

Canadian Stability Analysis: Comparing v2018 ICD-10-CA With ICD-11



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Abstract

CIHI is assessing the clinical, business and statistical implications of implementing ICD-11 for health system use in Canada. The work focuses on fitness for use and the statistical continuity of transitioning from ICD-10-CA to ICD-11.

Introduction

The *International Statistical Classification of Diseases and Related Health Problems* (ICD) is the foundation for identifying health trends and statistics worldwide. It contains thousands of unique codes for diseases, injuries and causes of death. ICD enables the capture of information from health encounters that can be used in research and policy- and decision-making.

Some World Health Organization (WHO) member states are currently using ICD-10 while others have created their own clinical modifications. The national standard used in Canada for reporting morbidity statistics is ICD-10-CA. The Canadian Institute for Health Information (CIHI) developed ICD-10-CA in collaboration with an expert panel of physicians and external field reviewers to satisfy Canada’s data needs.

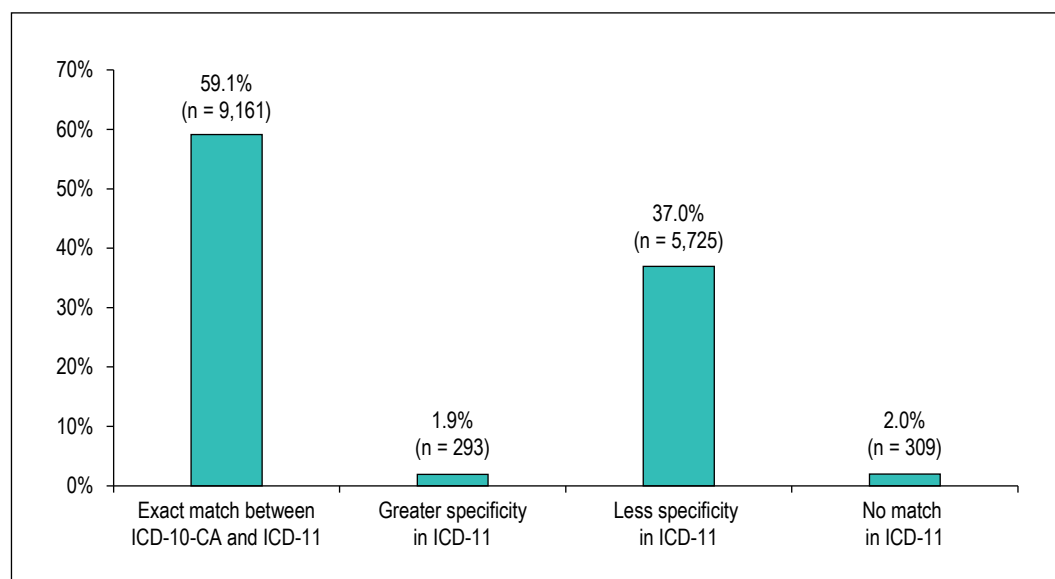
Throughout the development of ICD-11, CIHI has been assessing the specificity of the new classification and providing recommendations for content enhancement through comparison of the content of ICD-10-CA and ICD-11. With the international release of ICD-11 in 2022, CIHI developed a crosswalk between ICD-10-CA and ICD-11 to support the transition to and implementation of ICD-11 in Canada.

Results

Of the 15,488 codes assessed, 32.6% (n = 5,050) were found to have the same level of specificity between ICD-10-CA and ICD-11; 1.9% (n = 293) had greater specificity in ICD-11; 63.5% (n = 9,836) had less specificity (entailing a loss of detail); and 2.0% (n = 309) of the codes did not have an equivalent ICD-11 stem code. When post-coordination was applied to the 9,836 codes with less specificity, the ability to achieve the equivalent specificity using an ICD-11 cluster was 42% (n = 4,111), while 24% (n = 2,387) remained less specific. No additional specificity could be captured for 34% (n = 3,338).

In total, 59.1 % (n = 9,161) of 15,488 ICD-10-CA codes were found to be an exact or conceptual match when mapped to a single or combination of ICD-11 codes, while 37% (n = 5,725) cannot be fully represented, entailing a loss of detail.

