Ten Down Under: Implementing ICD-10 in Australia

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Coders in Australia have already made the change to coding an Australian modification of ICD-10. What was the process of conversion like, and what lessons can we learn from it? Here's a step-by-step account of the change process.

While no definite date for making the change from ICD-9 to ICD-10 coding in the United States has been set, the change is on the horizon. American coding professionals will likely be spending the next few years preparing for a switch to ICD-10, but their counterparts in Australia have already made the change. From the initial planning to lessons learned, the experiences of coders in Australia may offer some useful lessons for US readers.

In developing and implementing an Australian modification of the 10th International Classification of Diseases (ICD-10-AM), the Australian National Centre for Classification in Health (NCCH) planned the transition, conducted code review, and offered coder education. This article offers insights into these processes—including the rationale for the decision to change to ICD-10, the development of modifications, the creation of an Australian procedure classification, and guidance for the application of the codes through the Australian Coding Standards. It also includes a description of the mappings necessary for the transition between ICD-9-CM and ICD-10-AM, a summary of education activities, and other implementation issues.

First Step: Knowing the Issues

Australian acute care hospitals had been using the clinical modification of ICD-9—ICD-9-CM—since the mid-1980s. In 1994, the NCCH (then known as the National Coding Centre [NCC]), University of Sydney, was asked to advise the then-Commonwealth Department of Human Services and Health on options relating to an Australian conversion to ICD-10 compared with continuing use of ICD-9-CM.

Issues to consider included:

- the clinical credibility of ICD-9-CM and thus the clinical acceptability of its case mix offspring, the Australian National Diagnosis Related Groups (AN-DRGs)
- the lack of an international procedure classification in ICD-10
- international comparability of morbidity and case mix data
- readiness for change
- stability of AN-DRGs, especially in those states using case mix for funding hospitals
- effect on the clinical coder work force
- education of coders and users of coded data
- technical issues such as changes to software

The NCC prepared a paper, "Options Research Paper on Future Long Term Suitability of using the ICD-9-CM in Australian Hospitals," which recommended a change to ICD-10 and further work to determine the choice of an Australian procedure classification.

As a result of the recommendations, the Australian Health Ministers Advisory Council supported the proposal that ICD-10 be adopted as the Australian standard for morbidity coding in acute care hospitals. July 1998 was the proposed date of introduction. The NCC would carry out a feasibility study to evaluate the appropriateness of the Commonwealth Medicare Benefits Schedule (MBS), the Australian medical fee schedule, as the basis for an Australian procedure classification.

The feasibility study evaluated candidate classifications and recommended that an extension of the MBS be developed and restructured to form the first Australian procedure classification for use with ICD-10 diseases. The NCC was also charged with developing the Australian modifications to ICD-10 diseases to provide the clinical specificity available in ICD-9-CM. Together, the Australian modifications to the disease classification and the extension to the MBS became the International Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM).

Clinicians and clinical coders from 23 Clinical Coding and Classification Groups (CCCGs) shared between NCCH and the Australian Casemix Clinical Committee (ACCC) gave their input to the project.

The Development Process

Diseases

Modifications to WHO ICD-10 conform with the Australian government contract with WHO for use of ICD-10, which required that changes be made at the fifth character level or beyond. If change was contemplated at the third and fourth character levels, WHO was consulted.

Procedures

In this process, the challenge was to incorporate the items from the MBS fee schedule, which is arranged in order of medical specialty into a procedure classification that met the accepted criteria for a procedure classification.[1] The specific aims were to:

- develop an Australian procedure classification, MBS-Extended, based on the MBS, which would be used to establish current procedural concepts
- use an extension number attached to each MBS item number to represent individual procedural concepts
- structure the MBS-Extended as a hierarchical classification, the principal axis being anatomical site and the secondary axis being type of procedure
- provide a thorough, comprehensive index
- produce Australian Coding Standards for MBS-Extended
- produce forward and backward mappings of MBS-Extended/ICD-9-CM procedures

The process of converting the fee schedule into a classification involved not only splitting the bundled items but adding new procedures. Some of these involved new or specific technologies; others were procedures that did not attract Medicare (Australia's universal health insurance) benefits, such as cosmetic surgery and allied health interventions.

