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The coding workforce shortfall

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Contents

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Glossary/abbreviations

ABF	Activity Based Funding
ABS	Australian Bureau of Statistics
ACBA	Australian Coding Benchmark Audit
ACCM	Area Clinical Coding Manager
ACHI	Australian Classification of Health Interventions
ACS	Australian Coding Standards
ACT	Australian Capital Territory
AGSC	Australian Geographic Standard Classification
AHIMA	American Health Information Management Association
AHS	Area Health Service
AIHW	Australian Institute of Health and Welfare
AN-DRGs	Australian National Diagnosis Related Groups
ANZSCO	Australian and New Zealand Standard Classification of Occupations
APC	Admitted Patient Care
AQF	Australian Qualifications Framework
AR-DRGs	Australian Refined Diagnosis Related Groups
ASCO	Australian Standard Classification of Occupations
BADS	Business Analysis and Decision Support Unit
CAHIIM	Commission on Accreditation for Health Informatics and Information Management Education
CC	Clinical Coder
CCSA	Clinical Coders Society of Australia
CCSAA	Clinical Costing Standards Association of Australia
CHIMA	Canadian Health Information Management Association
CIHI	Canadian Institute for Health Information
COAG	Council of Australian Governments
CQHSD	Central Queensland Health Service District
CS	Costing Specialist
CSAC	Coding Standards Advisory Committee
DEEWR	Department of Education, Employment and Workplace Relations
DEST	Department of Education Science and Training

DoHA	Department of Health and Ageing
DRG	Diagnosis Related Group
ESRI	Economic and Social Research Institute
FTE	Full time equivalent
GCHSD	Gold Coast Health Service District
GCUH	Gold Coast University Hospital
GCSEs	General Certificates of Secondary Education
GTOs	Group Training Organisations
GWAHS	Greater Western Area Health Service
HIM	Health Information Manager
HIMAA	Health Information Management Association of Australia
HIPE	Hospital In-Patient Enquiry
HMDB	Hospital Morbidity Database
HSD	Health Service District
HWA	Health Workforce Australia
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, tenth revision, Australian modification
IFHRO	International Federation of Health Records Organizations
IHRIM	Institute for Health Records and Information Management
LHN	Local Hospital Network
MoH	Ministry of Health
MRA	Medical Record Administrator
MRAU	Medical Record Advisory Unit
NCCH	National Centre for Classification in Health
NCCQ	National Clinical Coding Qualification
NCHIRT	National Centre for Health Information Research and Training
NHISSC	National Health Information Standards and Statistics Committee
NHS	National Health Service
NPA	National Partnership Agreement
NSNL	National Skills Needs List
NSW	New South Wales
NT	Northern Territory
NZ	New Zealand
OTEN	Open Training and Education Network
PICQ	Performance Indicators for Coding Quality

QCC	Queensland Coding Committee
QUT	Queensland University of Technology
RBH	Rockhampton Base Hospital
RPL	Recognition of Prior Learning
RTO	Registered Training Organisation
SA	South Australia
SACC	South Australian Coding Committee
SNOMED-CT	Systematised Nomenclature of Medicine - Clinical Terms
SOL	Skilled Occupation List
TAFE	Technical and Further Education
TERC	Training and Employment Recognition Council
TESQA	Tertiary Education Quality and Standards Agency
UK	United Kingdom
USA/US	United States of America
VET	Vocational Educational Training
WA	Western Australia
WHO	World Health Organization
WHO-FIC	WHO Family of International Classifications
WIES	Weighted Inlier Equivalent Separation

Symbols used

Italics	within a table denotes a subtotal
™	trademark
— em dash	rounded to zero, (for example, the statistics is less than 0.5) including null cells
. .	not applicable (that category, data item does not apply)
n.a.	not available
n.p.	not published (data cannot be released due to quality issues, confidentiality, or permission not granted)
n.e.c.	not elsewhere classified
n.f.d.	not further defined
<	less than
>	greater than

Executive summary

Concern about the shortfall in the coding workforce in Australia has been raised in a number of national fora. This report seeks to quantify the scope of the existing shortfall, to project future numbers required to cover increasing demands, and to provide a consolidated set of recommendations to address the issues identified. For the purposes of this report, the coding workforce has been described as comprising Health Information Managers (HIMs), Clinical Coders (CCs) and Costing Specialists (CSs).

Background

Coding has been undertaken in Australian hospitals for over 60 years for the purposes of public health measurement, health services management, planning, performance and activity monitoring and epidemiological studies. However, with the introduction of casemix management in Australia in the early 1990s, different drivers for the quality and completeness of coding emerged. The first state to implement a case based funding mechanism was Victoria in 1993–94, followed by several other states and territories whose implementation of casemix was variously for management or funding purposes.

In 2010, in light of increasing pressures to deliver quality services to an ageing population which is experiencing increasing rates of chronic diseases, greater reliance on technology, increased consumer expectations and growing workforce shortages, the National Performance Agreement on Hospital and Healthcare Reform has proposed the introduction of an Activity Based Funding (ABF) model. This will be for an increased range of services, particularly in the case of outpatient services, and is based on the need for more and better health information to support public accountability and efficiency of hospital based services. The implementation of ABF and other aspects of the National Partnership Agreement (NPA) will require a larger and more productive coding workforce as coded data provides the source of many of the performance reporting and measurement targets.

The current coding workforce

There is a recognised shortfall in the coding workforce in Australia, as has been articulated in two previous national surveys (HIMAA 1995; McKenzie & Walker 2003). This report identifies changes in the workforce across the period since 1994, including an ageing workforce, general dissatisfaction with employment conditions and salaries, a greater number of part-time workers, an increasingly flexible and mobile CC population often working across multiple facilities, increased reliance on contract coding companies and the use of shared and 'roving' HIMs and CCs. These latter workers often have to travel great distances in order to manage the coding in rural and remote hospitals. Despite the greater reliance on complete and accurate coded data, there is evidence that the coding workforce continues to be required to undertake many other tasks as well as their coding roles.

In addition the inclusion, for the purposes of this report, of CSs within the definition of the coder workforce has created some issues, as this group is currently not a recognised specialist workforce. Thus further work is required to define these workers if their numbers are to be measured, and therefore no comparison over time is made.

The current coding workforce, as reported by respondents to the 2010 AIHW Coding Workforce Survey compared with the previous surveys, has the following broad characteristics:

- increasingly educated through the VET sector and not universities
- 65.3% CCs and not HIMs (except in Victoria, where the majority of the workforce is represented by HIMs who have graduated from an undergraduate program)
- increasing duration of coding experience
- predominantly female (92.8%)
- more than 50% aged 45 years or over
- around 50% working part-time
- two-thirds employed in public sector facilities
- 177.4 FTE vacant positions reported in respondent facilities, with the highest percentages reported in New South Wales, Queensland and Western Australia
- nearly 1 in 5 facilities employed contract coding companies to manage their coding workloads.

Other responses to the survey indicated issues relating to education, including the cost and duration of training, accessibility and the need to provide individualised support for new coders at facilities, regardless of how they have obtained their initial coding education. This issue was noted as difficult to manage because it also reduces the productivity of the supervisor.

The identified workforce deficit is anticipated to become more acute as the proposed government initiatives are implemented. A similar workforce shortage has been identified in a number of other countries that have also implemented case-based funding mechanisms. Australian state and territory health departments have also recognised the shortfall, and most have conducted their own studies to identify and count the workforce and to develop strategies and opportunities to improve its productivity. Common strategies identified across the states and territories include:

- use of a state-wide licence for the use of the 3M™ Codefinder™
- use of the Performance Indicators for Coding Quality (PICQ) tool
- creation of Coding Auditor and Educator positions
- state coding committees and coder websites for improved communication with coders.

This report explores past and current mechanisms for educating the coding workforce and makes recommendations for the future. Coders have been educated through undergraduate and postgraduate HIM programs conducted in four Australian universities, as well as for CCs through the Health Information Management Association of Australia (HIMAA), TAFE sector and through on-the-job training. Little is known about the CS workforce or about how they are educated. However, the universities report lack of enrolments into HIM programs and because of this, half of the previously offered undergraduate programs have been discontinued in recent years. The reported 'invisibility' of the coding workforce and the HIM and CC professions have affected enrolment numbers, and targeted marketing strategies are required. The announcement of the creation of Health Workforce Australia (HWA) is anticipated to provide the vehicle for engaging with the universities and other organisations that offer (or previously offered) coder training. This will assist them to identify strategies for recruitment, to better facilitate articulation between tertiary education sectors and to provide a variety of educational pathways for the workforce.

The future workforce needs

There is no way to determine exact figures for the supply and demand of coding workforce, but some attempts have been made in this report to estimate the numbers required. More importantly, this report provides a method for calculating the impact of various policy changes, so that as the details of the health reform become clearer, these calculations could be modified to test these or other hypotheses.

No attempt has been made in this section to estimate the number of CSs required for the future as, until this workforce can be more clearly defined, there are no baseline data on which to base projections. However, it can reasonably assumed that more are needed than are currently employed, and that this need will increase due to the same factors that are affecting the HIM and CC workforce.

One significant difficulty in undertaking these calculations is that the inflows to the workforce are only able to be calculated by the number of people trained, and the workload implications are only able to be calculated by the number of full time equivalents (FTEs) required to perform the function. Given the large proportion of part-time workers in this industry and the geographical challenges of delivering coding services in some areas of the country, the number of people required to meet the FTE calculations below is assumed to be much greater than the number of FTE coders estimated.

Following are the main calculations able to be derived from the data available and assumptions made for the proceeding 5-year period:

- the net gain from HIM and CC training programs, less the anticipated retirements from the workforce, is estimated as **1,476 people**
- the results of the survey undertaken demonstrate a current national coder vacancy rate of **>175 FTEs**
- to code the current volume of annual separations, **1,265 FTE** coders are required
- to keep up with the projected growth in separations, Australia will require an additional **193 FTE** coders over the next 5 years
- to code all non-admitted hospital services, an additional **1,493** coders will be required, or as few as **149** if only 10% require coder validation following some automated coding process
- e-health and other reform initiatives are expected to require an addition of **150 FTEs**, as a low end projection
- the implementation of ABF to all states may not mean additional numbers of staff, but may require more qualified staff, as per the Victorian experience.

These calculations indicate that an HIM and CC workforce of between 3,101 and 1,757 FTEs will be required within 5 years (2010 to 2015).

Recommendations

All the recommendations are based on the basic premise that there are three key ways to deal with workforce shortfalls in any area, which are:

- increase workforce numbers and hours worked
- retain the existing workforce
- increase output of the existing workforce.

It is also critical to note that these recommendations are not sequential, and that it is essential that many of these are undertaken concurrently.

It is recommended that the first thing required is the establishment of a Coder Workforce Taskforce under the auspices of HWA to undertake proper workforce planning. This will include assessment of where coding workforce staff are needed, how many and at what level of skill, etc. The outcome of the work of the taskforce will be an integrated plan to address workforce shortages and to determine actions based on the recommendations and action strategies noted below.

Immediate

1. Find non-working HIMs and CCs to fill current vacancies
2. Promote immediate improvement in current work arrangements for existing staff.

Short-term actions

3. Support a more in-depth body of work on the Costing Specialist Workforce, with the aim of developing a set of competencies and training packages
4. Finalise the development of an Australian Qualifications Framework (AQF) qualification for Clinical Coding, and assist existing coders to obtain Recognition of Prior Learning (RPL)
5. Promote careers in Clinical Coding, HIM and Clinical Costing nationally
6. Seek to have these careers listed on skills shortage lists
7. Investigate the value of coding software for improving quality and speed
8. Enhance continuing professional development opportunities
9. Undertake a national review of salary and industrial conditions for CCs, HIMs and CSs.

Longer-term actions

10. Provide scholarships, internships and training incentives
11. Establish Coding Workforce Units at the Local Hospital Network (LHN) level
12. Use technology to improve access to records to allow remote coding
13. Conduct national clinician training on diagnosis assignment and documentation
14. Establish a national coding auditing, education and support function
15. Define a career path for the coding workforce to integrate the existing workforce and create promotional pathway.

1 Introduction

The World Health Organization has recognised that health information is a key component of a well functioning health system, as outlined in their Health Systems Framework (WHO 2010). This focus on information has been driven by recognition of the importance of evidence-based decision making in the health sector, but in many countries the improvements in health information systems have been limited by the number of skilled staff to undertake this work.

Australia has acknowledged the need to enhance the health information workforce for a number of years, with a key body of work being undertaken in 2003 by the Australian Health Information Council, titled 'Health Information Workforce Capacity Building National Action Plan' (Australian Health Information Council 2003). However, this plan had a key focus on health informatics, and not on the broader health information workforce needs, and very few of the actions outlined in the report have been implemented.

Subsequent to the 2003 report, a number of national health reforms have been proposed that would place increasing demands on the existing health information workforce, specifically those involved in clinical coding. These include the implementation of national performance monitoring, Activity Based Funding, e-health initiatives, and other proposals that will rely heavily on coded data.

The new National Partnerships Agreement (NPA) component related to health workforce reform aims to restructure and improve the workforce capability and supply, and the efficiency of public hospital services, but does not specifically address the coding workforce. The national *Activity based funding framework and implementation plan* report acknowledged a national shortage of health information staff, including qualified Health Information Managers (HIMs) and Clinical Coders (CCs) (COAG 2009). A workshop initiated by the National Health Information Standards and Statistics Committee (NHISCC) based on the recognition of this issue was held in June 2009, which recommended a number of courses of action categorised as follows:

- achieving better understanding of shortages
- increasing workforce supply
- improving retention
- marshalling for action.

This report is the commencement of delivering on these recommended actions.

A broad picture of the size and characteristics of the coding workforce that underpins much health sector information is outlined in this report. The coding workforce has been defined by the Australian Government Department of Health and Ageing for the purposes of this report, as comprising the occupations of Clinical Coders (CCs), Health Information Managers (HIMs) and Costing Specialists (CSs). The definitions used for the first two groups, CCs and HIMs, are based on the standard classification of occupations by the Australian and New Zealand Standard Classification of Occupations (ANZSCO) used by the Australian Bureau of Statistics (ABS) (ABS 2010).

