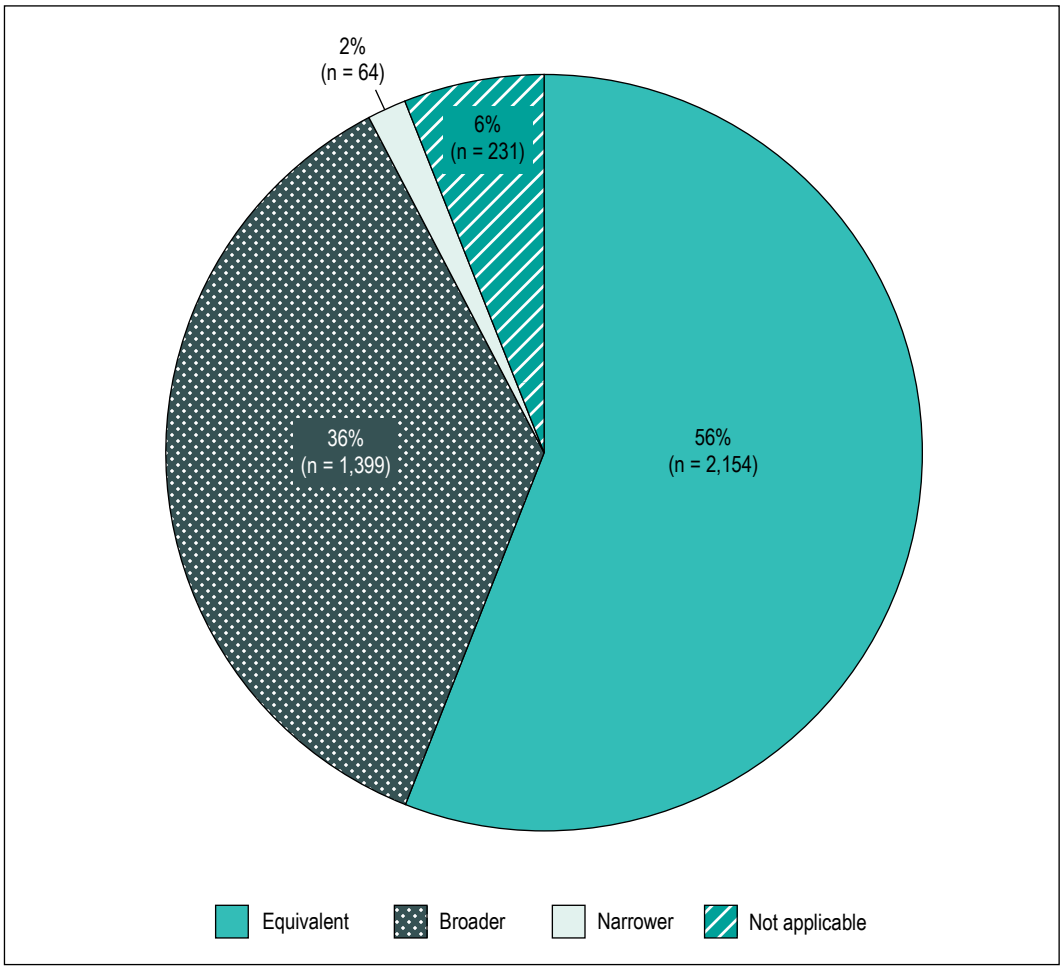
Figure 2 Relation of ICD-11 cluster and Canadian-specific codes



When considering all 3,848 Canadian-specific codes assessed, the combined relation type values of the mapped ICD-11 target stem code and ICD-11 cluster were as follows:

- 56% (n = 2,154) were **equivalent**;
- 36% (n = 1,399) were **broader**;
- 2% (n = 64) were **narrower**; and
- 6% (n = 231) could not be mapped to an ICD-11 target stem code (**not applicable**).

Figure 3 Overall: Relation of mapped ICD-11 target stem code and ICD-11 cluster compared with Canadian-specific codes



Findings

With postcoordination, equivalency can be achieved for 56% of the version 2018 Canadian-specific codes, 47 percentage points higher than without postcoordination (9%).

Limitations

These findings represent preliminary results. Further analysis, including validation, will be required as new ICD-11 updates become available. During the project, there were challenges with the assignment of relation types (equivalent, broader, narrower) and postcoordination.

