

Commentary: From Mixtapes to Playlists – Evolving Options for Capturing Diagnoses in Canadian Physicians’ Data

Commentaire : Des compilations aux listes de lecture – options évolutives pour saisir les diagnostics dans les données des médecins canadiens

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Abstract

Physician billing claims are rich sources of administrative health data. However, diagnostic codes in billing claims are drawn from the International Classification of Diseases, Ninth Revision (WHO & International Conference for the Ninth Revision of the International Classification of Diseases 1977), which has not been updated by the World Health Organization in three decades. With its updated and expanded content and its digital tooling, the International Classification of Diseases 11th Revision (ICD-11) (WHO n.d.a.) could be considered for this purpose. Primary care practitioners have always found the ICD inadequate for their needs. This may change with ICD-11, with which the International Classification of Primary Care (ICPC) (van Boven and Ten Napel 2021) is more closely aligned. ICD-11, ICPC and the Systematized Nomenclature of Medicine Clinical Terms present evolving options for capturing diagnoses in physician data.

Résumé

Les demandes de paiement faites par les médecins constituent de riches sources de données administratives sur la santé. Cependant, les codes de diagnostic utilisés pour ces demandes proviennent de la Classification internationale des maladies, neuvième révision (WHO & International Conference for the Ninth Revision of the International Classification of

Diseases 1977), qui n'a pas été mise à jour par l'Organisation mondiale de la santé depuis une trentaine d'années. Avec son contenu mis à jour et ses outils numériques, la Classification internationale des maladies, onzième révision (CIM-11) (WHO n.d.a.) pourrait être envisagée à cette fin. Les fournisseurs de soins primaires ont toujours trouvé la CIM-9 inadéquate pour leurs besoins. Cela pourrait changer avec la CIM-11, qui est plus étroitement alignée avec la Classification internationale des soins primaires (CISP) (van Boven et Ten Napel 2021). Ainsi, la CIM-11, la CISP et la Systematized Nomenclature of Medicine Clinical Terms présentent des options évolutives pour saisir les diagnostics dans les données des médecins.

Introduction

The problem with an analogy is that, similar to an ill-fitting shoe, it can feel somewhat forced. Cassette tapes never really went away, and recently they have been making something of a comeback (Taylor 2021). Apparently, the Walkman is also experiencing a resale resurgence. Still, the point is well taken: International Classification of Diseases, Ninth Revision (ICD-9) (WHO & International Conference for the Ninth Revision of the International Classification of Diseases 1977) should be consigned to history. In what follows, I tease out some details of the two linked but discrete issues addressed by Garies et al. (2022): physician billing and terminological tools for use in primary care.

Diagnosis Codes for Physician Billing

The expansion of the ICD in 1948 to encompass morbidity for the tabulation of hospital statistics was the culmination of a lengthy history of efforts. In Canada, a committee formed to guide the discussion at a Dominion-Provincial Conference on Hospital Statistics – convened to improve “the scope and quality of hospital statistics” – immediately recommended the newly expanded ICD for coding diagnoses (Statistics Canada 1949: 7). Standardization was not ultimately realized until the early 2000s, when the International Classification of Diseases, 10th Revision, with Canadian Enhancements (ICD-10-CA) (CIHI 2022) was implemented in hospitals across the country.

Unlike hospital data, for which multiple applications had always been envisaged, physician billing code sets are designed to meet a narrowly instrumental purpose. They are not designed with a secondary use in mind, though the data that they generate constitute a remarkably rich resource.

The *Canada Health Act* (1985) requires that costs for “medically necessary” services are universally covered by publicly funded provincial health insurance plans. Fee-for-service (FFS) physicians across Canada, accounting for about 70% of gross clinical payments (CIHI 2020a), must submit claims for payments that include a code for the service provided that is selected from billing code sets unique to each jurisdiction. Billing claims must also include ICD codes to identify the health conditions for which the service was provided.

Billing claims databases include information on most insured services for residents enrolled in their provincial insurance system. The service and diagnostic codes, as well as

the associated physician and patient demographic data in billing submissions, make physicians claims databases among the largest and richest sources of administrative health data in Canada. Claims data can be used for health services analyses and for surveillance and have, with caveats, been found fit for these uses (Cunningham et al. 2014; Hwee et al. 2018; Lasry et al. 2018; Lix et al. 2012, 2018).

However, diagnostic codes in billing claims systems are drawn from ICD-9 code sets, and ICD-9 has not been updated by the World Health Organization (WHO) since the early 1990s, when ICD-10 became the new international version. Medical knowledge and terminology has, of course, evolved considerably in the interim. Consequently, much of the content of ICD-9 is archaic and, in some cases, anachronistic. Canadian jurisdictions have introduced their own code adaptations (creating the “mixtapes” of my title) as circumstances required, but this has not been coordinated or standardized across the country.

When the SARS-CoV-2 virus came along, there was obviously no ICD-9 code for COVID-19. For billing purposes, some provinces released new codes or repurposed existing ones. Others simply denoted codes to support remuneration for virtual care. But the upshot is that there is no consistent national diagnostic code for COVID-19 in the billing data. Throughout the pandemic, the WHO has released emergency COVID-19–related codes for ICD-10 and International Classification of Diseases 11th Revision (ICD-11) (described in the following text), including a code for the post-COVID-19 condition, known more colloquially as “long COVID”.