- *A clinical coder is someone who assigns codes to narrative descriptions of patients' diseases, operations and procedures in accordance with the ICD-10-AM classification to allow for storage, retrieval and analysis of health data.*

- *A health information manager is someone who plans, develops, implements and manages health information services, such as patient information systems, and clinical and administrative data, in order to meet medical, legal, ethical and administrative requirements of health care delivery.*

Although the third occupation has been labelled Costing Specialists, there is no single occupation or definition of workers who undertake the specialist costing functions in the health sector. In the ANZSCO classification, they may be in any one of numerous different occupations in accounting, financial management, or financial analyst fields. Costing Specialists are believed to have experience in, and knowledge of, the business and clinical aspects of the delivery and cost of health services at an operational level. They have expert knowledge of finance, relative values, casemix, costing, financial performance and national efficiency pricing which enables them to negotiate with health funds and payers on behalf of providers.

Collectively, these three occupations are described as the coding workforce in this report, which describes and quantifies the existing coding workforce, and uses this information to determine the likely shortfall in HIMs, CCs and CSs to support proposed government reforms and anticipated health sector growth. Although it is difficult to predict exactly how reforms and growth will impact this workforce, it is evident that the environment and drivers affecting coding are changing, and that action needs to be taken. The report also recommends a range of solutions to meet the growing workforce needs, including the use of existing and potential education and training pathways to attaining careers in these areas.

Scope of information

People working as CCs are mainly employed by hospitals and day care facilities or by private agencies which contract out their clinical coding services. Both these groups have been targeted in this project through different means. In some jurisdictions, some of the coding workforce may also be engaged at a regional or area level, providing coding services to a group of health facilities.

HIMs work in a much larger range of agencies, including all levels of government, health facilities, private agencies and health insurance companies. For the purposes of this project, the work performed by HIMs who are not employed in health facilities is assumed to be 'secondary', or indirect involvement, rather than 'primary', or direct involvement, in the clinical coding processes. That is, they may use the data resulting from the clinical coding that occurs in health facilities but have no involvement in the clinical coding process itself, and are therefore not considered part of the coding workforce.

'Clinical costing is a process of determining the "true" cost of treating patients. Each input utilised to treat a patient is determined, costed and assigned to the relevant AR-DRG' (The Royal Children's Hospital Melbourne – Health Information Services 2009). This is often referred to as a casemix funding model. Although not defined by any professional set of competencies or specific professional body, Costing Specialists are those people who work to ensure that the way costs are calculated and the AR-DRGs are allocated are accurate.

With no consistent definition of Costing Specialists in use nationally, collecting data about this group is problematic, particularly because little is known about the people who perform the costing functions of interest, or the homogeneity of the group. Collecting quantitative data was not feasible in the timeframe for this project and the focus will thus be on qualitative, or descriptive, information. A Clinical Costing Standards Association of Australia (CCSAA) exists to 'improve the costing of health services across Australia by

devising clinical costing standards that promote best practice and provide a benchmark for all hospitals to achieve'. However, this organisation appears to be currently dormant (The Clinical Costing Standards Association of Australia 2010).

A number of factors affect the size of the coding workforce at any particular point in time, including in-flows through education, migration and workplace transition, re-entry of workers previously trained, and out-flows of existing workforce due to migration, retirement, attrition, and even death. Figure 1 below provides a diagrammatic representation of how these flows affect the coding workforce.

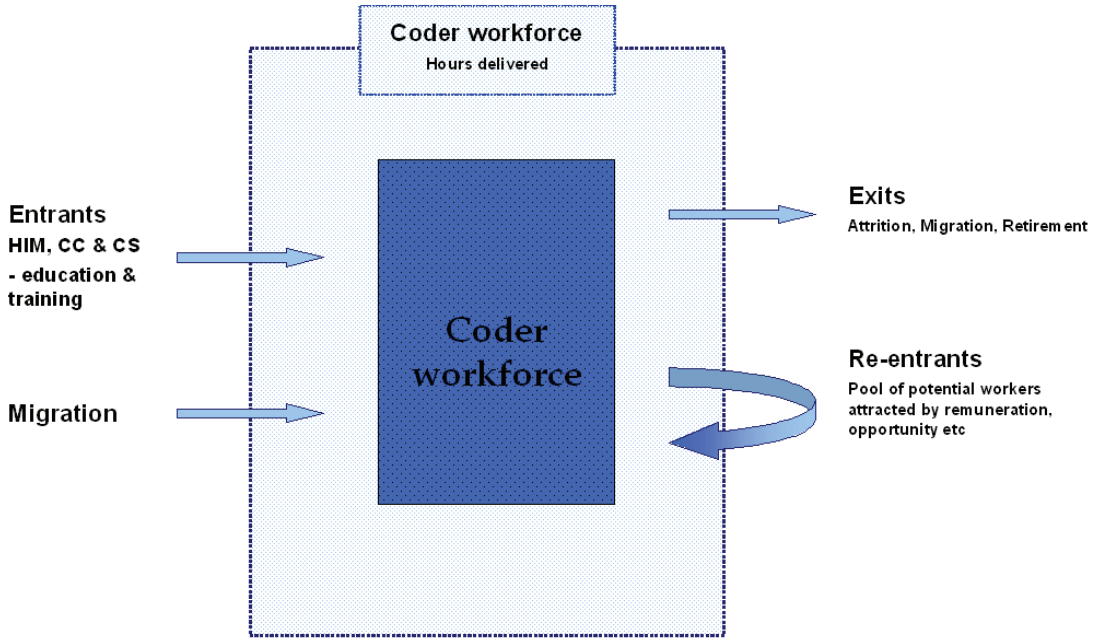


Figure 1: Coding workforce: stock and flow model

2 History

The evolution of the coding workforce

'Coding is the translating of narrative descriptions of diseases, injuries and procedures into alphanumeric codes' (HIMAA 1995). Coding of disease and procedure data has been undertaken in Australian hospitals since the late 1940s, and currently the ICD-10-AM/Australian Classification of Health Interventions (ACHI)/Australian Coding Standards (ACS) represents the classification system used to code all admitted patient episodes of care nationally.

The HIM profession has existed in Australia for more than 60 years. Over this time, the tertiary education programs for HIMs have included coding components, and new graduate HIMs have often taken on coding roles immediately after graduation as a pathway to transition into other areas of professional practice. Other HIMs choose to stay as specialist coders long term, some moving into more senior coding roles or becoming coding educators.

More recently, the CC profession received formal recognition during the National Coder Workforce Issues Project, conducted by the Health Information Management Association of Australia (HIMAA) in 1994–95 as a prelude to anticipated widespread casemix implementation. The title 'Coding Clerk' was first included in the ABS' Australian Standard Classification of Occupations in 1997 (ASCO code 61992) (ABS 1997, 1998). Information relating to the job and career prospects was included in Job Guide 2003 by the Commonwealth Department of Education, Science and Training (DEST 2003). The ASCO code was subsequently revised in 2009 to the title 'Clinical Coder' (ABS 2009)

Coders may have tertiary HIM qualifications but increasingly coding is performed by those who obtain their coder education through other means, as described below. These two occupational groups have well recognised identities but the boundaries in responsibility for coding overlap between the two groups. The emerging role of CSs also has strong interrelationships with CCs and HIMs, and with the increased use of casemix data these roles will continue to interplay.

To date, the coding workforce has been educated in one of the following ways in Australia:

- as part of formal HIM university degree programs
- through a distance education format, the most recognised of which is run by the HIMAA, which offers distance education programs in ICD-10-AM coding at introductory, intermediate and advanced levels and also offers a formal Coder Certification program to recognise excellence. The NSW Open Training and Education Network (OTEN) also offers distance education for coders through its Business Administration program
- through participation in an intensive short course in classroom format (for example, that run by the Queensland University of Technology (QUT) in 2007 which incorporated a 1-week medical terminology program followed by 3 weeks of coding instruction and then supervised workplace practice)
- through work-based on-the-job training.

Although, for the purposes of this report the coding workforce has been defined as CCs, HIMs and CSs, the latter has not previously been considered as part of this workforce group, and little is known about them.

The change in the role of coded data

As noted above, Australia has a long history of coding of hospital separations data. These data were traditionally used for public health research, health services management and planning, performance and activity monitoring, and epidemiological purposes.

In more recent times, the implementation of casemix, or episode-based funding mechanisms, has increased the focus on the quality and timeliness of coded data, and provides a different set of drivers to the collection of the data. Casemix has been implemented in different ways in the states and territories, as outlined below:

- Victoria was the first state in Australia to introduce casemix funding in 1993–94 for all public hospitals, and has continued to be recognised as the leading Australian state in its use of casemix for management and funding purposes. The Victorian system utilises Australian Refined Diagnosis Related Groups (AR-DRGs) that are converted into a single number—the Weighted Inlier Equivalent Separation (WIES). Health services receive a target WIES allocation at the beginning of each financial year which is capped; those who do more work than is allocated via the WIES will not be paid for the extra work nor will they receive the whole allocation if they fail to meet the target. Since its initial implementation for acute care hospital funding, a separate simplified 'casemix type' model has been implemented for ambulatory and rehabilitation services.
- At present New South Wales (NSW) Health utilises a funding allocation process to areas such as considering the population's needs, on recurrent expenditure requirements of new facilities and developments in Commonwealth funding arrangements. This is known as the Resource Distribution Formula. NSW implemented Episode Funding as a policy in 2008–09 which included acute, emergency, intensive care and sub- and non-acute services.
- South Australia (SA) implemented casemix principles or an output-based funding model in July 1994 based on that introduced in Victoria.
- Western Australia (WA) and Tasmania implemented casemix funding in 1996–97 utilising a standard price-capped full price model covering fixed and variable costs. Tasmania only implemented casemix for its three major hospitals.
- The Queensland introduction of casemix in 1998 followed the Victorian model of a capped standard price per hospital group, with fixed and variable costs separately enumerated. Fixed overhead costs and a variable cost per patient treated were implemented and the focus was on casemix as a management tool not as a funding mechanism.
- The Northern Territory (NT) is using a block funding model currently, but is working towards an ABF model following a failed implementation of casemix proposed in 1996.

3 Environment

National change

The Australian health system is under increasing pressure, as are many developed economies around the world, to deliver adequate levels of quality services to meet the needs of the population. This pressure is driven by 'increasing demand due to an ageing population, rising chronic disease, advancing technology and pressures associated with workforce shortages' (COAG 2008). In addition, there is a rise in the expectations of the health-care consumers about the services they receive.

Health reform

Acknowledging these challenges, on 29 November 2008 the Council of Australian Governments (COAG) committed to a new NPA on Hospital and Health Workforce Reform to deliver a range of reforms and improvements in the health and hospital sector. The NPA aims to improve the efficiency and capacity in public hospitals through four key reform components, the most significant one of these for the coding workforce being the introduction of a nationally consistent ABF approach.

Activity Based Funding

'Activity Based Funding is a management tool that has the potential to enhance public accountability and drive technical efficiency in the delivery of health services' (COAG 2008).

The NPA commits all governments to the development and implementation of patient classification and costing methodologies to enable Activity Based Funding of public hospital services, and the development of an ABF model methodology, including for setting price, incentives and transition arrangements.

The introduction of ABF highlights the explicit relationship between services provided and funds allocated, aiming to reward efficiencies, improve equity, financial performance and transparency and provide an objective basis for comparisons between peer groups. The ABF model proposed includes acute admissions, emergency care, sub-acute care, mental health, outpatient care, hospital-auspiced community health services, teaching/research, community service obligations ('minimum volume' hospitals).

The national reforms in the health and hospital sector will significantly increase activities to support the management and collection of health information and development of health information infrastructure for evidence-based decision making for health-care and health service delivery (National Health and Hospitals Reform Commission 2009). Underpinning these initiatives is the need for:

- classifications fit for purpose ('product IDs')
- counting methodology
- costing methodology
- processes for data management, analysis, reporting

- funding mechanisms
- processes for governance and management
- education for clinical staff to support better clinical documentation.

Performance reporting

Performance benchmarks and indicators are also key requirements of the new NPA with each aspect of the agreement having specific performance measurement targets, many of which require coded data as the source. Skilled health information specialists will be necessary to produce these data.

Local Hospital Networks

The Australian Government has recently announced the establishment of Local Hospital Networks (LHNs) across the country, to be paid directly by the Australian Government for each public hospital service they provide.

LHNs will be made up of small groups of hospitals that will work together to provide a range of hospital services and manage their own budgets. The networks are planned to be run locally, with national funding and accountability for performance against the national performance measurement standards noted above.

It is proposed that LHNs will be comprised of between one and four hospitals, with regional networks potentially including more small hospitals. The networks will be responsible for the running of public hospital services. In capital cities, networks will be built around large tertiary or specialist hospitals. In regional and remote areas, networks will be built around large regional hospitals (The Hon. Nicola Roxon, MP Minister for Health and Ageing 2010).

It is anticipated that the networks will become the principal unit of activity in terms of ABF and their creation may provide an opportunity to maximise use of scarce health information resources through sharing of expertise across hospitals in the network.

e-health

Advancing, implementing, and utilising health information technology and initiatives to better manage the timely flow of quality health information will be critical to the success of the reforms. Recent national workforce projections indicate that there is a significant shortfall in the number of suitably qualified health information specialists to undertake this vital work (The Australian Healthcare & Hospitals Association and The Health Informatics Society of Australia 2008). In addition, the e-health initiatives undertaken over the past few years nationally have already demonstrated the drain on the HIM workforce in particular, with many HIM graduates choosing e-health related roles over coding roles, mostly related to salaries and work opportunities (Victoria State Government 2010).

Coder education program changes

Significant changes have occurred in the education and training offerings for HIMs and CCs in recent years. Appendix 5 outlines the existing and proposed courses offered in Australia for HIMs and CCs. No formal training programs currently exist for CSs.

A number of factors, including the low profile of the profession and competition from other allied health professions, have led to a decline in both the number of candidates seeking

training in HIM, and to the number of courses offered nationally (Victoria State Government 2010). Two of the universities that previously offered undergraduate HIM degrees, The University of Sydney and Queensland University of Technology, indicate that they could not sustain programs with so few enrolments and these programs have been discontinued. Changes to the programs offered at La Trobe University and Curtin University reflect attempts to better cater for the market and encourage student uptake.