Items in the fee schedule were listed in numerical order within specialty. NCCH wished to retain the core MBS number with an extension for further specificity. This meant that restructuring into a classification with its accompanying hierarchies prevented the retention of the sequential order of the codes. To overcome this problem and to allow codes to be rolled into meaningful categories by site and type of procedure, a system of sequential block numbers was introduced. This also allowed location of a code in the tabular list, given an index entry of code and block number.

For example, in certain procedures on the ear, the following structure is achieved if the MBS-Extended numbers are listed in MBS order:

41527-00	Myringoplasty, transcanal approach
41530-00	Myringoplasty, postaural or endaural approach
41533-01	Myringoplasty with atticotomy
41536-00	Atticotomy with reconstruction of bony defect
41536-01	Atticotomy with reconstruction of bony defect and myringoplasty
41542-00	Myringoplasty with ossicular chain reconstruction
41635-01	Excision of lesion of middle ear with myringoplasty
41638-00	Excision of lesion of middle ear with ossicular chain reconstruction
41638-01	Excision of lesion of middle ear with myringoplasty and ossicular chain reconstruction

90112-00 Other repair of eardrum or middle ear

In this example, although these codes are in sequential order, there is no consistency of conceptual axis as the procedure concepts are mixed (i.e., repair, reconstruction).

The MBS-Extended classifies these concepts, first by site and then by procedure type, as follows:

EARDRUM AND MIDDLE EAR
REPAIR

Block 313 Myringoplasty
41635-01 Excision of lesion of middle ear with myringoplasty
41527-00 Myringoplasty, transcanal approach
41530-00 Myringoplasty, postaural or endaural approach
41533-01 Myringoplasty with atticotomy

Block 314 Other repair procedures on eardrum or middle ear
90112-00 Other repair of eardrum or middle ear

RECONSTRUCTION

Block 315 Reconstruction procedures on eardrum or middle ear
41542-00 Myringoplasty with ossicular chain reconstruction
41536-00 Atticotomy with reconstruction of bony defect
41536-01 Atticotomy with reconstruction of bony defect and myringoplasty
41638-00 Excision of lesion of middle ear with ossicular chain reconstruction
41638-01 Excision of lesion of middle ear with myringoplasty and ossicular chain reconstruction

This approach gives a much clearer classification of procedure concepts, with each concept description having a unique number allocation.

During the construction of the procedure classification, three pilot trials were undertaken in hospitals using procedural concepts from patient medical records and operating room lists. These trials informed further development of both the tabular list and index.

Mappings

Before new codes could be developed for ICD-10-AM diseases, mappings were done between ICD-9-CM and ICD-10 to locate areas of difference where more specificity might be required in ICD-10.

Contractors from three states—Victoria, Western Australia and Queensland—prepared forward mappings. "Forward mapping" involves selecting from the Tabular List an ICD-9-CM code that best matches the clinical descriptions contained in each ICD-10 code. In some cases, they compared the terms indexed to both the selected ICD-9-CM code and the ICD-10 map to better inform the selection of the ICD-10 map. They used the index where there were major differences between the two classification structures.

The NCCH reviewed the forward mappings (i.e., ICD-9-CM to ICD-10). Queries were forwarded to a nominated clinician from the appropriate CCCG for advice and then to the remaining members of the CCCG, with recommendations made by the NCCH. Types of queries sent to CCCG members included indecision over forward mappings and instances where there was loss of specificity in ICD-10. A final decision was made by the NCCH based on the comments received from the CCCGs.

The backward mappings (i.e., ICD-10 to ICD-9-CM) were produced by the NCCH with reference to backward mappings produced by the Australian Bureau of Statistics in 1993. Mapping questions that arose during the production of backward mappings were submitted to each CCCG, together with the forward mapping questions.

Next, the NCCH compared the backward and forward mappings, highlighting instances where forward and backward mappings differed. These differences were closely analyzed and, when necessary, were submitted to a nominated clinician or all CCCG members for comment.

The final maps were used by the Commonwealth Department of Health and Family Services to develop specifications for the fourth version of AN-DRGs, to be known as Australian Refined Diagnosis Related Groups (AR-DRGs). Where one ICD-10-AM code mapped to many ICD-9-CM codes, each ICD-9-CM code in the map was checked for DRG allocation in AR-DRG v4.1. Any variations to the original maps (historical maps) were called logical maps. (According to this definition, historical mapping refers to the selection of a code map that achieves the most appropriate coding and clinical meaning. Logical mapping refers to the selection of a code map that achieves the appropriate AN-DRG assignment.)

