

Assessing ICD-11 Implementation in Canada: Leveraging Crosswalks to Evaluate Adoption Impacts and Transition Strategies



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Abstract

To guide and facilitate a decision about adopting ICD-11 for health system use in Canada, the Canadian Institute for Health Information (CIHI) continues to assess its clinical, business and statistical implications. This poster presents the process used to create the backward crosswalk from ICD-11 to ICD-10-CA and the results and describes how bidirectional crosswalks were used to create comprehensive mappings for the Canadian Congenital Anomalies Surveillance System (CCASS) to evaluate compatibility with and impact on current national reporting practices.

Introduction

The national standard used in Canada to report morbidity statistics is ICD-10-CA, the Canadian modification of ICD-10. CIHI developed ICD-10-CA in collaboration with an expert panel of physicians and external field reviewers to better meet the country's health information needs. More recently, CIHI has been assessing ICD-11 for use in Canada. In 2022, CIHI developed a forward crosswalk between v2018 ICD-10-CA and v2022 ICD-11 to understand gaps and challenges, and to propose improvements to ICD-11 to facilitate the evaluation of the impact of adoption on Canada's health care systems. To evaluate the statistical continuity of ICD-11 in its entirety, a backward crosswalk was recently developed to gain further knowledge of the benefits of ICD-11 and identify how it will impact health systems, case mix and indicator reporting in Canada.

Approach

Using the World Health Organization (WHO) ICD-11 to ICD-10 mapping tables (which used v2022 ICD-11), all 14,652 ICD-11 codes were mapped to v2022 ICD-10-CA target codes. Each ICD-10-CA target code was reviewed to identify its map relation (level of equivalence) to the source ICD-11 code. The map relation characterized the ICD-10-CA target codes as equivalent to or broader or narrower than the source ICD-11 codes:

- Equivalent: Both source and target code have same detail/meaning
- Broader: The target is less specific than the source
- Narrower: The target is more specific than the source
- Not applicable: No applicable target code

Interrater reliability was assessed through dual mapping and validation. CIHI's maps from ICD-11 to ICD-10-CA were compared with the outputs of WHO's ICD-11 to ICD-10 mapping tables; there was a 40% (n = 5,921) agreement between CIHI's and WHO's selected target codes.

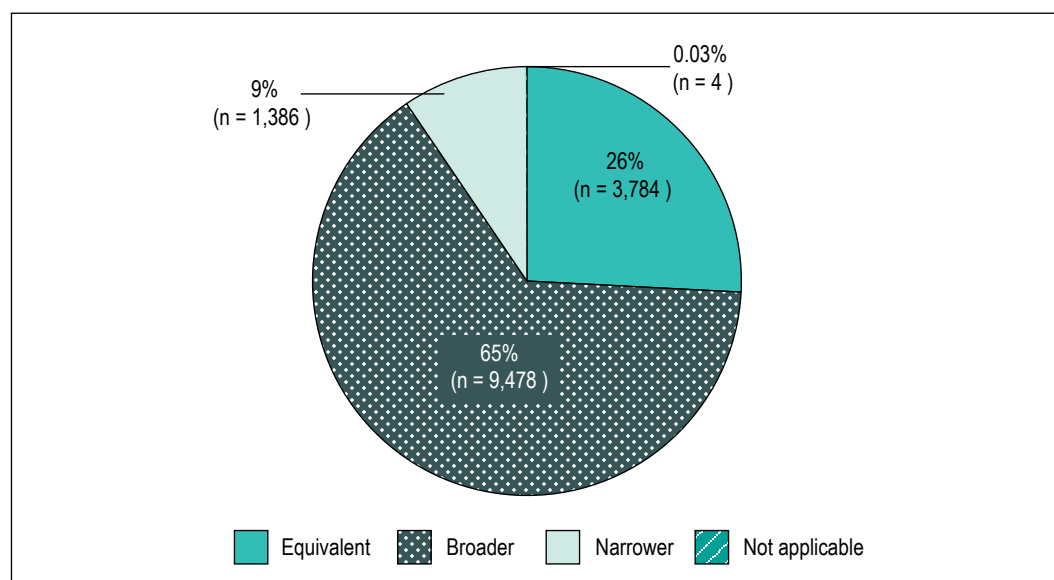
Limitations

The greater specificity of ICD-11 posed challenges in finding an appropriate ICD-10-CA map, due to ICD-10-CA being outdated. Also, many ICD-11 concepts could not be found using ICD-10-CA's alphabetical index, necessitating team discussion and review to determine the ICD-10-CA target code.