As part of the 2009 Budget, the federal government announced the creation of a Tertiary Education Quality and Standards Agency (TEQSA) which will take responsibility for the whole of higher education in 2010. The government plans that by 2013, the vocational education sector will also come under the responsibility of the new agency, which will also oversee the Australian Qualifications Framework (AQF) (Australian Government 2010). This provides opportunities to consider new ways to integrate the current disparate training programs for the coding workforce.

Health workforce planning

In addition, COAG has established a new agency—Health Workforce Australia (HWA)—to manage and oversee major reforms to the Australian health workforce. HWA will undertake workforce planning and research, education and training, and innovation and reform. COAG has announced the following major reforms which the agency will manage and oversee:

Increasing supply

- Improving the capacity and productivity of the health sector to provide clinical education for increased university and vocational education and training places
- Facilitating immigration of overseas trained health professionals and continuing to develop recruitment and retention strategies.

Reforming the workforce

- System, funding and payment mechanisms to support new models of care and new and expanded roles
- Redesigning roles and creating evidence based alternative scopes of practice
- Developing strategies for aligned incentives surrounding productivity and performance of health professionals and multi-disciplinary teams (Community Services and Health Industry Skills Council 2009).

HWA provides a vehicle for reforms in education and training for health information professionals. Mechanisms are required to facilitate better articulation and credit transfer arrangements between the higher education sectors, for example, Certificate I to Advanced Diploma for work based training; Diploma to Doctorate in the higher education sector. The AQF, a national competency based arrangement, is seen as the model to be used across sectors to guide content of education and training programs within a single governance framework for the tertiary sector.

All of the changes outlined above that are occurring within the broader national context mean that changes to the supply and demand for the coding workforce are expected. There will not only be a need for more health information professionals but also changes in the skill levels required of each discipline and changes to their roles and education.

International

Australia is not the only country to be facing challenges in maintaining adequate levels of specialist health information workers, and more specifically the coding workforce. The increasing importance of the collection and processing of health data, particularly for funding, is a phenomenon that is being experienced in a number of countries which have implemented some form of case based funding. The need for a larger and increasingly skilled coding workforce is a common factor in these countries and is being addressed in a variety of ways, as outlined below.

Some work has also been commenced on an international curriculum for health information management, and a draft of this can be found at Appendix 8. Work is also being undertaken to develop a core curriculum for coder training programs by the WHO Family of International Classifications (WHO-FIC) and International Federation of Health Records Organizations (IFHRO).

New Zealand

As our closest neighbour, and with open boarders for migration of workers, it is important for us to understand how New Zealand (NZ) is managing their need for coders, acknowledging that their coding workforce is also influenced by an international shortage of skilled Clinical Coders. NZ has also noted that they have specific issues with an ageing CC workforce (Wetherspoon 2009).

New Zealand has no university programs in HIM and most of their existing CCs have been trained using the HIMAA distance education program, or via local training programs.

In 2007, a briefing paper entitled 'Clinical Coder Workforce Issues' was written which noted a shortage of trained and experienced CCs, and reported on the results of a *Clinical Coder needs survey* that was undertaken in August 2007. This survey found that approximately 10% of all hospital-based coding positions were vacant (17 full-time equivalent (FTE) positions), with an additional 17 CCs with >10 years experience intending to leave the coding workforce in the near future. In addition to this, 30% of the respondents had no formal coding qualification.

A number of activities have been undertaken to address the issues identified in this report, including:

- the promotion of clinical coding as a career, by including a career profile of Clinical Coding on the New Zealand Careers website, development of a CC career brochure and efforts to increase the visibility of CCs
- delivery of a national coder training program. The NZ Ministry of Health (MoH) has endorsed the HIMAA clinical coder education program to enable CCs to attain formal coding qualifications. In addition, the MoH provides a yearly regional education program, newsletters, a helpdesk service and a website to support CCs (New Zealand Ministry of Health 2007).

Ireland

Ireland commenced using the Australian ICD-10-AM/ACHI/ACS and AR-DRGs in 2005, and thus their experience with supplying and maintaining an adequate coding workforce is particularly relevant.

The 60 acute public hospitals in Ireland have 200 CCs in total. The CCs are supported in their work by approximately 30 Coding Managers nationally who often have a dual role as Casemix Coordinators. A full-time CC is expected to code about 7,000 discharges per year.

CCs are provided training, free of charge, by the national Hospital In-Patient Enquiry (HIPE) unit in the Economic and Social Research Institute (ESRI). Those trained as CCs are generally administration staff of the hospital with no formal medical training. The training 'involves attendance at modular training, starting with a 2 day WebEx guided course by teleconference. This is followed by two two-day courses over the following month. This course is followed by a visit to their hospital by one of the data quality team. After three months these coders are invited to attend an Intermediate level-doing course' (Murphy 2010).

In addition, specialised workshops are conducted three times per year, and 2-day refresher courses are run regularly. Courses are held at both the central and regional levels.

A quarterly newsletter is used to communicate with the coders in the hospitals, providing information about code changes, courses, and as a tool for providing feedback on issues arising from audits or queries.

While there is currently no accredited certification for CCs in Ireland, a project is underway to consider the introduction of certified and accredited training programs. The ESRI courses are currently only available to staff working in a HIPE supported hospital, but consideration is being given to opening this up in the future. It is anticipated that 'accredited training would provide:

- a career structure for coders
- create a coding profession
- improve perceptions within the wider healthcare community of the high standards coders work to
- help with retention of coders' (Murphy 2010).

Consideration is also being given as to how the skills of the existing staff can be enhanced, and to open up coding roles to new staff.

United Kingdom

The United Kingdom of Great Britain and Northern Ireland is made up of the two countries of England and Scotland, the principality of Wales and the province of Northern Ireland. Each country has a National Health Service (NHS) and in Northern Ireland there is integrated health and social care.

The National Clinical Coding Qualification (NCCQ) is the only nationally recognised qualification for CCs working in the NHS. It is a national standard qualification that values their unique skills and knowledge. The qualification was established in 1999 by the NHS Connecting for Health, in partnership with the governing body for the exam which administers all aspects of the process, the Institute for Health Record and Information

Management (IHRIM). It was also developed in collaboration with the NHS in Scotland, NHS Cymru (Wales), and the Health and Social Services Executive (Northern Ireland).

Wales and Northern Ireland

Wales encourages coders to become qualified by sitting the NCCQ and uptake for the exam is good. However, of the 296 coders registered in Wales in 2008, only 51 had the full ACC qualification (17.22%). Northern Ireland has the lowest percentage uptake within the United Kingdom (exact numbers were unable to be obtained).

Scotland

Within Scotland there is a variety of models used for the coding of patient records, from dedicated departments managed by a Health Records and Informatics Service to various other clerical staff members who may undertake clinical coding for all of part of their time and are managed by various clinical service directorates.

The majority of NHS boards are managing to recruit and retain sufficient clinical coding staff to maintain the current 6-week turnaround of Scottish Morbidity Record data. Staff trained as coders are mostly existing staff working in health records departments.

There is a central training team which provides a national program of annual training. Although this training takes place and there are mentoring arrangements in each board to support new and learning staff, there has not been a great uptake for the NCCQ and the numbers of qualified coders are very low indeed.

England

England is the largest country in the UK and has the highest percentage uptake of the NCCQ. Having coders qualified with the NCCQ and targeted training programs is a formal requirement in England as clinical coding supports Payment by Results, which is the mechanism whereby hospitals are paid for the work that they do. Since the National Clinical Classifications Service introduced its training service in 2002, there has been an increased uptake in the number of new coders who have had formal foundation course training. Continued professional development in clinical coding is through attendance at meetings and workshops.

In England, CCs use the ICD-10 for coding diseases and the Office of Population, Censuses and Surveys Classification of Surgical Operations and Procedures 4th revision (OPCS-4) for coding procedures, either using coding manuals or encoders. For employment as a CC, most hospitals require General Certificates of Secondary Education (GCSEs) and a good standard of English language; medical terminology experience is desirable but not essential.

In 2003, a total of 307 NHS Trusts were asked to participate in a survey about the English coding workforce. Half of the English respondents were employed on a full-time basis and undertaking no additional work other than clinical coding, and 46% were employed part-time and undertaking no additional work other than coding (Bracewell & Dear 2003).

England faces a number of similar issues to other countries including:

- inability to recruit trained staff within the NHS Trusts due to active recruitment by commercial companies who undertake coding consultancy, training and back-log coding
- financial challenges at the trust level with funding CC positions

- pressures to meet the Payment by Results deadlines (the NHS case-based payment system)
- the time required to keep up to date with changes and updates to the coding system, time for studying for the NCCQ exam, and time for staff to attend ongoing training.

A number of strategies have been implemented at the national level to address the needs of NHS CCs and deliver cost effective training, including establishment of:

- a Clinical Coding Academies Project, where training centres are endorsed by the NHS Classifications Service to support the continuous professional development of the NHS CCs. Training is delivered by approved clinical coding trainers using a national suite of training materials
- a clinical coding trainer and auditor program, where courses in the core skills needed to become a clinical coding trainer or auditor are delivered by the NHS Classifications Service to maintain and develop required national standards
- accreditation for clinical coding in the NCCQ
- e-learning material on the basic four-step coding process, and anatomy and physiology (Bracewell & Dear 2003).

United States of America

In the United States of America (USA) CCs are required to have a wide range of competencies that include quality and audit areas and reimbursement system knowledge, as well as the usual roles of abstraction and code selection.

In 2002 in the USA 10% of coders were employed part-time, 87% on a full-time basis and 3% were paid a per diem rate (AHA Commission on Workforce for Hospitals and Health and Health Systems 2002). The USA had a higher proportion of coders with tertiary qualifications than many of the other countries reviewed when a comparison was undertaken in 2004, and were paid 30% more than Australian coders (McKenzie et al. 2004). However, vacancy rates appeared to be even greater than those experienced in Australia at that time, with 8% of hospitals reporting vacancies, and over 40% of hospitals reporting difficulties in recruitment to their coding workforce. This was even though they had lower reported coding throughput targets, which may be related to an enhanced role in coding data quality and compliance due to its use for reimbursement.

The American Health Information Management Association (AHIMA) offers coding certificates at a range of levels. Eligibility to sit for AHIMA Coding Certificates is based on demonstrated knowledge and experience. Formal coding education is not required, but is recommended for novice coders. AHIMA offers a model coding curriculum approval program for certificate programs (see Appendix 6) with a formal process to ensure that programs meet the model curriculum criteria. Health-care organisations in the USA indicate that an AHIMA coding credential is either desirable, or required in some cases, for employment (McKenzie et al. 2004).

HIMs in the USA are required to hold a bachelor's degree from an accredited program. In 2008, there were 48 accredited bachelor's degree programs and five master's degree programs in HIM, according to the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) (CAHIIM 2010). CAHIIM has been established to accredit HIM education programs at the masters, baccalaureate and associate

degree levels. Career pathways have been designed to try to attract more students and to assist HIMs to plan their careers (see Appendix 6).

Canada

In Canada, coders are responsible for allocating ICD-10-CA/CCI codes to diagnoses and procedures using a Folio software product. The Folio product is a computerised program which eliminates the need for coding books. The coders also check reports that are returned, either online or in paper format, from the Canadian Institute for Health Information (CIHI). They are responsible for quality assurance activities, participating in meetings to discuss coding issues and other activities related to coding.

A coder can gain their education from a community college, a university program or from a program offered by the Canadian Healthcare Association. All programs are reviewed and approved by the Canadian Health Information Management Association (CHIMA). Once a potential coder has graduated from one of these approved programs, they are qualified to sit the certification exam set by CHIMA. A 'laddering program' exists in which a practising HIM professional, such as a health record technician or health record administrator, can enter the third year of a 4-year program and when the candidate passes, receive a bachelor's degree in HIM. Today, Canada has only one category of HIM graduate—an HIM professional. The previous health record technician and health record administrators still exist but these practitioners are encouraged to upgrade their skills.

The experiences of the countries outlined above demonstrates that similar issues and challenges are being faced globally with regard to training and maintaining an adequate number of HIMs and CCs to undertake coding, and that these challenges seem to be exacerbated by the introduction of casemix-based funding models.

A number of the strategies outlined may be worthy of consideration for trial in Australia, and these will be discussed further in the recommendations section of this report.

Jurisdictional activities and initiatives

The issue of a shortfall in the coding workforce has been recognised by all jurisdictions in varying degrees over a number of years, and many activities have already been commenced to address the problem.

The following is a summary of issues faced and strategies implemented by each jurisdiction. This information was collected through the review of published reports and direct consultation with key representatives within each jurisdiction to ensure the most up-to-date information is contained.

Australian Capital Territory

With its small population size, unique demographic mix, and non-metropolitan rural location, the Australian Capital Territory (ACT) faces some challenging coding workforce issues. There are two large public facilities with broad and complex casemix, as well as three private facilities.

Issues

Generally, facilities within the ACT have adequate clinical coding positions to meet submission deadlines. Some facilities, though, have been operating with recurrent coder vacancies over the last few years, which has led to substantial coding backlogs. There is some effort required to attract competent Clinical Coders to the ACT. Pay grades for CCs in the ACT are equitable to other states and territories, but do not attract CCs from interstate or those with experience. Like a number of rural and remote facilities, ACT has challenges attracting a new and young workforce. As is experienced in all states and territories, newly graduated coders require significant amounts of on-the-job training and mentoring to achieve high standards of coding throughput and quality. However, this additional training impacts on total coder productivity and can take up to 12 months.

Retention is not seen as a problem, with many long-standing staff across the facilities. There are, however, issues relating to lack of opportunity for career advancement and the ageing workforce, as coders reduce their working hours or retire.

The introduction of new information systems and software has improved coding outputs and allows coders to concentrate on their core tasks. For instance, the Canberra Hospital has a scanned medical record, with the 3M™ Codefinder™ and Grouper™ interfaced with the patient administration system. However, such systems are costly and require well functioning infrastructure, implementation, training and maintenance.

Strategies

The engagement of contract coding companies and the use of casual coders have been used to manage the substantial coding backlogs experienced on a periodic basis.

