

Getting Clinicians Involved: The Australian Experience

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Abstract

This paper explores the clinical changes that occurred following the introduction of casemix in Australia and more importantly how casemix classification systems and methodologies were influenced by clinicians. It highlights some of the important milestones, major events and key processes that were associated with the diffusion of Diagnosis Related Groups.

Clinical leadership was critical. This was achieved through the combined activities of clinicians working through various national committees and organisations including the Australian Casemix Clinical Committee, the National Centre for Classification in Health, the various Commonwealth and State health departments and the respective specialist colleges and associations. These combined activities delivered a clinically meaningful, state-of-the-art casemix classification underpinned by a coding and data collection system that is both sophisticated in terms of its ability to meet the needs of practicing clinicians as well as being technologically advanced.

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Introduction

Casemix both for classification and payment purposes is now well established as a valuable tool for improving and managing Australia's health care system.¹ It was launched in 1988 when it was included in the national health care agenda as part of the Medicare Agreements (the joint Commonwealth State agreements relating to health care management and funding). It is now increasingly being used for resource allocation where it is being employed to deliver improvements in both technical efficiency and allocative efficiency; output measurement; quality enhancement; comparative analyses; and the monitoring of changes in service delivery.

Diagnosis Related Groups or DRGs are the best-known casemix classification. This particular classification describes patients who are admitted to hospital, and provides a valid mechanism of relating clinical care to the resources required to provide that care. In Australia, DRGs have become and remained relevant to clinical practice because they have been continuously revised in line with changes to medical and surgical practice and coding procedures. Significant changes occurred in 1992 and 1996, when Australian National Diagnosis Related Groups (AN-DRGs) were revised. Major changes to the classification also occurred in 1998 when AN-DRGs were replaced by the Australian Refined Diagnosis Related Groups (AR-DRGs)

and in 1999 when the AR-DRGs version which utilised ICD-10-AM codes was released.

Simultaneously with the refinement of the DRG classification, a series of classifications have been developed that describe non-acute inpatient care and ambulatory care. These classifications include the Sub-Acute and Non-Acute Patient (SNAP) Classification, the ambulatory classification, and the Emergency Department classification.

All Australian States and Territories now use AR-DRGs, SNAP and the ambulatory and Emergency Department classification for the funding of public hospitals; while private health care organisations are using AR-DRGs to fund private inpatient care.

The Australian Casemix Clinical Committee (ACCC) sponsored these developments. This committee together with the National Centre for Classification in Health (NCCH) have provided the key drivers for casemix and its clinical acceptance in Australia.

Australian Casemix Clinical Committee

The ACCC was established in 1990 to coordinate the clinical evaluation of DRGs and to assess the impact of casemix in a clinical environment. The ACCC is the peak committee that provides clinical advice on classification issues and other casemix matters to the Commonwealth Department of Health and Aged Care, and reports annually

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to the Minister for Health and Aged Care on critical issues relating to casemix. In addition to the refinement of the classification systems, the Committee's Terms of Reference include liaison with clinicians, professional bodies, and State health instrumentalists and private sector organisations on casemix and related issues (Table I).

Members of the inaugural committee were appointed on the bases of their affiliations with State Health Departments and their memberships of the various specialist colleges. This arrangement provided an effective mechanism by which two-way communications between the various State Health Departments and specialist colleges occurred. Once