In 2022, ICD-11 (WHO n.d.a.) became the official version of the ICD. The WHO’s constitution requires member states to compile mortality and morbidity statistics, “in accordance with the current revision of the [ICD] as adopted from time to time by the World Health Assembly” (World Health Assembly 1967). Member states are now, to varying degrees, engaged in assessing their readiness and feasible timelines for implementation. The content of ICD-11 has been modernized and expanded considerably and is designed to accommodate speedier enhancements than its predecessors. Unlike previous revisions, ICD-11 is also built such that it can be integrated with electronic health information systems. The new revision includes a package of online and digital resources. ICD-11 has its own smart online coding tool (<https://icd.who.int/en>) that enables computer-assisted coding. A back-end electronic index finds matches to terms typed into the search engine.

An obvious question is this: Can ICD-11 be used for billing claims? Compensation and billing arrangements are negotiated by provincial and territorial ministries of health with their provincial and territorial medical associations (CIHI 2020b). There is no obvious mechanism for considering a pan-Canadian change, though jurisdictions could explore the possibility of adopting ICD-11 for this purpose. An evaluation such as the one recommended by Garies et al. (2022) would be extremely valuable, and it would complement the range of activities that currently comprise the Canadian Institute for Health Information’s (CIHI)’s assessment of ICD-11 for health system implementation. This is work on which we are collaborating with colleagues at the Universities of Calgary and Ottawa and the Canadian Health Information Management Association.

Options for Primary Care

As billing claims must be submitted by all FFS physicians, the data encompass specialist and primary care physicians. But claims data are probably most useful in domains that cannot be studied easily through other data sources such as primary care (CIHI 2015), where Canada has yet to attain a standardized approach to the generation of comparable diagnosis/reason for encounter data (CIHI 2019).

Primary care practitioners have always found ICD inadequate for their needs (Armstrong 2011; van Boven and Ten Napel 2021). Dissatisfaction with the ICD in the 1970s led the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians (WONCA) to create what is now the International Classification of Primary Care (ICPC), recently released in its third edition version (International Classification of Primary Care – 3rd Revision [ICPC-3]) (van Boven and Ten Napel 2021). ICPC has been adopted in primary care settings in parts of Europe and elsewhere.

Thanks to collaboration between the WHO and WONCA, the editors of ICPC-3 assert that “the ICPC and the ICD are complementary rather than in competition” (van Boven and Ten Napel 2021: 5). This may be even truer with ICD-11. An innovation of ICD-11 is that it is built on an underlying knowledge base known as the Foundation (Chute and Çelik 2021), a multidimensional collection of entities: diseases, disorders, injuries and other concepts. Think of the Foundation layer as similar to a store of videos or songs. Elements in the Foundation can be used to build a selection somewhat similar to how playlists are compiled. The technical term for a “playlist” built from the Foundation is “linearization” (Chute and Çelik 2021: 4). Various ICD-11 linearizations could be built at different levels of granularity or for different use cases.

The previous edition of ICPC (International Classification of Primary Care, 2nd edition) (WHO n.d.b.) has been incorporated into the Foundation (Kühlein et al. 2018), and there is hope that ICD-11 will be fit for use in the primary care context, perhaps in the form of a primary care linearization (Chute and Çelik 2021). Garies et al. (2022) are right to emphasize the need for rigorous testing of ICD-11 in primary care contexts to explore the possibilities it may offer over and above its use for billing.

Finally, what of the role of the Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT)? Classifications such as the ICD have been designed to support statistical reporting, not clinical record keeping. SNOMED CT is designed to facilitate comprehensive capture of data at point of care and their electronic exchange. It is used increasingly in electronic health records (EHRs) and electronic medical records (EMRs) across Canada. SNOMED's content goes beyond diagnoses to describe all aspects of clinical encounters. Terminologies and classifications will play complementary roles in the health information environment for the foreseeable future. SNOMED International (the publisher) and the WHO are collaborating to develop maps between SNOMED CT and ICD-11, and

SNOMED International and WONCA have been working together to ensure linkage between SNOMED CT and ICPC.

In the meantime, CIHI has developed a comprehensive set of maps between SNOMED CT and ICD-10-CA for implementation in EHRs to support faster data capture while reducing coding burden. We hope to begin road-testing the maps soon. To support physician billing and other uses (including preparation for ICD-11), we are collaborating with colleagues in British Columbia and Newfoundland and Labrador to develop a pan-Canadian health concern value set mapped from SNOMED CT to ICD-9 and ICD-10-CA for implementation in EMRs.

Conclusion

ICD-9 in the context of today's health information needs is clearly suboptimal, notwithstanding the ongoing value of billing data coded with it. Between ICD-11, SNOMED CT and possibly ICPC, there are options for upgrading and standardizing the capture of diagnosis information in physician billing data generally and in primary care specifically. The options are not mutually exclusive, given their ontological alignments and mapping relationships, but all hold the potential to enhance the value of physician-generated data. At the end of the day, code assignment should be a background technical process. The standards themselves should be invisible to physicians, requiring no special knowledge of codes on their part.

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Evolving Options for Capturing Diagnoses in Canadian Physicians' Data

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