ACT had a Coding Committee to facilitate communication and feedback between Clinical Coders, coding managers and HIMs. However, this committee is currently inactive due to workload pressures and workforce shortages. Monthly facility-based coding meetings are being held to discuss coding queries, education and workplace issues, and informal communication between ACT facilities is common.

ACT Health facilities monitor their own quality of coding output. This is performed through regular audits, both random and specific, for example to identify adherence to a coding standard change, or to inform education in an identified 'problem' area of coding. Data quality tools such as Performance Indicators for Coding Quality (PICQ), and the Admitted Patient Care (APC) data set validations, and external audits are also used.

The public hospitals have a number of HIMs who work as coders. Their roles include coding education and auditing, in addition to coding. All facilities encourage coders to attend coding workshops and conferences as they are able.

ACT Health has a limited number of clinical costing officers and specialists working within its two public hospitals. In conjunction with the implementation of the ACT's ABF initiatives under the NPA on Hospitals and Health Workforce Reform, ACT Health will be developing staff skills in clinical costing with particular attention to patient level costing. Training of staff has been identified as one of the main activities under the ACT's implementation plan.

New South Wales

As the state with the largest population, NSW has the greatest need in regard to numbers of staff in the coding workforce.

Issues

NSW is experiencing a shortage of suitably trained CCs and HIMs. With the introduction of ABF in NSW Health as a hospital budget tool, instead of a hospital cost benchmarking tool, the demands and impact on the coding workforce is expected to be significant, particularly given the closure of the HIM undergraduate program at The University of Sydney.

Strategies

A number of strategies are being introduced to help reduce the impact on the coding workforce; one of these being to undertake a review of the coding workforce and capacity development in NSW. This review will assist in exploring new avenues to grow the workforce and amend the career structure for coder educators and coder auditors. As part of the capacity development component, continuing education opportunities will be explored. The Area Health Services (AHS) have made significant efforts to grow their coding workforces and their ideas and strategies will be canvassed as part of this strategy.

A recent clinical coding workforce survey, which was a component of a coding audit, was undertaken in NSW. It included public hospitals where the episode funding policy would apply. The final report by the consultants is still to be delivered; however, it is anticipated that a number of recommendations will be made by the consultants regarding workforce issues.

No information was able to be obtained about CSs working in NSW.

Northern Territory

Currently, the NT is funded using a block funding model, although it is working towards an ABF model. There is a long history to this, part of which was a failed activity based model which was proposed in 1996. The move to an ABF model being adopted by the NT has highlighted the issues affecting clinical coding, providing some leverage to achieve change.

Issues

The NT, like many other jurisdictions, has suffered from a lack of adequate number of coding positions, as well as CCs to fill the existing vacancies, and this has led to major coding backlogs. Retaining the existing coding workforce is also an issue, with 50% of the workforce over the age of 50 years, and difficulty with training new coders at remote sites often thousands of kilometres apart. There are also very limited career options for coders, and geography and remoteness contribute significantly to the issues experienced in the NT.

Strategies

The NT has undertaken a number of different strategies to ensure it has an adequate coding workforce including recruitment from interstate, as well as investing in training existing hospital staff in major centres to undertake the HIMAA fast track coding course. The available coding resources are used within the network of five hospital sites where the need arises, and a number of retired employees have been engaged as contract coders to assist with backlogs.

The small size of the coding workforce provides the potential to achieve high levels of coding consistency across sites and is facilitated through the NT Coders' Forum. This is an inclusive committee rather than a representative one and provides peer support and a forum to discuss coding queries, common issues and the application of standards. It is also a formal communication channel for the dissemination of information from national committees such as the Coding Standards Advisory Committee (CSAC), and feedback from conference attendance.

Other recent changes have provided further opportunities for improvements, including the implementation of the Shared Electronic Health Record (EHR). NT is investigating off-site coding within the NT hospital network by utilising the skills and time of coders to code episodes at various sites electronically. This is possible due to electronic diagnostic results and discharge summaries, scanning and a shared hospital information systems network which allows for data entry (coding indexing) at a location distant to the original hospital.

It is unclear how many people may be defined as 'Costing Specialists' given the lack of definition of this role and numbers are hard to quantify in terms of FTEs. There was one person specifically recruited to a costing role for the public hospital network in 2010 in a newly created position, but there may be others whose work borders on costing but would generally be as part of another role.

Queensland

Queensland Health has been grappling with the issue of obtaining and maintaining an adequate coding workforce for some time, and has already undertaken some large pieces of work that have helped to inform this Coding Workforce Shortfall report, particularly in relation to future workforce projections.

Issues

In February 2010, Queensland Health published a report on the *Health information manager and clinical coder workforce project* prepared by Workforce Design and Liaison Unit, Clinical Workforce Planning and Development Branch (Queensland Health 2010). This report attempts to quantify the existing HIM and CC workforce in Queensland public hospitals, as

well as project the additional numbers that will be needed for the future. There are a number of key areas of recommendations proposed which are now being considered by the Queensland Health Executive Director of Corporate Services. The strategies recommended relate to:

- recruitment and retention strategic initiatives
- education and training liaison with providers
- role design and flexible models of service delivery
- workforce data collection and interrogation for workforce strategy development
- collaborative approaches to national initiatives for e-health and ABF implementation.

An undergraduate degree program in HIM existed at QUT until recently, with the last intake of students commencing study in 2008. Since that time, a Graduate Certificate in Health Science (Clinical Coding) has been implemented but will be discontinued from 2011.

Strategies

Queensland Health holds a state-wide licence for the use of the 3M™ Codefinder™ allowing its use in all public hospitals in the state. However, it is unknown whether coders at each hospital use this tool and there has been no evaluation conducted to determine whether using the encoder makes them faster or more accurate coders.

There are auditor roles in certain hospitals held by both CCs and HIMs, as well as in some districts. This is seen as an area of increased demand and obviously higher skill levels are required, but these will not contribute to the coding of additional separations.

Queensland Health sponsored a fast track coding program in 2007 that included supervised work-based practice at the conclusion of a face-to-face training period. Feedback from participants was mixed due to the length and depth of the program, and some felt that they did not get sufficient grounding to enable them to code completely and accurately. This is a common comment from graduates and employers of graduates of all coding programs regardless of duration or depth.

Queensland Health also operates the Queensland Coding Committee (QCC) which has representatives of major hospitals, speciality hospitals, and rural and remote sites. The QCC provides expert advice and support to Queensland Health coders and acts as a conduit for coding queries and advice to and from the National Centre for Classification in Health (NCCH), although this filtering process has been reported to be inefficient and should be reviewed nationally. The QCC publication, CodeFile, also provides coding advice, and a clinical coder support website has been established. Queensland Health suggests that a national coder support website is something that would be of benefit in sharing best practice and resources.

In 2009 a new pay arrangement for CCs employed by Queensland Health was negotiated within the Administrative Officer scale, which has significantly improved the pay and conditions of CCs as there has been a disparity for some time between coders carrying out the same role (even in the same hospital) and being paid under different streams. However, at the same time, HIMs were not included in the newly created Health Practitioner Award, but left on the general Professional Officer scale. This has created significant inequities in terms of award provisions, specifically in relation to the Administrative and Professional Officer pay scales. It has also created an additional issue where new graduate HIMs are paid

less than entry level CCs, and the allocation for professional development support for HIMs is less than for CCs ($600 per year compared with $2,600 per year respectively).

In a very recent development, the eHealth program in Queensland Health is investigating the future health workforce and what it will look like given the advancements in information communication technology, in particular, electronic medical records (Queensland Government 2009). Another study is being undertaken to ascertain how the HIM/CC role may evolve when a healthcare environment transitions from a paper based system to an electronic system; what new skills and capabilities will be required, and how the work environment will change.

The role of CSs appears to have been considered quite strategically in Queensland Health, with the development of generic costing system team structures at the local facility level with descriptions of the characteristics that are needed in the various team roles. At the Health Service District (HSD) level, made up of 21 clinical costing sites, these include:

- Casemix and Costing Officer – works in conjunction with Manager, Casemix and Clinical Costing to assist with the collation and management of activity, financial and related data from key HSD information systems and adds value to the district's planning, performance monitoring and decision-making processes
- Senior Clinical Coder – responsible for the provision of a timely and accurate clinical coding service for the HSD
- Manager Health Information Services – manages health information services in the HSD including planning, development, implementation, maintenance and evaluation of services.

South Australia

Issues

In general there is an ageing coding workforce in SA and it is anticipated that within the next 1–2 years many members of the workforce will either reduce their working hours or retire completely. Despite this, many who have completed the HIMAA Introductory coding course may not be able to be employed as there is a low turnover of coding staff in SA. In addition many hospitals struggle to provide mentoring/supervision for unskilled coders with no hands-on experience as they indicate their own resources are stretched to the limit and providing the time and energy to an individual competes with other coding demands.

Strategies

Strategies for supporting the SA coding workforce are provided by the Department of Health's Medical Record Advisory Unit (MRAU). Since 1994 and the introduction of casemix in SA, the MRAU has coordinated regular education workshops for the coding workforce. When there is a change of edition of the ICD-10-AM, the entire SA coding workforce of approximately 152 coders, covering both public and private sectors, is sponsored to attend the workshops. A post-implementation workshop is coordinated for this group of staff in the alternate years to focus on known areas of difficulty or where additional explanations of changes are necessary.

Additional sponsorship is available to public hospital coders to take part in extra coding education such as the Medical Science module (as offered through Curtin University) and

Introductory, Intermediate and Advanced coding courses offered by HIMAA. A stipulation for being accepted for sponsorship is that there is agreement from the candidate's employer to provide on-the-job support; for example, in the form of time to attend training and placements to apply technical skills learned. Eight applicants were sponsored for a variety of these programs in 2009.

Auditor training is also being supported financially and otherwise by the individual hospital sites themselves.

Since 1994, formal education in a nationally recognised coder training course has been an essential criterion in all job descriptions for coders at the public hospital sites and for most private hospitals. Personnel who have successfully completed a basic coding course, but who have not worked in a hospital coding unit before, enter the coding workforce at an ASO2 classification and are eligible for an ASO3 classification on the satisfactory completion of 6 months' full-time work under the supervision of a Senior Coding Officer or Manager Coding Services. In some instances a further in-house test is done to support the move to the next salary classification.

The MRAU handles all coding queries which require clarification or adjudication. A regular meeting of the South Australian Coder Committee (SACC) is held for hospital coding representatives to discuss areas of concern or ambiguity, and it liaises with the NCCH regarding any issues that cannot be resolved locally. Codefix is a publication provided quarterly to all SA coding staff that provides information on matters and queries considered by SACC and NCCH, helpful hints and information, and profiles of coding staff or their health unit. South Australian Morbidity Coding Standards and Guidelines (Inpatients) provide a reference which further guides coding staff in the most appropriate assignment of ICD codes in the SA setting.

The South Australian Clinical Coding website is still under construction.

There are no state-wide licensing arrangements for the use of the 3M™ Codefinder™ nor for coding audit tools, such as PICQ and ACBA, and use varies from site to site. Most sites have some local means of keeping the coding workforce well informed, but the quality of these sessions will vary subject to the depth and expanse of the experience, knowledge and skills of the Coding Senior/Coding Manager. Coding auditors and educators are not a feature in hospitals as business cases have either not yet been written or are not well supported by hospital management.

A coding audit is about to be undertaken in SA again this year and it is hoped to glean more up-to-date and detailed information regarding the coding workforce as a whole as well as perceived education shortfalls.

The specialised skills in clinical costing tend to be based at a regional level and usually aligned with finance departments. In SA, costing specialist positions have been filled in the past by a mixture of staff with backgrounds in accounting, finance or nursing, or the work has been outsourced to private companies. Currently only one of the eight patient costing sites has an in-house staff member undertaking patient costing, and the processing of data from cost-modelled sites is performed by a contractor.

The actual costing tasks are well defined in SA; however, the costing tasks are only one component of a position that is also responsible for other issues associated with casemix.

There is currently no ongoing training or workforce development and succession planning, but SA is in the process of reviewing how and who should be doing patient costing and

where it should be done. SA Health is working to determine the most appropriate structure and workforce design to provide the state with a sustainable patient costing service.

Tasmania

Tasmania, as an island state, has an unusual geographic circumstance that affects their coding workforce.

Issues

Tasmania has had difficulty attracting and maintaining an adequate coding workforce for a number of years. A position of state-wide Coding Educator/Auditor has recently been advertised to meet the needs of the state to improve the quality and quantity of coding staff and the data they produce.

Strategies

Strategies already undertaken in Tasmania include the purchase of a state-wide 3M™ Codefinder™ licence for use at all facilities, as well as a state-wide licence for the PICQ tool. The PICQ analysis reports can either be run at each hospital or hospitals can request that the Information Unit run these and send the reports to them, and these are then used to provide feedback to the coders as part of the quality improvement process.

A number of hospitals have had success in recruiting internally and educating these staff through the HIMAA terminology and coding courses. They have found this leads to improved retention rates of coders as they are engaging staff who are already living in the area and are less likely to move on later.

No information was able to be obtained about Costing Specialists working in Tasmania.

Victoria

Victoria is still struggling to attract and maintain an adequate coding workforce, even though they currently have the greatest number of coders per head of population nationally, and historically some of the most generous industrial conditions in the country (McKenzie & Walker 2003).

Issues

The current and increasing shortage in the coding workforce, with particularly severe impacts in rural areas in Victoria, has prompted some serious investigation of this issue in recent years.

In 2008 a survey of the HIM and CC workforce in Victoria was undertaken which showed the workforce to be predominantly female (93%), relatively young (51% aged less than 40 years), and mostly born in Australia (86%). Although only a little over half were working full time (52%), the average hours worked were relatively high, with a large number working in more than one location. The survey also showed that coding is undertaken by a mainly HIM qualified workforce but 16% have an HIMAA certificate, and 43% were working primarily as a coder. Many HIMs in particular were employed in non-coding roles.

A second survey was undertaken in 2009 that looked at this workforce from a different perspective. Ninety-four health services were invited to participate, with a little less than half agreeing (42%). There was found to be a 63.6% vacancy rate for HIM positions, with the shortfall being managed by overtime (paid and unpaid), contract coders, and outsourcing the coding. It also highlighted other issues including that coders are spending 25% of their time on other duties, and the impact of training graduate entry coders on-the-job has on other coders in the workplace. This was seen as a serious issue in an ABF environment.