TABLE I: AUSTRALIAN CASEMIX CLINICAL COMMITTEE TERMS OF REFERENCE

1. To make recommendations to the Commonwealth Department of Health and Aged Care (CDHAC) on modifications to Australian casemix classifications (such as AN-DRGs). Such recommendations to be based on clinical evaluation following consideration by the clinical professions.
2. To provide clinical input to and make recommendations to CDHAC concerning developmental work on new casemix classifications (such as ambulatory, sub-/non-acute and mental health classifications).
3. To provide the Minister of Health and Aged Care with an annual report of issues in the casemix area.
4. To provide feedback to clinical professions on Australian casemix classifications (such as the AN-DRG and ambulatory classifications) and the reasons for inclusion or exclusion of recommended changes or adoption of particular classifications or strategies.
5. To advise CDHAC on the development and implementation of casemix measures in regard to quality of health care.
6. To receive reports, provide feedback and make clinical recommendations on other aspects of the Casemix Development Program Strategic Plan to CDHAC, and any other casemix committees as appropriate.
7. To provide critical input when differing clinical views arise and final clinical review of casemix issues to CDHAC.
8. To provide advice to CDHAC regarding the establishment and structure of ongoing subcommittees and the need to continue these subcommittees.
9. To monitor and advise its subcommittees on their work programs
10. To advise CDHAC about representatives of particular clinical specialties (eg. from the CCCGs or Colleges) who could act as advisers on matters of detail.
11. To liaise with State/Territory casemix clinical committees, the National Centre for Classification in Health, the Australian Institute of Health and Welfare and the World Health Organisation.
12. To liaise with, and provide clinical advice on casemix matters to, State/Territory health authorities, public and private hospitals, hospitals' associations, the health insurance industry, and others as requested by the Commonwealth.
13. To undertake and advise CDHAC on clinical casemix education.

casemix was well established in each State, the committee membership was modified with members then being appointed on an individual basis rather than because of their affiliations with particular specialist colleges or organisations. This improved the level of specialist clinical input and facilitated the further refinement of the various casemix classifications.

The ACCC has oversighted the refinement of several versions of the Australian DRG classification (both AN-DRGs and AR-DRGs). It has also supported ongoing projects which focused on classification development in areas such as ambulatory care, sub-acute and non-acute care, expanded DRGs, indigenous health and mental health. This process was highly intuitive, involving a combination of statistical analysis and clinical evaluation. The selection of patient characteristics to be used in the classifications, the priority ordering of these characteristics and the analysis of the significance of the characteristics is a complex task. The end result of this systematic analysis was the development of a series of classification systems which were highly acceptable within the clinical community.

Specific Project Standing Committee's or a series of Clinical Classification and Coding Groups (CCCGs) provided expert clinical input into these developments. The later groups were very effective and ensured that appropriate clinical input at the Major Diagnostic Categories (MDCs) level was available when complex clinical issues were being considered. There were in excess of 130 clinicians directly involved in classification refinement through this process.

In addition to playing a pivotal role in the development of classification systems, the ACCC is also participated in the implementation of many Government policy initiatives including those relating to clinical budgeting, Aboriginal health, and health outcome measurement.

Leadership

Perhaps the most important role of the ACCC was to provide strong clinical leadership at a time of significant change. The changes which were implemented at a national level principally focused on improving the efficiency and effectiveness of health care delivery. Because of the utility of the casemix classification systems, they were frequently used to monitor the outcomes of change management processes and thus were seen as being at the core of the change process.

The leadership role taken on by the ACCC was achieved through the appointment of members who were highly regarded within the medical community and who had a detailed understanding of health funding within the broader health care environment. The Committee, once constituted, lead numerous initiatives by:

- establishing a strategic direction that was appropriate and achievable;
- setting specific goals in relation to the casemix development and implementation in Australia;
- working with all stakeholders to gain commitment to the specified goals;
- aggressively perusing the goals; and by
- celebrating success as well as recognising failures.

The goal setting process was critical to the overall success of the Committee. This was achieved through the use of a strategic planning framework, which was revised annually.

Consultation was undertaken along professional lines and utilised existing forums. Casemix presentations, for example, were incorporated into the programmes of scientific meetings for the specialist colleges. One of the more successful strategies that effectively provided opportunities to consult with the medical profession broadly was the publication of supplements in the Medical Journal of Australia in 1994 and 1998. These publications also had the effect of providing educational material to clinicians in a format that was well accepted.

The committee aggressively pursued the refinement of casemix classification systems. This was in contrast to similar programmes in the USA and UK where refinement of casemix classification systems at national level are not actively pursued. To achieve this, the committee supported cutting-edge research programmes to investigate the opportunities to improve the classifications in a broad range of areas. These types of initiatives resulted in a high level of clinician 'buy-in'. As a consequence of this activity, Australian casemix classifications are now recognised internationally as benchmark systems.