Figure Comparison of 1 ICD-10-CA code with ICD-11 codes (single target or multiple ICD-11 codes), by outcome type



Outcome type	Percentage	Number of ICD-10-CA codes
Exact match between ICD-10-CA and ICD-11	59.1%	9,161
Greater specificity in ICD-11	1.9%	293
Less specificity in ICD-11	37.0%	5,725
No match in ICD-11	2.0%	309

Limitations

These findings represent preliminary results; further analysis and validation are required, as new ICD-11 updates have been released in 2022. During the project, there were challenges with the assignment of outcome type and post-coordination; in some cases, mapping rules were implemented to ensure consistency in map assignment.

Approach

All ICD-10-CA codes, including Canadian code enhancements — totalling 3,903 codes — were assessed to determine whether equivalent specificity could be attained with 1 or multiple ICD-11 codes. Using the ICD-11 Coding Tool and browser, classification specialists mapped ICD-10-CA to ICD-11 to assess the level of specificity between 1 ICD-10-CA code and 1 ICD-11 code, assigning outcome types as follows:

- **Conceptual match:** An exact match at ICD-11 stem code level (equivalent)
- **Less specificity:** An ICD-11 code that is less specific than an ICD-10-CA code at the stem code level
- **Greater specificity:** An ICD-11 code that is more specific than an ICD-10-CA code at the stem code level
- **No match:** No match in ICD-11 (at the single stem code level)

For cases where 1 ICD-11 code had less specificity than 1 ICD-10-CA code, there was an assessment of whether post-coordination (combining multiple codes) could produce equivalent specificity. Each map was assigned one of the following outcomes:

- **Exact specificity match:** An exact match to ICD-10-CA after post-coordination
- **Partial specificity match:** Less specific than ICD-10-CA after post-coordination
- **Not applicable:** No additional codes could be found, or post-coordination was not appropriate

Reliability was assessed through dual mapping and validation. The maps from ICD-10-CA to target ICD-11 codes were compared with the outputs of WHO's ICD-10/ICD-11 mapping tables.

Table 1 Examples of relationship of ICD-10-CA to ICD-11 codes (single target stem code)

Outcome type	ICD-10-CA code	ICD-10-CA code title	ICD-11 code	ICD-11 code description
Exact specificity match	A05.2	Foodborne Clostridium perfringens intoxication	1A12	Foodborne Clostridium perfringens intoxication
Less specificity	C43.5	Malignant melanoma of trunk	2C30.Z	Melanoma of skin, unspecified
Greater specificity	K56.2	Volvulus	DB30.1	Volvulus of large intestine
No match	B95.20	Streptococcus, group D, as the cause of diseases classified elsewhere	No applicable ICD-11 stem code	The concept is an extension code in ICD-11.

Table 2 Examples of relationship of ICD-10-CA to ICD-11 codes (single code or combination of codes)

Outcome type	ICD-10-CA code	ICD-11 target stem code and title	ICD-11 post-coordination (target stem and additional stem codes and/or extension codes)	Rationale for outcome type after post-coordination assignment
Exact specificity match after post-coordination	C43.5 Malignant melanoma of trunk	2C30.Z Melanoma of skin, unspecified	2C30.Z&XA3FR3 2C30.Z Melanoma of skin, unspecified XA3FR3 Trunk	ICD-11 cluster contains same specificity as ICD-10-CA code
Partial specificity match after post-coordination	C50.80 Overlapping malignant lesion of right breast	2C6Z Malignant neoplasms of breast, unspecified	2C6Z&XK9K 2C6Z Malignant neoplasms of breast, unspecified XK9K Right	ICD-11 cluster remains less specific compared with ICD-10-CA code (i.e., cannot add a code for specificity of "overlapping")
Not applicable to cluster	D25.1 Intramural leiomyoma of uterus	2E86.0 Leiomyoma of uterus	2E86.0 Leiomyoma of uterus	Not applicable to create ICD-11 cluster; cannot add any ICD-11 code for specificity of "intramural"

Conclusions

Further analysis will be necessary to determine

- The level of specificity required in Canada for case-mix and national health indicator reporting;
- Whether specificity can be enhanced through post-coordination (stem codes and/or extension codes);
- Whether foundation entities should be elevated to codeable entities; and
- Whether content enhancements are required.

This work will inform our assessment of the impacts to the statistical continuity of ICD-11 as well as any action required to support the transition to and implementation of ICD-11 in Canada.

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