Further research undertaken in 2009 found that La Trobe University had difficulty attracting students to the HIM course, and were suffering from competition from allied health courses, and the low profile of HIMs and CCs. A number of issues were also seen to drain the potential workforce pool including interstate and international migration and opportunities for HIMs to work in new areas.

The research also highlighted the increase in the 'scope of practice' for this workforce. In addition to the core area of coding, in a casemix funded environment, detailed understanding of casemix classifications and of funding models is also required. Managers highlighted concerns which included education of coders, lack of value of coders by other staff, complexity of coding, award structure and salary, and promotion of coding as a career option.

The introduction of casemix funding in Victoria had a dramatic impact on the clinical coding workforce. Coders went from the 'basement to the penthouse!' (Shepheard 2010). There was a large increase in the coding workload as coders were now required to attend regular casemix meetings, provide continuing education, conduct quality activities, take more care with the accuracy of their coding, and maintain currency. Coders needed to have an expanded skill sets, taking on roles as educators, communicators and auditors. They also had to become experts in AN-DRGs, AR-DRGs, Vic DRGs, Victorian additions to the Australian Coding Standards, policy and funding guidelines, WIES formulae and cost weights. There was a need for more and for better skilled coders.

It is anticipated that the proposed national ABF model will have a similar impact on the coding workforce, and Victoria's experience will be relevant to other jurisdictions by highlighting that they will also need more and better Clinical Coders. Victoria will be in a better position than most states, with local access to HIM graduates, and they are already working in a casemix environment.

Strategies

The Department of Health is working on establishing a working party to develop a strategy to address workforce shortages in HIMs, CCs and CSs. This working party will consider a broad range of issues including attracting and retaining workforce, and will engage with the providers of training to the Victorian workforce.

Some initiatives have been implemented at the state level including the inclusion of HIMs and CCs on the rural initiatives list, and some remote coding of records, but it has been difficult to make many other changes to date.

Some suggested strategies include promotion of the HIM and CC workforce, engagement with coder educators, student sponsorship through bursaries or subsidised courses, provision of support for training new staff, funding additional staff, introducing an award for coders, and the inclusion of HIMs and CCs on the Migration Occupations in Demand List.

In an endeavour to quantify the clinical costing workforce, the Clinical Costing Standards Association of Australia (CCSAA) Victorian group has commenced work on a 'survey' of the Victorian clinical costing workforce, but this project is currently on hold until later this year because of more urgent agenda items being dealt with by the Clinical Costing Standards Committee.

The Victorian Department of Health is quite unique, in that it has approximately 30 HIMs working at the central agency level, in many different areas, including:

- 7 in Health Data Acquisition managing the datasets
- 3–4 in Health Information Provision providing data to users
- several scattered around the specialty program areas, including cancer and palliative care services, perinatal data collection, etc.
- 6 working in the area of information management
- 1 person in the funding models area that has specialised in costing studies.

They also take HIM students on practical placements regularly and many of these are later employed.

Western Australia

Issues

WA has experienced a shortage of experienced coders and has implemented a range of strategies over the past few years to address this problem.

Strategies

In 2008, the WA Coding Working Group, which was formed to develop strategies to address the coding backlog, made recommendations which centred around the need to increase the number of coding positions and place a greater emphasis on education.

To ascertain the untapped potential coding workforce, WA Health commissioned HIMAA Education Services to send a letter to all WA-based graduates of its Introductory coding course inviting them to contact the Coding Education Team to register their interest in continuing their coding career in WA Health. Responses were received from 14 people who had already completed, and 26 who were soon to complete, the Introductory course, providing 40 coders with the necessary qualifications. Since the register was created, eight people have been employed in coding positions, and 25 are still on the register waiting to finish their course or have finished and are wanting employment. The trainees are invited to attend coding workshops held by the Coding Education Team and are informed of any advertised Coding positions, private and public. Assessment of the trainees that attend workshops is also planned to provide feedback to hospitals to assist with their selection.

A close liaison is also maintained with Curtin University – HIM faculty, as they also play a big role in the future of the WA clinical coding workforce through the provision of HIM graduates.

A Clinical Information Audit Program, which focuses on measuring coding and DRG accuracy, currently employs 2.5 FTE (1.5 nationally accredited coder auditors and 1.0 clerical support). This is sufficient to manage annual teaching hospital audits, biennial metro non-teaching/regional and ad hoc rural district audits. While it is anticipated that there may be a

greater need for audit activity at departmental level (i.e. across sectors), there are no firm strategies as yet to meet that demand. The ability to attract and retain suitably qualified coding auditors will likely be influenced by the general supply of experienced Clinical Coders.

Coding Auditor and Educator positions have been established at all WA tertiary teaching hospitals. There were initially some difficulties in appointing people to these positions, due to lack of applicants, but now all but one position has been filled. With the combined efforts of the Coding Coordinators and the Coding Auditors and Educators, the tertiary hospitals are now able to employ further trainee coders and increase their coding quality activities with perhaps a lesser impact on their coding throughput. The Coding Educators work together and address such areas as the standardising of coding competencies, education programs and assessment models. It is hoped that the group will reduce duplicated efforts in the same areas and promote some standardised processes that can be used across all the hospital sites by sharing experiences through the Coding Educator working group.

Formal education in a nationally recognised coder training course is now an essential criterion in all job descriptions for coders at the public hospital sites. Hospitals are required to notify WA Health when new coders are appointed (including contract and casual coders), and the data they submit are monitored initially and feedback provided. Secondary hospital sites without Coding Coordinators, Educators or even senior coding staff are offered support from the Coding Education Team. New coders are assigned a Coding Trainer who will work with the coder at the facility until they have reached the competencies set in the validation program. There is also a specific rural coder validation process in place where WA Health staff review all codes, and coders can raise queries for clarification via a regular telephone discussion. The Coding Education and Data Quality team also attend the monthly WA Country Health Service Coding Network Meetings via video conferencing.

A Clinical Coding website was introduced initially to provide information about working in WA as a Clinical Coder, and has been further developed to be the primary information source for all coders in WA. It contains WA Coding Committee meeting minutes, coding queries, audit reviews, resource links to relevant operative directives and reference manuals. This website still contains coding career information with links to HIMAA, Curtin University and the Clinical Coders Society of Australia.

One initiative to improve the efficiency and accuracy of coding and reduce the coding backlog was the purchase of a state licence for the use of the 3M™ Codefinder™. All public hospitals are able to use this on site, where it is often interfaced with the Patient Administration Software.

PICQ is used by WA Health on all coded data at the state level on a monthly basis. The errors identified are then emailed to the source hospital and the cases are reviewed by the hospitals and resubmitted. Reports of particular PICQ errors from individual hospitals sites are used for education at Coding Education Roundtables.

WA Health is implementing an Activity Based Funding (ABF) and Activity Based Management (ABM) framework between 2010 and 2013 and this will be the management approach used by them to plan and manage activity and financial resources for delivery of health services. This ABM team will include CSs; however, as yet no detailed information is available regarding the number or skills required in this new environment.

The experiences of each of the jurisdictions outlined above demonstrates the similarity of issues and challenges being faced across the country, and highlights the importance of taking a national approach to solving the coding workforce shortfall problem.

A number of common strategies were outlined across most of the jurisdictions, including:

- use of a state-wide licence for the use of the 3M™ Codefinder™
- use of the PICQ tool
- creation of Coding Auditor and Educator positions
- state coding committees and coder websites for improved communication.

These, and other strategies already underway in some of the jurisdictions, may be worthy of consideration for trial in other jurisdictions, or at the national level. These will be discussed further in the recommendations section of this report.

Case studies

To supplement the information provided by the jurisdictional authorities, three brief case studies are provided below that give a 'coalface' perspective on the issues and challenges of the coding workforce in Australia. The information contained was received directly from the staff responsible for managing coding services in these areas, and provides their own perspectives. The case studies describe very different areas of Australia in regard to geography and workforce makeup, and are provided to ensure that this report is considered with real world circumstances in mind.

Case Study 1 – Greater Western Area Health Service, NSW

The environment

The Greater Western Area Health Service (GWAHS) covers a geographical area approximately the size of Germany, representing more than 55% of NSW, and is the largest health service in NSW. It has 108 facilities, including 33 public hospitals, 16 multipurpose services and 59 community health centres, and is broken into six 'clusters' (GWAHS 2010).

There are eight larger district or base hospitals, known as the 'Big 8', spread throughout the clusters, with only six offering obstetric services and only 10 facilities in the GWAHS performing surgery. It takes 13 hours to drive to the furthest site, from the main office located in Mudgee.

Current coding arrangements

There are currently 35 Clinical Coders working in the GWAHS across many of the facilities. Their current level of training and qualifications varies from five staff performing coding duties who are completely untrained, to others trained as HIMs.

An Area Clinical Coding Manager (ACCM) is employed and is responsible for all coding and coder training within the AHS. She is based at Mudgee and provides support to all facilities and visits each of the 'Big 8' once a month to undertake coding audits using PICQ.

In the past there has been some use of contract coders to deal with large coding backlogs. Funding availability for this is not expected in the future.

There are some 'roving' coders travelling to sites that have no local coders, and some facilities send their 'front sheets' to other sites for coding as it is too costly and time consuming to send someone to these remote facilities.

All coding is 100% completed and cleaned within 28 days, with the aim to reduce this to 21 days.

Coder training

The ACCM undertakes local training and facilitates networking of the existing coders in the GWAHS. There is a regular Clinical Coders' Forum for coders of the 'Big 8' and an area-wide coding meeting 2–3 times a year. Due to the large distances, not all coders can attend these meeting in person so there is a mixture of teleconferencing and web conferencing used to 'bring' in those in the more remote areas. The ACCM attends the NSW Coding Advisory

Committee meetings and provides a synopsis of these meetings to all coders to ensure they are up to date with the latest coding decisions.

The need to train additional coders was also noted with different training needs for staff at different facilities. It was felt that the OTEN course, although fairly basic, would be adequate for staff at smaller facilities, but the HIMAA course would be better for staff at district and base hospitals. This decision is driven by cost, as the HIMAA course is significantly more expensive than the OTEN program and there are issues with funding.

It was noted that government subsidies of approximately $4,000 are available for trainees, but this is only available to staff already working in the position.

Issues and challenges

Apart from the issues related to the size of the geographic area covered by the GWAHS, funding was seen as the main issue for attracting, training and keeping qualified coding staff. Having adequate numbers of suitably trained coders is still the priority, but the distances make it difficult to provide appropriate mentoring. Even when existing staff are trained to code, they are not always able to be released from their regular duties, as with the example of a radiology clerk from one hospital who completed a coding course and could not be released to do the coding, or when a coder was taken away from their coding duties to perform scanning or receptionist duties to cover leave.

Clinician documentation also presents challenges, particularly with the large numbers of overseas trained doctors who may use different terminology and have no experience in appropriate selection and recording of principal and additional diagnoses. This is particularly critical when only the front sheet is used for off-site coding and is of concern in remote Indigenous community health services where many of the cases have complex medical and social circumstances that need capturing. The ACCM now conducts clinician documentation training sessions on a regular basis to help address this issue.

Long-term vacancies exist in many of the designated HIM positions and are even the case in places as picturesque as Bega and Moruya in the Greater Southern AHS. This demonstrates that this is not just a 'remote' area issue, and these types of vacancies are leading to many of these positions being removed or downgraded. Orange Base Hospital, for example, has had their HIM positions decreased from 2 to 0.5 FTE due to lack of staff availability.

The implementation of medical record scanning within the AHS at Bathurst, Orange and Bloomfield has provided some opportunity to consider remote coding, but the cost of extending the scanning to other facilities is seen as a barrier with the initial scanning implementation costing $1.1 million for the licence alone. However, if all medical records in the area could be scanned, the existing 35 coders would be enough to code all the discharges.

Case Study 2 – Gold Coast Health Service District, Queensland

The environment

'The Gold Coast Health Service District (GCHSD) provides health care from the state border of NSW to the Coomera region in Queensland and is rapidly expanding to meet the growing population needs of South East Queensland. The district includes major hospitals and supporting facilities' (Queensland Government 2010). The Robina Hospital is currently undergoing expansion with an additional 179 beds due to open in mid-2011 and the

development of a Health Precinct later that year. In late 2012, the existing Gold Coast Hospital will be absorbed into a new 750-bed tertiary facility called Gold Coast University Hospital (GCUH). The district operates with a combined medical record system. There is a unique record number per patient and the record travels around the district with the patient. Services operate across the district with no distinction between Robina and Gold Coast Hospitals. For instance, a child seen in emergency at Robina Hospital will be transferred to Southport Hospital to the paediatric ward. The move between hospitals is seen as a ward transfer and not a discharge and readmission.

Current coding arrangements

The Clinical Coding Service is currently made up of four senior CCs and 13.4 CCs. They are supported by a team of administrative coder support staff. The HIM team is made up of six HIMs ranging from base grade to senior level and is supported by an administrative team that undertakes general medical record duties, release of information and information access requests.

The district has already moved away from a traditional 'one service' model for HIM and Clinical Coding Services. The HIM and Clinical Coding Services sit within separate divisions and each provides distinct services.

Coder training

Historically, the coder support roles have allowed staff to transition from coder support through to clinical coding positions in the GCHSD as interested. Staff have been supported in completing education courses such as the HIMAA Introductory program. In effect, this is the 'grow your own coder' model. Senior CCs and HIMs mentor newer, more junior staff and new graduates.

Issues and challenges

The GCHSD plans to transform service delivery in all clinical areas for the opening of the GCUH in late 2012, including clinical support services. With almost 1,000 new beds and rapid population growth, there is significant pressure to create a workforce that can manage the increased HIM and coding activity in addition to years of already rapid growth increases in different types of service delivery.