Clinical leadership was not confined to the medical profession but extended to all professional groups. For example, the National Allied Health Casemix Committee was formed in 1993 to advance allied health participation in casemix. The Committee established the Australian Allied Health Activity Classification which has been included in the procedure listing in ICD-10-AM. The committee has also refined procedure-related costs, which define allied health inputs in terms of clinical care, clinical service management, teaching and training, and research. These changes have allowed allied health professionals to compare inputs and outputs and measure outcomes in terms of quality, value and resource utilisation.²

Clinician-led Classification Developments

AN-DRGs: The Beginning

In 1991, the ACCC coordinated the first clinical evaluation of inpatient classifications so that clinically relevant

recommendations for the development of an Australian inpatient casemix classification could be identified. The classification, AN-DRGs, was split into Major Diagnostic Categories (MDCs) which are defined by body system or disease type, and generally correspond with a particular medical specialty. The MDCs were further split by medical interventions and surgical procedures. Within each of these categories, there is a further split based on factors such as type of procedure, complicating clinical factors (CCFs) and other non-clinical factors that differentiate the processes of care.

In general, assignment of episodes to MDCs was done solely on the basis of the principal diagnosis. However, exceptions existed that resulted from clinical input. These included situations where secondary diagnoses are considered for purposes of MDC assignment e.g. HIV, multiple trauma, and quadriplegia/paraplegia; and where the patient's age (less than 29 days) allows direct assignment to MDC 15 (Newborns and Other Neonates). Episodes which are highly resource-intensive are also handled differently and are assigned directly to one of the AN-DRGs (listed under a pre-MDC category). Examples include transplants, tracheostomies and extracorporeal membrane oxygenation (ECMO) without cardiac surgery.

The early versions of AN-DRG were criticised by clinicians because they did not take adequate account of clinical complexity and severity. AN-DRG Version 3.0 addressed this deficiency by making use of surrogate indicators of severity. These surrogate indicators of severity were referred to as CCFs. They stratified severity using factors such as age, malignancy, complications and co-morbidities. For clinicians, this change was an acknowledgement that for a single diagnosis there were variations in the clinical care provided which was directly related to the severity of a clinical presentation.

AR-DRGs: A New Beginning

The Australian Refined Diagnosis Related Groups (AR-DRGs) classification represents a significant clinical refinement to the acute inpatient classification. It has been produced by the Commonwealth Department of Health & Aged Care, in consultation with the ACCC, the CCCGs and the NCCH.

The first version (AR-DRG version 4.0) used ICD-9-CM diagnosis and procedure codes. The following version released in 1999 (AR-DRG version 4.1) used ICD-10-AM (1st edition) codes.³ The classification is similar to AN-DRGs in that it is based on hierarchies. Significant enhancement to severity measures occurred which resulted in the CCF being modified. The CCF was replaced with a revised Complication and Co-morbidity Level (CCL) and Patient Clinical Complexity Level (PCCL) assignment. A

detailed description of these changes are available on the Internet.⁴

The numbering system for the AR-DRGs is considerably different to that used in the AN-DRGs. The system has three levels, namely 1) the broad group to which the DRG belongs (usually the MDC e.g. Diseases and Disorders of the Nervous System); 2) the location in relation to adjacent DRGs; and 3) the existence of splits based on resource consumption (Table II). These changes were made to allow for the clinical expansion of the classification over time.

Ambulatory

The ambulatory classification system was a priority for health care services within Australia. To this end, the development of an ambulatory classification system was referred to the ACCC Ambulatory Sub-Committee in late 1994. Initial consideration was given to adopting existing ambulatory classification systems however; investigation into the local and overseas classification systems failed to identify any that met the needs of Australian health services, even if they were modified. As a consequence of this analysis, consideration was given to developing an Australian ambulatory classification system from first principles. The principal design focus was the utilisation of such a system for payment purposes although clinical meaning and the potential to enhance health system management were also considered an imperative.