Results

All ICD-11 concepts were mapped to a target code in ICD-10-CA, with the following results:

- 26% (n = 3,784) of the ICD-10-CA target codes are equivalent to a single ICD-11 code
- 65% (n = 9,478) of the ICD-10-CA target codes are broader, which means 65% of ICD-11 concepts have greater specificity (see Table 1)
- 9% (n = 1,386) of the ICD-10-CA target codes are narrower, which means 9% of ICD-11 concepts have less specificity
- 0.03% (n = 4) of the ICD-10-CA target codes did not have an applicable ICD-11 code map (i.e., source codes are for special purposes, such as emergency use codes)

Figure ICD-11 to ICD-10-CA (backward crosswalk) map relations**Table 1** Example of narrower ICD-11 concepts providing greater detail than ICD-10-CA

ICD-10-CA code	Narrower ICD-11 codes
I50.0 Congestive heart failure	BD10 Congestive heart failure
Includes:	BD13 Right ventricular failure
• Right ventricular failure	BD14 Biventricular failure
• Biventricular failure	

Leveraging crosswalks — Canadian use case

We used the forward and backward maps to create a bidirectional crosswalk in order to determine whether the 12 congenital anomaly categories and conditions found in the CASS data map¹ can be accurately represented using ICD-11. When comparing the 139 ICD-10-CA codes used in the CCASS data map with the ICD-11 target codes in the forward crosswalk, 55% (n = 77) of the ICD-11 target codes had either an exact match or provided greater specificity than ICD-10-CA, whereas 45% of the ICD-11 target codes were broader. Reviewing the ICD-10-CA congenital anomaly codes in a backward direction, 57% of the ICD-10-CA target codes were broader. This was largely due to missing detail and/or multiple ICD-11 codes mapping to the same ICD-10-CA code (see Table 2). Thus ICD-11 offers greater specificity for the congenital anomaly conditions used in the CCASS data map.

Table 2 Example of narrower ICD-11 concepts compared with ICD-10-CA

Condition	ICD-11 code (source)	ICD-11 code title	ICD-10-CA code (target)	ICD-10-CA code title
Tetralogy of Fallot	LA88.20	Tetralogy of Fallot with absent pulmonary valve syndrome	Q21.3	Tetralogy of Fallot
	LA88.21	Tetralogy of Fallot with pulmonary atresia	Q21.3; Q22.0	Tetralogy of Fallot; Pulmonary valve atresia
	LA88.22	Tetralogy of Fallot with pulmonary atresia and systemic-to-pulmonary collateral artery	Q21.3; Q22.0	Tetralogy of Fallot; Pulmonary valve atresia
	LA88.2Y	Other specified tetralogy of Fallot	Q21.3	Tetralogy of Fallot
	LA88.2Z	Tetralogy of Fallot, unspecified	Q21.3	Tetralogy of Fallot

Conclusions

While the backward crosswalk assessment highlighted the benefits of ICD-11’s increased specificity, these findings must be considered alongside those from the forward crosswalk work, which indicated a loss of approximately 37% in specificity. This suggests that some ICD-11 target codes or clusters are less specific than their corresponding ICD-10-CA counterparts.

Further analysis will be needed to assess the impact of ICD-11’s narrower concepts on case mix and national health indicator reporting, as well as to determine whether content enhancements are required to address the broader concepts. As demonstrated in the CCASS example, the bidirectional crosswalks can be leveraged to help inform the impacts of ICD-11 adoption.

Reference

1. Government of Canada. [Congenital Anomalies in Canada: Data Map](#). Accessed July 2024.