The HIM workforce faces issues with a lack of undergraduate programs supplying new graduates within Queensland. This is forcing innovation to retain existing HIMs. With a predominantly female workforce, issues include retention through the child-bearing years with family-friendly/flexible arrangements to encourage staff to remain working while managing childcare commitments. There has traditionally been some difficulty gaining support from senior management for valuing the skill set that HIMs offer. However, the GCHSD plan to have a paperless medical record by the opening of the GCUH in late 2012 has helped establish good collaboration between the HIM team, executive, and clinicians. This has led to support for workforce planning for HIM service in the district.

Historically there has been a lack of qualified coders to undertake accurate and timely coding. The HIM service has also been impacted by HIM graduates being attracted away from the profession to coder roles, and non-traditional roles (for example, project managers or business analysts) due to better or faster possibilities of promotion/career progression.

The GCHSD is seeking to provide an environment that is flexible, innovative and attractive to HIMs and coders. Creation and maintenance of a work environment that supports staff has assisted the district to recruit and maintain a dedicated workforce. The staff of the HIM and Clinical Coding Services are encouraged to be innovative and the district executive provides opportunities for staff to present new ideas.

CCs have been offered career progression opportunities, facilitated through enterprise bargaining arrangements and supported by local executive. This has allowed adequate resourcing of the Clinical Coding Service and the implementation of a structure promoting professional progression and development, which has influenced coders from surrounding facilities to seek employment with GCHSD. The Clinical Coding Services workforce structure provides a strong focus on education, auditing and building of good relationships between clinicians and coders by the senior CCs who undertake audits and education as part of their core roles.

The coders are supplemented by coder support positions with responsibility for location, retrieval and tracking of the clinical records required for coding, as well as records required for quality activities. The ongoing resourcing of the Clinical Coding Service is based on a locally developed resource calculator which projects resources required against activity, taking into account non-coding activities. This methodology has been supported by the local executive.

The GCHSD also provides financial support for professional development for HIMs and CCs to attend courses and conferences ensuring they are kept up to date with developments in e-health and the federal agenda on e-health reform. This support helps motivate staff to learn and enhance their work capabilities.

Over the last few years, the HIM service has engaged final year HIM students to work part-time at administrative officer level within the HIM service while they completed their degrees. These students then gained permanent full-time employment as HIMs following graduation. At least one new graduate has progressed to a higher level community HIM role, while another has now progressed to provide education within the district to newer administrative officers regarding HIM matters.

The Clinical Coding Service has promoted the collaboration of coders with clinicians by assigning a senior CC to each of the divisions. Currently one activity being trialled by the senior CCs is the attendance at ward rounds with clinicians to get two-way communications between the services, and increasing educational opportunities to both parties to support timely and accurate clinical coding. This demonstrates to the clinicians, the value of the work of the coders within the organisation and encourages clinical advocacy for clinical coding resources.

Active participation at state and district data quality meetings supports the link between high quality documentation and data entry with high quality coding. The HIM and coding team are also represented at state meetings for their specialties. There is an HIM representative at coding meetings internally and the coding team is represented at the district medical record committee.

The HIM service has been undertaking a review of current positions with the recent successful regrading of a base grade position in order to allow for suitably qualified applicants to be attracted to the position at a higher level. Previously recruiting to base grade positions has been unsuccessful. A further review of positions, with possible benchmarking, will hopefully allow for higher grade HIM positions to be advertised.

As the district moves towards a paperless medical record, this is a key element to attract HIM and CCs that see benefits in the e-health future, and this is currently built into advertisements for HIM positions. The paperless future may allow more coders to work remotely, thus improving the work/life balance, and assist in attracting and retaining coding staff.

Over time these measures have allowed a decreased reliance on the contract coders that have been used historically to ensure that deadlines are met.

Case Study 3 – Central Queensland Health Service District

The environment

The Central Queensland Health Service District (CQHSD) incorporates four distinct areas that were amalgamated into one service district in 2008—Rockhampton, Gladstone, Banana (Biloela) and Central Highlands (Emerald). Central West Health Service District also flows into the CQHSD for higher level services. The CQHSD has 18 hospitals ranging in size from the 209 beds at Rockhampton Base Hospital (RBH) to small multipurpose health facilities with as few as nine beds. A wide range of community health services are also provided from community based facilities and hospital sites throughout the district.

RBH is the main referral hospital with three other 'hub' hospitals providing services for their local areas, and some support services for the smaller facilities within their area.

Queensland Health also provides community aged care package services in the CQHSD and two residential aged care facilities within the Rockhampton area.

Costing and casemix related roles

The Business Analysis and Decision Support Unit (BADS) in the CQHSD has the responsibility for coding and casemix within the district. BADS has 16 staff working in roles as outlined below. These staff members come from a wide range of backgrounds which are also described (in brackets below) to highlight the diversity of the team.

- AO8 Manager (clinical)
- PO4 Casemix Coordinator (coding/HIM)
- AO6 Performance Reporting Officer (finance/payroll)
- AO6 BADS Officer – Southern and Western Hub Management (finance)
- AO5 Planning and Performance Officer (finance and business administration)
- AO6 Business Analyst - Programmer/Analyst (IT)
- PO3 Clinical Coding Manager (clinical coding)
- AO4/3 Clinical Coders x 6 (clinical coding)
- AO6 Clinical Analyst (clinical coding/support services/administration support)
- AO4 Costing and Database Officer (accounts/finance)
- AO3 Administration Support Officer (administration support).

All positions currently report to the unit's Manager and the unit reports to the Chief Finance Officer.

Issues and challenges

A number of issues and challenges are outlined below, and are common across the district:

- training lead-times are a well known issue and have been discussed previously on many occasions
- availability of HIMs, especially within the context of no longer having an HIM course in Queensland
- ability to attract clinical staff due to significant pay rises in the clinical streams over the last few years
- general information management technical skills are limited and therefore the BADS team is often in demand for other analysis/IT/database projects outside of the clinical benchmarking focus
- unlike other districts, the BADS team provides both business manager and reporting functions across the district (business managers at facilities have more of an operational focus)
- limited training and development opportunities exist for clinical coding staff (including mentoring and networking)
- inconsistency of information systems throughout the state affecting ability to benchmark.

4 The current workforce

The current coding workforce is described in this chapter using a number of different sources of information, including:

- ABS Census data from 2001 and 2006
- two previous national surveys of the coding workforce conducted in 1994–95 and 2002
- data already collected by the states and territories as part of existing bodies of work undertaken locally
- the results of the survey conducted in 2010 for the purposes of informing this report.

Individually, none of these data sources is ideal. Some sources are more comprehensive in coverage than others; some are more recent; some are based on complete enumeration and others on surveys. However, through a 'triangulation' of the various sources, a picture of the current workforce can be pieced together—this should provide a baseline for ongoing measurement of trends.

A further section describes the outputs of the relevant training programs over the past 10 years to give an indication of the numbers of CCs and HIMs who have been trained and who may not have been captured in the survey, but could form part of a 'potential' or 'latent' workforce capacity.

None of these sources of information collect data on CSs, and this section does not attempt to quantify this component of the coding workforce.

Coding workforce information prior to the 2010 survey

ABS Census of Population and Housing (Census) data 2001 and 2006

Notes on Census data

Occupation

In the 2001 ABS Census, occupation data were classified to the ABS Australian Standard Classification of Occupations (ASCO), 2nd edition, whereas the 2006 census data were coded according to ANZSCO—a new classification which enables coding of much more detailed occupations. However, there was no change to the Coding Clerk or HIM occupations and data from the two Census years are comparable. From both classifications, the occupation of Coding Clerk is used in the tables below and is defined as the specialisation of Medical Record Clerk and Clinical Coder combined. Separate figures for Clinical Coders are not available. In each Census there are a relatively small proportion of respondents who do not supply enough information to determine a precise occupation. There are also respondents for whom an occupation cannot be coded. These factors result in an undercount of people in individual occupations.

Counts

Counts of persons in an occupation may vary from one table to the next and therefore totals may not be the same in all tables. Reasons for this are that response rates vary to individual questions, resulting in some persons being excluded from analysis, plus the ABS routinely applying small random changes to cells in order to protect confidentiality; this leads to small differences in total values between tables.

Census data

In 2006, there were a total of 3,438 Coding Clerks and HIMs counted in the Census. Almost two-thirds (63.5%) of them were Coding Clerks, 43.1% were aged 45 years or older and they were predominately female (87.5%) (Table 1). One-half (50.3%) of this Coding Clerk and HIM group held a bachelor degree and over one-half (57.3%) worked in the public sector.

Table 1: Per cent distribution of Coding Clerks and Health Information Manager characteristics: sector, states and territories, 2006

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Demographics									
Female	87.1	91.7	83.7	89.2	86.4	79.0	73.8	70.0	**87.5**
Coding Clerks	63.1	49.8	65.1	81.2	82.5	77.4	60.7	77.5	**63.5**
Aged 45 years and over	46.3	37.1	42.0	45.9	48.3	46.8	48.8	37.5	**43.1**
Highest qualification									
Certificate	20.1	10.8	26.2	26.4	49.3	54.1	5.9	44.4	**20.9**
Diploma/advanced diploma	15.9	16.3	14.3	18.9	16.9	27.0	33.3	33.3	**16.9**
Bachelor degree	47.5	61.7	51.4	48.0	22.5	18.9	43.1	22.2	**50.3**
Postgraduate qualification	16.6	11.2	8.1	6.6	11.3	—	17.6	—	**11.9**
Working in the public sector	50.3	61.8	57.0	62.2	62.0	73.0	55.6	53.4	**57.3**
Total number	**1,066**	**1,010**	**502**	**388**	**286**	**62**	**84**	**40**	**3,438**

Source: ABS Census of Population and Housing 2006, data available on request.

In comparison, there were a total of 2,670 Coding Clerks and HIMs identified in the 2001 Census, and compared with the 2006 profile, comprised a similar proportion (67.6%) of Coding Clerks, but were younger, with 34.7% aged 45 years or older (Table 2). The female proportion was slightly higher (89.2%) and a higher proportion (64.6%) worked in the public sector.

The national increase in the number of Coding Clerks and HIMs between 2001 and 2006 (by 28.8%) was reflected in increases in all the states and territories, ranging from 18.7% in NSW to nearly double (95.3%) in the ACT.

The demographic profiles across the jurisdictions showed a national level decrease in the proportion of females between 2001 (89.2%) and 2006 (87.5%) which was more pronounced in Tasmania and the two territories, from 100% female in both Tasmania and the NT to 79.0%

and 70.0%, respectively, and from 93.0% to 73.8% in the ACT. Conversely, in WA, the proportion of females rose over the period from 85.9% in 2001 to 89.2% in 2006.

The proportion of Coding Clerks was relatively low in Victoria in both 2001 and 2006, at approximately half (51.7% and 49.8%, respectively) compared with the national figures of 67.6% and 63.5%, respectively. In 2006, in the other jurisdictions, Coding Clerks comprised between 60.7% and 82.5% of the total workers.

In 2001, WA had the highest proportion of Coding Clerks (88.8%) and in 2006, SA was highest with 82.5%.

Table 2: Per cent distribution of Coding Clerks and Health Information Manager characteristics: sector, states and territories, 2001

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Demographics									
Female	88.6	91.6	85.9	85.9	89.3	100.0	93.0	100.0	**89.2**
Coding Clerks	69.5	51.7	67.5	88.8	86.7	76.7	53.5	87.0	**67.6**
Aged 45 years and over	36.5	31.1	30.8	39.0	36.9	44.2	44.2	39.1	**34.7**
Highest qualification									
Certificate	7.4	2.4	9.5	—	41.0	—	—	50.0	**7.2**
Diploma/advanced diploma	—	—	—	—	—	—	—	—	**—**
Bachelor degree	92.6	97.6	90.5	100.0	59.0	100.0	100.0	50.0	**92.8**
Postgraduate qualification	—	—	—	—	—	—	—	—	**—**
Working in the public sector	65.5	66.3	63.8	57.3	64.6	58.3	75.0	50.0	**64.6**
Total number	**898**	**758**	**403**	**277**	**225**	**43**	**43**	**23**	**2,670**

Source: ABS Census of Population and Housing 2001, data available on request.

The total number of Coding Clerks and HIMs who were aged 45 years and over increased in this period by 8.4 percentage points, with the greatest increase in SA (11.4 percentage points), and a small decrease of 1.6 percentage points in the NT.

In both 2001 and 2006, the highest proportion with post-school qualifications held a bachelor degree (92.8% and 50.3%, respectively) as their highest level. In 2001, there were no people who reported holding postgraduate qualifications but by 2006 the proportion was 11.9%.

Between 2001 and 2006, the proportion of Coding Clerks and HIMs working in the public sector was variable across the states and territories, with the distribution showing the largest decrease in the ACT (75.0% to 55.6%) and the largest increase in Tasmania (58.3% to 73.0%).

The Australian Coder Workforce: 1994–95 and 2002 studies

There have been two previous national surveys of the coding workforce conducted in 1994–95 and 2002. The former was part of the National Coder Workforce Issues Project, conducted by the HIMAA under contract to the then Commonwealth Department of Human Services and Health (HIMAA 1995). The latter was conducted as a follow-up study by the then

Brisbane office of the National Centre for Classification in Health at the Queensland University of Technology (McKenzie & Walker 2003).

Coder education

Over one-third of coders in 2002 indicated that they learned to code as part of an HIM/MRA degree compared with one-quarter of coders responding in 1994–95. Postgraduate HIM degrees had gained popularity compared with 1994–95, when only five coders indicated that they had completed a postgraduate HIM degree, compared with 30 coders in 2002.

HIMAA distance education courses had been completed by nearly 30% of coders in 2002, compared with just 9% of coders in 1994–95, while completion of OTEN coding courses appeared to remain static with around 12–13% of coders learning to code this way. While 5% of coders learned to code solely on the job in 1994–95, in 2002, 1 in 10 coders reported no training beyond what they had received on the job.

Coders' professional backgrounds

Clinical coding and/or HIM backgrounds were the most common professional backgrounds reported by coders in 2002, with over one-third of coders reporting each of these two professional backgrounds. There had been a rise in the percentage of coders with a clerical/administrative or a nursing background in 2002 compared with 1994–95. In 1994–95 approximately one-quarter of coders had a clerical/administrative background, compared with over 30% of coders in 2002.