Australian Coding Standards

Building on the Australian Coding Standards that accompanied the Australian editions of ICD-9-CM in 1995 and 1996, the NCCH developed a further set of standards as Volume 5 of ICD-10-AM. Input for these came from clinical coders and clinicians who advised the Centre on critical issues relating to the codes and their application.

The final agreement on these national standards was reached through the Coding Standards Advisory Committee (CSAC) of NCCH, which comprises representatives of all Australian states and territories, the commonwealth government, the Australian Institute of Health and Welfare, the Health Information Management Association of Australia, the Clinical Coders' Society of Australia, the ACCC, and the private sector. The standards volume is organized in the same way as the diseases tabular list and is indexed both alphabetically and by code.

In Print: Publication

ICD-10-AM's first edition was published in 1998 as a five-volume set. NCCH also prepares and distributes the following products relating to ICD-10-AM:

- ICD-10-AM ASCII
- specialty book series *Casemix, DRGs and Clinical Coding* (nine specialties were completed as of September 1999, the most recent of which include ICD-10-AM codes)
- electronic files of ICD-10-AM contents

In 1998-99, the NCCH also prepared and distributed several errata to the first edition. Some of these changes were transmitted to clinical coders through the quarterly NCCH newsletter *Coding Matters*.

Most recently, the NCCH completed a project to convert the classification of ICD-10-AM to a relational database. As well as providing a foundation for NCCH maintenance of the classification, the database will enable the organization to develop further electronic coding products as well as make the classification available in electronic format to users and software developers. ICD-10-AM's second edition is being printed from this database and is due for publication early in 2000 for introduction from July 2000. Plans are under way for synchronous release of a CD-ROM version of the second edition.

"New Codes in ICD-10-AM" shows the number of new codes in ICD-10-AM first and second editions. In the first edition, the majority of changes were in the Injury chapter (675 new codes) with significant numbers also in the Endocrine, Neoplasms, Digestive, Obstetrics, and Factors Influencing Health Status sections. The second edition changes for diseases were primarily in the Endocrine (159), External Causes, Nervous, Musculoskeletal, and Factors Influencing Health Status sections. For procedures, of the 349 new codes almost half of the changes were to allied health intervention codes. Others included Cardiovascular, Dental, Musculoskeletal, and Dermatology/Plastic Surgery. Changes at the third and fourth character level totaled 12 in the first edition and 59 in the second.

new codes in ICD-10-AM

Volume	ICD-10-AM 1st edition	ICD-10-AM 2nd edition
Diseases	1117	319

Procedures	6328	349

Putting It Together: Implementation

Implementation was nationally coordinated through the National Committee for Implementation of ICD-10 in Australian Hospitals. This group, which was created in 1995, comprised representatives of all stakeholders in ICD-10-AM issues. A national coordinator, located in the Commonwealth Department of Health and Aged Care, Acute and Coordinated Care Branch, was appointed. The coordinator met regularly with state and territory implementation coordinators.

The first edition of ICD-10-AM was introduced in New South Wales, Victoria, Northern Territory, and the Australian Capital Territory in July 1998 and in the remaining Australian states in July 1999. New Zealand also adopted the new classification in 1998-99.

All states opted to retain AN-DRG v3.1 in 1998 due to the lack of available cost weights for v4. Several additions were made to the mappings originally developed by NCCH, which had been designed for use with AR-DRG v4.0 to allow coding in ICD-10-AM and grouping in AN-DRG v3.1 (which is based on ICD-9-CM).

A Taste of Ten: Education

In November 1995, NCCH formed an ICD-10-AM Education Working Party, comprising educators in clinical classification from education facilities and professional organizations and NCCH Education Division staff. Between 1995 and 1999, the NCCH prepared education material and ran 81 courses during 130 days for 2,423 participants in all states of Australia and New Zealand. In most cases, members of the NCCH Coding Educators Network and NCCH staff trained clinical coders throughout Australia and New Zealand.

The workshops comprised "train the trainer" sessions, face-to-face workshops with clinical coders, and workshops for all users of the classification. These sessions often took place in conjunction with conferences relating to case mix, health information management, and the NCCH conference.

Following the first implementation of ICD-10-AM, state and territory health authorities distributed coder surveys. As a result of responses to these surveys, a series of 13 Post-Implementation Workshops helped clarify particular issues raised in the surveys and through the NCCH query process.