Approach

A total of 3,848 Canadian-specific codes were assessed to determine whether equivalency could be achieved with 1 or multiple ICD-11 codes (clusters). Using the ICD-11 Coding Tool and Browser, classification specialists mapped the Canadian-specific codes to 1 ICD-11 target stem code and assessed the level of specificity (mapping relation) between the 1 ICD-10-CA code and the 1 ICD-11 target stem code, assigning relation types as follows:

- Equivalent: ICD-11 target stem code has same meaning and same specificity as Canadian-specific code.
- Broader: ICD-11 target stem code is less specific than Canadian-specific code.
- Narrower: ICD-11 target stem code is more specific than Canadian-specific code.
- Not applicable: No match in ICD-11 (at the single stem code level).

For cases where the one ICD-11 target stem code was broader (less specific) than the one Canadian-specific code, we assessed whether postcoordination (combining multiple codes into a cluster) could produce equivalency. Each map was assigned one of the following relation types:

- Equivalent: ICD-11 cluster and Canadian-specific code have the same meaning and are equivalent in specificity.
- Broader: ICD-11 cluster is less specific than Canadian-specific code.
- Not applicable: No additional codes could be found for specificity, and/or postcoordination was not appropriate.

Reliability was assessed through dual mapping and validation.

Table 1 Example relation types between ICD-11 target stem codes and Canadian-specific codes

Relation type	Canadian-specific ICD-10-CA code	Canadian-specific ICD-10-CA code title	ICD-11 code	ICD-11 code description
Equivalent	C46.71	Kaposi's sarcoma of lung	2B57.0	Kaposi sarcoma of lung
Broader	G40.60	Grand mal seizures, unspecified (with or without petit mal), not stated as intractable	8A68.4	Generalised tonic-clonic seizure
Narrower	K56.2	Volvulus	DB30.1	Volvulus of large intestine
Not applicable	B97.80	Parainfluenza virus as the cause of diseases classified to other chapters	No applicable ICD-11 stem code	The concept is an extension code in ICD-11

Table 2 Example relation types between ICD-11 clusters and Canadian-specific codes

Relation type	Canadian-specific ICD-10-CA code and title	ICD-11 target code and title	ICD-11 postcoordination cluster	Rationale
Equivalent	C50.20 Malignant neoplasm of upper-inner quadrant of right breast	2C6Z Malignant neoplasms of breast, unspecified	2C6Z&XK9K&XA3LS6 2C6Z Malignant neoplasms of breast, unspecified XK9K Right XA3LS6 Upper inner quadrant of breast	ICD-11 cluster contains the same specificity as the Canadian-specific ICD-10-CA code
Broader	E11.50 Type 2 diabetes mellitus with peripheral angiopathy	5A11 Type 2 diabetes mellitus	5A11/BD53.Y 5A11 Type 2 diabetes mellitus BD53.Y Other specified secondary disorders of arteries and arterioles	ICD-11 cluster remains less specific than the Canadian-specific ICD-10-CA code. (i.e., ICD-11 does not have a specific code for peripheral angiopathy)
Not applicable	K80.00 Calculus of gallbladder with acute cholecystitis without mention of obstruction	DC11.0 Calculus of gallbladder or cystic duct with acute cholecystitis	Not applicable	No applicable additional codes capture same level of specificity (i.e., without mention of obstruction)

Conclusions

With the use of postcoordination, equivalency is achievable for 56% of the codes assessed, 47 percentage points higher than before postcoordination was applied (9%). While postcoordination maintains granularity, adopting it requires training and updates to software systems to support the representation of postcoordinated concepts. Additionally, it involves determining and mandating certain extension codes. Further analysis will be necessary to answer the following questions:

- Is a Canadian ICD-11 linearization (version) required to support case mix, national health indicator reporting and mandatory collection of certain extension codes?
- How many of the Canadian-specific concepts are foundation entities but not ICD-11 stem codes? Which of these are required as a statistical stem code in ICD-11? How many Canadian-specific concepts are not foundation entities? Which of these are required to be added to the ICD-11 Foundation to support reporting on Canadian data?

These findings aim to support decision-making for transitioning from ICD-10-CA to ICD-11 while maintaining statistical continuity.

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