Interestingly in 1994–95 around 15% of coders had a nursing background compared with approximately 22% of coders in 2002. This supports the suggestion that there have been some shifts in the roles and responsibilities of other hospital staff towards performing the coding role, either exclusively or in conjunction with their regular jobs.

Coders' experience

There were a greater number of coders with more years of experience in 2002 than there were in 1994–95. In the 2002 survey, over 65% of coders reported having more than 5 years experience, compared with 45% in 1994–95. A little over 32% of coders nationally reported having more than 10 years coding experience. This may be a function of time, but it also appears that the workforce is becoming more stable and that many coders are actually choosing to code, rather than having it thrust upon them. An increasing number of these coders have HIM qualifications but have chosen to focus their careers on coding. Consistent with this view is the proportion of respondents from Victoria who reported working as coders for over a decade. Approximately 46% of Victorian respondents in 2002 reported that they had been coders for at least 10 years.

In the latter survey, approximately 5% of respondents reported that they had less than 1 year of experience as Clinical Coders, with NSW (4.6%) and Victoria (4.4%) most highly represented in this group.

Coders appeared to be remaining in the same coding job in a facility for longer periods of time in 2002 than they reported in 1994–95. Over half of the 2002 respondents stated that they had worked in the same facility for more than 5 years, compared with just 20% of coders in 1994–95. HIMs were more likely than Clinical Coders to change positions as they gained more experience. In contrast, respondents who called themselves Clinical Coders

reported a mode number of positions of one, regardless of years of experience. In 2002 Clinical Coders tended to remain in their coding roles for extended periods of time.

Coders' duties

In 2002, coders appeared to perform many other functions in addition to abstracting information from records and allocating codes. Over half of the Clinical Coders indicated that they also performed general medical record/HIM functions, with others reporting their involvement in casemix activities, liaison with IT personnel, software testing, working on the hospital reception desk or in the admissions office, accounting and nursing. In 1994–95 over 50% of respondents indicated that they performed general medical record/HIM functions, but the scope of other duties reported was less broad. Nearly 1 in 5 coders in 2002 reported that they performed five or more other duties beyond their role as a Clinical Coder.

In 2002, there was less of a distinction between HIMs who did some coding in addition to their usual work—HIMs who focused their professional life on coding and respondents who called themselves Clinical Coders. Quality activities and data entry were reported as being functions for the majority of both CCs and HIMs, and general medical record/HIM functions was a role for two-thirds of HIMs and nearly half of the Clinical Coders. Over 80% of HIMs reported that they performed quality activities compared with around 60% of CCs, with the difference mainly in the amount of auditing that was performed. In 1994–95, there was a greater disparity between the reported duties of Clinical Coders and HIMs in the general medical record/HIM functions category, with nearly 90% of HIMs and only one-third of Clinical Coders stating that they had these responsibilities.

Employment status

In 2002, one-third of respondents indicated that they were employed as full-time coders; nearly 30% reported that they worked part-time; less than 10% indicated that they worked on a casual basis, and almost 30% reported that they had other work to do besides coding in their facility. Adding the number of full-time coders and coders who reported other work to do, gives approximately the same percentage of full-time employees in 2002 as in 1994–95. There were no major overall differences in the distribution of coders by hours of coding employment between 1994 and 2002.

Salary and industrial conditions

At the time of the 1994–95 survey, approximately 20% of coders indicated that they were not employed under an industrial award. This figure decreased slightly in the 2002 survey, with approximately 16% of coders stating that they were not employed under award conditions.

Comments received in the 2002 survey indicated a general feeling of dissatisfaction amongst members of the coding workforce in relation to their salaries, with 25% of coders (and 10% of managers) who provided additional free-text comments raising concerns about the adequacy of coders' salaries. These respondents indicated that coders' salaries were insufficient for their level of responsibility, and highlighted the need for a clear national award structure for coders that provided recognition for their skills.

Vacancies

Nearly 10% of facilities in both 2002 and 1994–95 indicated that they had current coder vacancies. The majority of these vacancies at the time of each survey were in NSW, with one-

third of the coder vacancies overall located in that state. It was calculated that 38.1 existing FTE coder positions were unfilled across Australia in the 422 facilities that replied to the survey in 2002, compared with 94 FTE coder positions in 1994–95 in the 899 facilities that responded. Twenty-six new FTE coder positions were to be created in 2002, resulting in vacant positions in respondent facilities for 64.1 FTE coders across Australia.

From information provided in 2002 by the universities which offered HIM programs and the administrators of the coding programs offered by the HIMAA and OTEN, it was calculated that approximately 170 potential new coders graduated annually. Assuming that a percentage of HIM graduates would not become coders, the estimate was that there were approximately 100 new coders entering the marketplace in the early years of the 21st century. Unfortunately gathering data regarding the number of coders who leave coding positions in a given year is difficult, so assessment of whether the supply met the demand was not possible. However, calculating from the total separations for 2001–02 reported by the AIHW (AIHW 2003) and the assessment of coding throughput requirements, it was estimated that there was a need for at least 820 FTE coders in Australia in 2002. The number of part-time and casual employees, and the amount of time that coders spent in performing functions other than coding, were also relevant to coding workforce requirements at that time, as they are now.

Jurisdictional data

Some jurisdictions have been able to quantify their coding workforce, either due to the small size or work undertaken to specifically measure it. This has always been described as CCs and HIMs, and does not include Costing Specialists. Table 3 summarises information obtained directly from the states and territories:

Table 3: Published numbers of coders by jurisdiction, 2008 and 2010

People (not FTE)	NSW	Vic	Qld (public only)	WA (public only)	SA (public and private)	Tas	NT (public and private)	ACT
HIMs	. .	. .	144	. .	. .	. .	3	. .
CCs	. .	. .	120.5	. .	. .	. .	18	. .
Total	**n.a.**	**506+**	**264.5**	**60 FTE**	**152**	**n.a.**	**21**	**n.a.**

Source: Nurses Board of Victoria 2008; Queensland Health 2010; Western Australia Health 2008; South Australia 2010; Burgoyne 2010.

2010 Clinical Coder and HIM survey results

Introduction

This component of the Coding Workforce Shortfall project provides some broad measures of the current workforce size and characteristics.

Findings in this report are based on data collected via a survey of hospitals and day procedure centres (health-care facilities). The survey included facility employees, but excluded self/employed coders working on contract. Aggregate data about hospital-based CCs and HIMs were collected from coding managers employed in health-care facilities using a web-based survey. With this approach, the measurement unit for the survey was the health-care facility, not the workers themselves. The main limitation with collecting data at the facility level was the strong likelihood of double counting people working in more than one facility, particularly for CCs, because of the comparatively high mobile and flexible nature of their work.

As a result, a count of members of the coding workforce is difficult to produce from the survey results. Measures were undertaken to minimise the double counting in the final data analysis; however, it is likely that, overall, some coders were counted more than once.

In order to provide a measure which accounts for the double counting, an FTE number has been derived from the hours they worked, and used as the measure of workforce size in the analysis.

Although the survey data are not suitable for measuring workforce size in terms of worker numbers, a small amount of demographic information has been included in order to give a broad profile of their characteristics.

The survey data have not undergone any estimation procedures and the numbers of facilities reported in tables are the number of responding facilities. This is because the responding group is a 'self-selecting sample' of the population and unsuitable for standard estimation techniques. However, because the response to the survey was high (particularly for public sector facilities, 86%), and the pattern shows a relatively even distribution by state and peer group, there would be little benefit from estimating for non-response. There were 95 non-responding public facilities which represented 11% of the total hospital separations in 2008–09. Of private sector facilities, 196 were non-responding but neither their size nor the number of separations are known (for more detail about the response to the survey, see Section 2.4 of Appendix 3, Final response).

To enable some comparisons over time, the definitions and the scope of health-care facilities in the 2010 study align with an earlier comprehensive report on coders and their managers, *The Australian coder workforce: 2002* (McKenzie & Walker 2003). Comparisons are limited because the earlier study surveyed coders individually in addition to managers, whereas this survey of facilities collected data about all CCs and HIMs from one HIM/coding manager at each facility only.

Survey findings

The coding workforce in 2009

The Coding Workforce Survey was conducted in 2010, with a data reference period of 2009.

Characteristics of Clinical Coders and Health Information Managers

In this report, estimating the size of the coding workforce focuses on the FTE measure because workers are highly mobile and many work in more than one health-care facility. The FTE measure takes account of the known double counting of workers who were employed in more than one facility. However, a 'headcount' of workers enables their characteristics as a group to be examined and, in order to provide a broad level profile, Table 4 presents *estimates* based on survey data which have been filtered at the facility level. Responses to survey questions and respondents' comments were examined individually and CCs found to be reported against more than one facility were reassigned to just one.

The figures are estimates only, because it is possible that not all duplicates were removed, and also because the figures do not include any estimate of worker numbers employed in facilities which did not respond to the survey. It should be noted too, that these estimates exclude self-employed contract coders because they were out of scope for the survey. The resulting figures appear to be underestimations of the headcount. For this reason, the percentage distribution is shown, rather than counts, because it provides a more reliable overview of workforce characteristics and, with the high survey response, it is reasonable to assume that the CCs and HIMs in the responding group were a fair representation of the overall workforce employed in health facilities.

Table 4: Estimated per cent distribution of Clinical Coder and Health Information Manager characteristics: sector, states and territories, 2009

Characteristic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Demographics									
Female	91.2	93.8	93.3	93.9	94.6	89.2	91.7	88.2	92.8
Clinical Coders	70.0	34.1	76.5	79.6	90.8	89.2	83.3	82.4	65.3
Aged 45 years and over	55.5	35.7	55.1	53.1	65.8	73.0	75.0	76.5	51.8
Highest training level									
On-the-job training	15.5	4.7	9.4	15.0	9.8	29.7	8.3	0.0	10.7
Training qualification from HIMAA or OTEN	43.4	27.1	59.6	39.5	84.8	89.2	58.3	88.2	47.8
Degree or higher qualification in Health Information Management or similar field	39.5	63.7	28.6	41.5	2.2	10.8	29.2	11.8	39.2
Other	2.6	2.5	4.8	7.5	0.0	2.7	4.2	0.0	3.1
Working in the public sector	*61.1*	*68.2*	*63.1*	*70.1*	*62.0*	*64.9*	*70.8*	*82.4*	*64.7*
Less than 2 years experience	*12.8*	*15.6*	*19.8*	*25.9*	*9.8*	*13.5*	*8.3*	*17.6*	*15.7*
Working part-time	*51.8*	*56.9*	*43.9*	*37.4*	*54.9*	*48.6*	*41.7*	*17.6*	*50.1*
Total number[(a)]	**537**	**487**	**374**	**147**	**184**	**37**	**24**	**17**	**1,816**

(a) Total numbers include 9 not stated responses.

Source: AIHW National Coding Workforce Survey 2010.

The estimates show that, in 2009 at a national level, members of the coding workforce were more likely to be female (92.8%), aged 45 years or older (51.8%) and to be a CC (65.3%) rather than an HIM. Also, they were more likely to be experienced, with just 15.7% having less than 2 years experience in coding work. Around half (50.1%) were working part-time and around two-thirds (64.7%) were working in the public sector.

In the distribution across the states and territories, the workforce in Victoria was noticeably different from the national picture and the opposite of other jurisdictions in that, the coding workforce was younger (35.7% were aged 45 years or older) (Figure 2), consisted of a higher proportion of HIMs (65.9%) than CCs (34.1%) and, correspondingly, had a higher proportion of university-trained workers (63.7%) (Figure 3) than other jurisdictions.

Source: AIHW National Coding Workforce Survey 2010.

Figure 2: Clinical Coders and Health Information Managers: proportion aged 45 years and over, 2009.

Source: AIHW National Coding Workforce Survey 2010.

Figure 3: Clinical Coders and Health Information Managers: proportion holding a degree or higher qualification in Health Information Management or similar field, 2009.

Other jurisdictional differences were in WA where around a quarter (25.9%) of the workforce had less than 2 years experience in clinical coding, compared with 15.7% nationally, and in the NT where 17.6% were part-time workers, compared with 50.1% nationally.

Characteristics of health-care facilities

Health-care facility characteristics which relate to their coding workforce provide a useful perspective on the picture of coder workforce shortages; for example, the volume of coding work (coding hours) in combination with the resources (FTE staff undertaking the work) and the number of vacant positions.

The data shown in the following tables are based on counts of facilities and their characteristics. Staff numbers are presented as FTE measures in order to account for double counting (see introduction above). Coding staff figures were calculated from hours worked and vacant positions were collected as an FTE in the survey.

Table 5: Health-care facility: characteristics, peer group[(a)] and sector, June 2009

Peer group classification	Number of responding facilities	Estimated monthly coding hours	FTE staff coding per month[(b)]	FTE CC and HIM positions vacant at 30 June 2009	Percent with part-time staff	Per cent of health-care facilities using contract coding services
Public sector						
Principal referral and specialist women's and children's hospitals	74	63,151	433.5	72.27	86.5	32.4
Large hospitals	40	10,767	73.9	10.9	72.5	27.5
Medium hospitals	78	9,738	66.9	19.3	66.7	16.7
Small acute hospitals	125	3,373	23.2	10.5	40.0	12.8
Sub-acute and non-acute hospitals	152	3,785.5	26.0	7.2	44.1	9.2
Unpeered and other hospitals	103	1,261.5	8.7	14.7	47.6	13.6
Psychiatric hospitals	9	350	2.4	2.13	44.4	22.2
Total public sector	584	92,467	634.8	*138*	*54.1*	*16.1*
Private sector						
Total private sector	305	38,260	262.7	39.4	74.4	26.6
Total	**889**	**130,727**	**897.4**	**177.4**	**61.1**	**19.7**

(a) Peer group is only available for public sector facilities.

(b) Includes Health Information Managers and Clinical Coders who undertake clinical coding.

Source: AIHW National Coding Workforce Survey 2010.

In 2009, health-care facilities reported an estimated total of 130,727 hours coding per month, equivalent to 897.4 FTE coding staff (Table 5). There were 177.4 FTE positions reported to be vacant at 30 June 2009 and 1 in 5 (19.7%) facilities utilised the coding services of private contract agencies. The occupation of Clinical Coder has a comparatively high proportion of part-time workers and this is reflected in the 61.1% of health-care facilities that had part-time workers.