NCCH ICD-10-AM Education Material

In March 1997, NCCH released an ICD-10-AM Implementation Kit and distributed copies to all public and private hospitals and day surgery centers. The kit aimed to facilitate the initial transmission of information about ICD-10-AM and its implementation. It provided:

- background to the decision to move to ICD-10-AM
- details about the component classifications
- stages in the implementation process
- an overview of the training and education program
- information regarding implementation and transition issues, including information system changes, electronic ASCII code files, code mappings, and Australian case mix groupers

The kit contained a series of informational briefing sheets, fact sheets, and visual aids (e.g., a disk containing a PowerPoint presentation) that could be customized for local education presentations.

In addition, the NCCH released a set of six educational booklets, *Taste of Ten*, in December 1997. It covered areas such as common medical conditions, obstetrics, mental health, injury, and procedures.

Designed to give clinical coders an introduction to ICD-10-AM, the booklets focused on topics of major change or common usage. The content included theoretical information and practical examples (with answers) of coding for both diseases and procedures. In some instances, the booklets were used by hospitals for local training programs.

When the ICD-10-AM first edition was already available, NCCH released the *Mastering Ten* exercise workbook in June 1998. The workbook was a practical self-learning tool to be used in conjunction with the coding books. It contained notes, exercises, and answers in sections that reflected the chapter topics of the classification. It was anticipated that users would have previous exposure to the conceptual changes between ICD-9-CM and ICD-10-AM—the aim was to provide clinical coders with a hands-on, problem-based learning approach to the introduction of ICD-10-AM.

Use of this educational material prompted feedback from clinical coders to NCCH about the classification and the examples in the exercises. For a limited period after the introduction of the new classification in 1998 and 1999, NCCH was the direct recipient of clinical coder queries about the classification. In the usual arrangement, however, coders will send queries to local and state clinical coding committees that screen queries prior to submitting them to NCCH. NCCH places selected queries and responses on its Web site.

In Real Life: Impact Assessment

What was the effect of implementing the new system? A study carried out by NCCH (incorporated into the Coopers and Lybrand final report of the ICD-10-AM impact assessment project) predicted a significant increase in coding time between ICD-9-CM and ICD-10-AM.[2] The study also predicted a projected increase in the total number of coders required nationally of 184.5 and approximate costs of $10.5 million to cover costs related to employment of additional coders, training, backlog, and materials.

At the end of 1999, Australia was in the second year of its experience with ICD-10-AM. Anecdotal reports indicate that a period of at least 12 weeks is required for clinical coders to adjust to the new classification and approximate previous levels of productivity. An NCCH clinical coder survey indicated that confidence in coder ability to understand and apply the new classification suffered initially, but returned to normal levels approximately four to six months after implementation.

What We Learned

Lessons learned related mainly to the preparation for and implementation of the new classification. The Dual Coding Study, while an excellent idea, was not possible until fairly late in the implementation phase. This meant that results were too late to have much impact on the actual design of the classification and slowed the national momentum to implement the new classification nationally from July 1998.

This move away from compliance with the originally agreed implementation date resulted mainly from concerns that the current coder work force could not cope with the introduction of the new classification. Some case mix-funded states were also unsure of the implications of the new classification for hospital funding levels, given the extent of mapping between ICD-9-CM and ICD-10-AM.

The timing of release of the first edition—to be ready for the education and preparation of coders, data users, and hospital systems—was a critical issue. The two years from the decision to change to actual implementation was insufficient lead time to build the classification and educate users.

However, Australia's relatively storm-free "change" has been due in large part to the goodwill and enthusiasm of clinical coders to improve their tools of trade and participate in education programs, as well as their eagerness to absorb educational material.

We should also pay tribute to the clinicians and clinical coders who contributed to the new codes and standards of the classification itself and to members of the ACCC and CSAC, who reviewed endless drafts of the classification, standards, and indexes.

We also recognize the staff of NCCH who have labored at a Herculean task in preparing, publishing, and gaining acceptance for the new classification. It was their careful planning and hard work that allowed us to proceed along a relatively smooth path in introducing a major classification change.

Notes

1. National Committee on Vital and Health Statistics Subcommittee on Medical Classification Systems. "Recommendation for a Single Procedure Classification System." *Journal of AHIMA* 64, no. 8 (1993):12-22.
2. Department of Health and Family Services. *ICD-10-AM Impact Assessment Project*. Final Report. Coopers & Lybrand Consultants, 1997.

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