The Outpatient Costing and Classification Study was subsequently commissioned by the Department of Health and Family Services to evaluate the suitability of an experimental Developmental Ambulatory Classification System (DACS). Data on the full range of ambulatory

services (outpatient clinics, emergency departments and allied health services) were collected prospectively from a stratified sample of 28 public hospitals. There were 248,608 encounters captured in the study representing 1% of the total ambulatory encounters in Australia.⁵

As a result of this study, a clinic-based classification for outpatients and allied health departments was introduced nationally in 2001. This was not unexpected as ambulatory care takes place in a relatively constrained environment where clinicians designate “time slots” for their patients based on criteria relevant to their specialty areas. An emergency department classification was also developed and introduced nationally in 2001.⁶

Sub-Acute and Non-Acute Patient (SNAP) Classification System

With classification systems for acute inpatients and non-admitted patients being well catered for, clinicians began to focus on the non-acute area. This was because sub-acute care (palliative care, rehabilitation medicine, psycho-geriatrics, and geriatric evaluation and management) and non-acute care (nursing home, convalescent and planned respite care) was not adequately described by existing casemix classifications. It was noted early on that this group of patients was appreciably different to acute inpatients as their predominant treatment goal was maintenance or enhancement of quality of life and/or functional rather than to treat or cure a disease process.

To develop this classification, the Australian National Sub-Acute and Non-Acute Patient Casemix Study was conducted in 1996 in 99 hospital and community health sites in Australia.⁷ Over 30,000 episodes of care were analysed. This research was strongly supported by clinicians

TABLE II: THE NUMBERING CONVENTION: EACH AR-DRG CONSISTS OF FOUR ALPHANUMERIC CHARACTERS ORGANISED IN AN “ADDS” FORMAT

Character	Descriptor	Indicator
First Character “A”	Different letters of the alphabet (A – Z) have been used to signify the broad group to which the DRG belongs, while the number ‘9’ has been used to identify Error DRGs.	Indicates the broad group to which the DRG belongs e.g. MDC
Second and Third Characters “DD”	Different non-sequential numbers have been used to identify the adjacent DRG.	Numbers have been used to identify the partition to which the adjacent DRG belongs. Three separate ranges 01 to 39, 40 to 59 and 60 to 99 have been used to indicate the surgical, other and medical partitions, respectively.
Fourth Character “S”	A: Highest consumption of resources B: Second highest consumption of resources. C: Third highest consumption of resources. D: Fourth highest consumption of resources Z: No split for adjacent DRG.	Identifies the split that ranks DRGs within adjacent sDRGs on the basis of their consumption of resources.

AR-DRG: Australian Refined Diagnosis Related Group; MDC: Major Diagnostic Category

and has resulted in a robust classification being developed. The resultant classification, the Australian National Sub-Acute and Non-Acute Patient Classification System (AN-SNAP), has been finalised and implemented nationally.

Clinicians and Costing

It is essential that clinicians understand and contribute to the development of casemix costing systems and the cost data collections. Without this involvement, the refinement of the classification system cannot proceed. It also results in clinicians developing a better understanding of how cost data is collected and applied at a local and national level. Clinician managers, in particular, need valid patient costing data if they are to benchmark and improve cost-effectiveness while maintaining and enhancing quality.

The ACCC actively participated in the costing process by assisting in the refinement of the national cost weights and national service weights, which underpin the hospital payment system. In the initial phase of casemix implementation, these data were derived from a “cost modelling” approach. This approach had inherent limitations. Health has now moved to use a “patient costing” approach to overcome these limitations.

Teaching and Research

With the introduction of casemix to inform the budget setting process in Australia, clinicians were concerned that this would adversely impact on the funding of teaching and research because they are not funded directly under a casemix funding system.

To ascertain the impact of research and education in Australian hospitals, two large-scale government-funded consultancies were undertaken in 1994 and 1996.⁸ These consultancies acknowledged that the costs of teaching and research in Australian teaching hospitals could not be accurately separated from the costs of direct patient care. As a consequence, individual Australian State and Territory governments have provided teaching and research grants to teaching hospitals to defray these costs.

Aboriginal Health

Targeted analyses were undertaken by the ACCC in specific high-risk areas, such as those where vulnerable patient groups could be compromised following the implementation of casemix-based funding for hospitals. An example of this type of activity relates to the analysis undertaken in 1993 to determine if the treatment of Aboriginal (compared with non-Aboriginal) inpatients differed significantly. This was an important issue to be considered in the Australian context where there is substantial evidence in the medical literature of poor health

outcomes for Aboriginal and Torres Strait Islander people despite high hospital utilisation rates.

The research concluded that Aboriginal patients had a consistently longer average length of stay compared with non-Aboriginal patients. More importantly, the research confirmed a clinical perception that Aboriginal inpatients consumed 39% more resources for the same DRG than non-Aboriginal inpatients.⁹ As a consequence of this clinician lead research, special funding arrangements have been established to address this discrepancy.

ICD-10 and the National Centre for Classification in Health

The NCCH¹⁰ was established across two university campuses, the University of Sydney and Queensland University of Technology, following recommendations from the ACCC that a national body should be established to coordinate the refinement of coding systems in use in Australia. This recommendation was based on the observation that further clinical refinement of the casemix classification systems was not possible where data were collected using the ICD-9-CM coding system, which in the Australian environment was not able to adequately code either procedures or diagnosis.

With the establishment of the NCCH, Australia has developed both a centre of excellence in health classification theory and an expert centre in clinical coding systems. The NCCH provides services, which are accessible, support the effective and efficient use of health data, are client focussed, and emphasise data quality.

The NCCH has made a major contribution to the development of a reliable and valid classification and coding systems by:

- developing and publishing classification systems for use in Australia, including the ICD-10-AM;
- recommending national standards for classifications;
- developing and promoting standards of coding practice, including the accreditation of clinical coders; and by
- developing quality improvement processes relating to documentation and coding.

Of these, the most striking achievement of the NCCH has been the development and national implementation of the *International statistical classification of diseases and related health problems, 10th revision, Australian modification* (ICD-10-AM)¹⁰ coding system which was introduced in 1998. This system includes the Australian extensions to the World Health Organisation ICD-10 classification, in addition to a limited number of specific Australian disease codes. An important feature of the system is the arrangement whereby the procedure codes are based on the same system that is in use in the private

TABLE III: THE SERIES OF ACCC-SPONSORED SPECIALTY CODING BOOKLETS

Ophthalmology
Dermatology and Plastic Surgery
Ear, Nose, Mouth and Throat
Immunology, Rheumatology and Infectious Diseases
Nephrology and Urology
Oncology and Haematology (revised edition)
Neonatology and Paediatrics
Obstetrics and Gynaecology
Cardiovascular Medicine and Surgery (revised edition)
Respiratory Medicine and Surgery (revised edition)
Gastroenterology and Hepatobiliary
Mental Health, Drugs and Alcohol
Neurology and Neurosurgery
Injury
Orthopaedics
General Surgery
General Medicine

ACCC: Australian Casemix Clinical Committee

sector, the Commonwealth Medicare Benefits Schedule (MBS). This meant that the classification of procedures in the public and private sectors is now more consistent.

The NCCH also took a lead role in the publication of a series of ACCC-sponsored specialty booklets which targeted both clinicians and coders (Table III). The series contains specialty specific coding information relating to ICD-10-AM and casemix. The booklets have achieved their desired aim of improving data quality by emphasising to clinicians the importance of accurate and complete clinical documentation and by providing an overview of specialty-specific casemix issues.

Conclusion

During widespread consultation over the last 10 years, it has become clear that many clinicians have learned the language of casemix and are familiar with the casemix classification systems and the cost data relevant to their clinical specialty. They have also had the opportunity to contribute significantly to the development of meaningful classifications relevant to their specialty through their

involvement with operational research. This has resulted in the development of robust series of classification systems in all major environments where clinical services are delivered.

The success of casemix is and will continue to be dependent upon the participation of clinicians (including doctors, nurses and allied health professionals), clinical coders, financiers, and computer and information systems staff. The most crucial participants will, however, remain the clinicians.

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