The estimate of monthly coding hours occurring in the large public hospitals (10,767) was similar in magnitude to the medium public hospitals (9,738) and, although the large hospitals had fewer vacant positions at the end of June 2009 (10.9 compared with 19.3 FTEs) they were more likely to have used the coding services of private contract agencies (27.5% compared with 16.7%).

The majority of the principal referral and specialist women's and children's hospitals (86.5%), large hospitals (72.5%) and medium hospitals (66.7%) employed part-time coding staff, whereas in the small acute hospital group and the sub-acute/non-acute hospital group less than half employed part-time coding staff (40.0% and 44.1%, respectively).

States and territories

In examining workforce resources, an FTE is the preferred measure for the results of this survey because it takes account of the known double counting of workers who were employed in more than one facility.

Across the states and territories, WA reported the highest average monthly FTE coders per facility (29.3 FTE). The next highest (but with less than half that of WA) were in the ACT (12.5 FTE) and Queensland (12.0 FTE) (Table 6). The lowest figure of 2.4 FTE was in Tasmania. The distribution by peer group shows the FTE per facility was highest for principal referral hospitals and specialist women's and children's hospitals both nationally (6.4 FTE) and across the jurisdictions, ranging from 19.0 FTE in WA to 2.0 FTE in Tasmania.

Table 6: Public sector health-care facilities: estimated FTE clinical coding staff[(a)] per facility, by peer group, states and territories, June 2009

Peer group	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Principal referral and Specialist women's and children's hospitals	5.2	6.0	8.7	19.0	6.7	2.0	8.8	4.7	6.4
Large hospitals	1.8	2.2	2.0	6.5	3.1	—	3.7	. .	2.1
Medium hospitals	0.7	1.1	0.9	. .	1.0	. .	. .	. .	0.9
Small acute hospitals	—	—	—	1.0	—	—	. .	0.6	—
Sub-acute and non-acute hospitals	—	—	—	2.8	—	—	. .	. .	—
Unpeered and other hospitals	—	—	—	—	—	—	. .	. .	—
Psychiatric hospitals	—	—	—	. .	. .	. .	. .	. .	—
Total	**8.5**	**9.9**	**12.0**	**29.3**	**11.3**	**2.4**	**12.5**	**5.4**	**10.1**

(a) Includes Health Information Managers who are not primarily coders but who do coding work.

Source: AIHW National Coding Workforce Survey 2010.

The measure of staff undertaking clinical coding includes HIMs who code as part of their duties. Nationally, HIMs spent just over half (52.8%) of their work time undertaking clinical coding and related work and CCs, almost all of their time (87.4%) (Table 7).

The state and territory distribution shows that HIMs who coded in Victoria, spent more of their time on clinical coding (58.7%) than their colleagues elsewhere, whereas HIMs in WA spent least of their time (9.1%) on clinical coding. As well as HIMs in Queensland, those in Victoria, SA, and the two territories spent at least half their time on clinical coding (60.2%, 50.0%, 52.1% and 57.1%, respectively).

Table 7: FTE hours worked per month by Clinical Coders and Health Information Managers, states and territories, June 2009

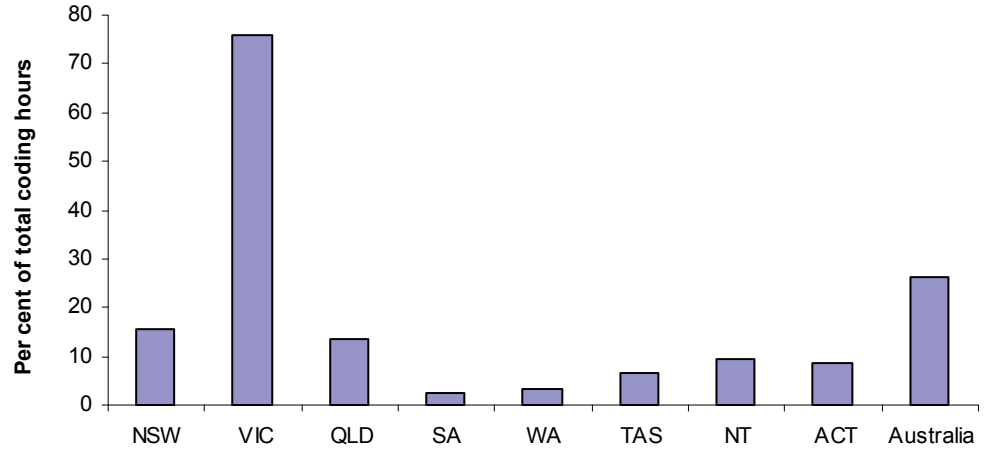
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Clinical Coders									
Hours spent on clinical coding[(a)]	170.7	36.2	128.9	59.6	44.8	10.7	11.4	9.7	472.1
Hours spent on work not related to coding	45.4	6.7	3.5	4.2	4.0	0.6	2.9	1.0	68.3
Per cent of total hours spent clinical coding	*79.0*	*84.3*	*97.3*	*93.4*	*91.9*	*94.9*	*79.7*	*90.7*	*87.4*
Health Information Managers									
Hours spent on clinical coding[(a)]	31.5	103.7	19.5	3.9	1.3	0.6	1.1	1.0	162.7
Hours spent on work not related to coding	37.4	73.1	15.0	11.5	5.3	1.2	0.8	0.9	145.3
Per cent of total hours spent clinical coding	*45.7*	*58.7*	*56.5*	*25.1*	*19.8*	*34.9*	*57.1*	*52.1*	*52.8*

(a) Includes coding-related processes, such as coding audits and coding training.

Note: Includes HIMS and other people who are not primarily coders but who do coding work.

Source: AIHW National Coding Workforce Survey 2010.

Another view of the hours spent by HIMs undertaking clinical coding is presented in Figure 4. It shows the proportion of the total coding hours which were worked by HIMs rather than CCs, and shows that Victoria is quite different from the other jurisdictions. When compared with the other jurisdictions, the coding undertaken in Victoria was far more likely to have been by HIMs than CCs. In Victoria, 75.9% of the total clinical coding hours were worked by HIMs, with the next highest proportion of HIM clinical coding hours being in NSW (15.4%).The reason for the difference in Victoria was the comparatively low proportion of CCs compared with HIMs in the coding workforce. CCs comprised around one-third (34.1%) of the Victorian coding workforce, whereas in the other jurisdictions their proportions ranged from 70.0% in NSW to 90.8% in SA (Table 4).



(a) Includes coding-related processes, such as coding audits and coding training.

Source: AIHW National Coding Workforce Survey 2010.

Figure 4: Total clinical coding[(a)] hours worked per month: per cent worked by Health Information Managers, states and territories, 2009

Contract coding companies

Contract coding companies employ CCs and HIMs and hire out their services, usually under contract with a health-care facility. Some contract coding is performed by individual coders who work for themselves. In this report, differentiation is made between coders who work under contract to a facility through a company or individual contract, and coders who are shared between facilities but are employed at one of the facilities. Even where there is a financial agreement in place in the latter case, these coders are not considered contract coders.

Information was collected about coders working as contractors by surveying selected contract coding company managers. In targeting this group, initial investigations indicated that the number of companies which contract out clinical coding services was small enough for data similar to that collected through the web survey to be collected via phone and email contact. Investigations also revealed that much of the coding work is being undertaken by self-employed, single-person contract coders; however, time constraints of the project prevented any separate work being undertaken regarding this group.

The surveying of coding companies was also limited by constraints of the project's timeline. Compiling a complete survey frame was not practicable and instead, the largest agencies were identified using a network approach. Contacts in one coding company led to contact information for other businesses, and six large companies were identified as the main players. Five of the six agreed to participate in the survey. An abridged questionnaire, similar to the one used for the facility-based survey, was used to collect quantitative data and these were supplemented with some qualitative data obtained via semi-structured telephone interviews (See Attachment 4 to Appendix 3 for a summary of responses).

The aim was not to collect data to measure the entire contract coder component of the workforce due to the difficulty in identifying them; rather, it was to gain an overview of their size and level of activity, as well as some insight into any expected developments such as growth/decline in the sector.

Across Australia, 1 in 5 (19.7%) health facilities utilised the services of contract coding companies in 2009 (Table 5). Their services were utilised mainly for dealing with the peaks in workloads; however, there were some smaller facilities (mainly in the private sector) which did not employ their own coders, using only contract coding companies instead.

Members of the coding workforce in these companies were similar in demographics to those who were health facility employees, except for generally being younger (36.4% aged 45 years and over, compared with 51.8% in the health facility survey) (Table 8 and Table 4).

The five companies combined, employed a coding workforce of 44 people, of whom 19 (43.2%) were part-time. The FTE measure of this workforce at 30 June 2009 was 25.5.

Views of the managers of these companies were that contract coders are essential to filling the urgent short-term needs of health facilities but that coding staff are becoming harder to recruit (Table 29).

Table 8: Clinical Coders and Health Information Managers working for the surveyed contract coding companies: selected characteristics, June 2009

Characteristic	CCs	HIMs	Total
Sex			
Male	n.p.	n.p.	2
Female	27	15	42
Age group (years)			
<34	8	7	15
35-44	9	4	13
45+	12	4	16
FTE	*19*	*6.5*	*25.5*
Qualifications			
On-the-job training	n.p.	n.p.	3
Training from Health Information Management Association of Australia (HIMAA) or Open Training Education Network (OTEN)	n.p.	n.p.	14
A degree in Health Information Management or similar field	6	19	25
A postgraduate qualification in Health Information Management or similar field	—	—	—
Less than 2 years experience	*6*	—	*6*
Working part-time	*13*	*6*	*19*
Total	**29**	**15**	**44**

Note: Data collected from five large contract coding companies.

Source: AIHW National Coding Workforce Survey 2010.

Summary of free-text comments

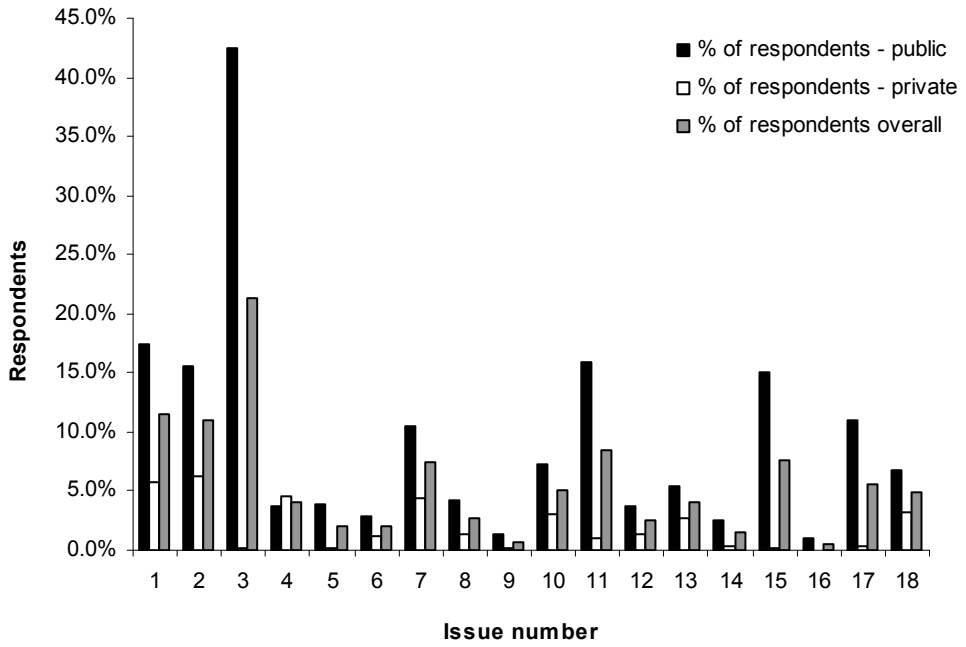
Respondents to the survey were asked to provide general comments in relation to the HIM/CC/CS workforces. These qualitative responses were analysed and grouped into issue themes as shown in Table 9.

Table 9: Qualitative responses from respondents of survey, 2010

Theme no.	Qualitative response
1	Need for/ utilisation of coder training at hospital level
2	Educational issues – cost, availability, adequacy, usefulness
3	Use of regional HIMs/coders or HIMs/coders from other hospitals
4	Use of contract coders or coder companies
5	Use of off-site coding from front sheets, discharge summaries, digital records
6	Use of untrained HIMs or coders
7	Salaries/awards
8	Career progression
9	Morale
10	Awareness of HIM/coding as a profession
11	Recruitment difficulties
12	Need for traineeships, apprenticeships, mentorships
13	Changing workforce, e-health effects
14	Promotion of employment in rural areas
15	Travel time issues
16	Need for competencies, accreditation
17	Other tasks to do in addition to HIM/coding role
18	Need for pool of relief HIMs/coders

Source: AIHW National Coding Workforce Survey 2010.

Responses were analysed by these themes for public sector facilities and for those in the private sector, as well as overall. A graph of the responses is shown at Figure 5.



Source: AIHW National Coding Workforce Survey 2010.

Figure 5: Issue themes raised by respondents, 2010

Public sector

The top five most commonly expressed issues from the public respondents were:

1. Use of regional HIMs/coders or HIMs/coders from other hospitals
2. Need for/utilisation of coder training at hospital level
3. Educational issues – cost, availability, adequacy, usefulness
4. Awareness of HIM/coding as a profession
5. Travel time issues.

Sharing scarce coding resources

The top issue highlighted by public sector respondents related to the necessity of using an area or regional coder or HIM, usually from the major base hospital, from another local hospital or from another hospital in a group. Around 43% of respondents indicated that this is an issue for them. In analysing the responses, a distinction has been made between hospitals that use other regional or hospital staff to assist with their HIM duties and coding, and those that engage with a contract coder or coding company on a commercial basis. Many of the respondents in the former category indicated that they were unable to recruit either any or enough suitably qualified workers to their own hospital (15.89%) or had insufficient admitted patient throughput to justify employing an HIM or a coder. These facilities have an agreement with another local hospital and pay for the services of their coders or HIMs. In rural areas, a 'roving coder' or regional HIM visits such facilities as often as required to ensure the coding is submitted according to health department deadlines. In other facilities,

the coder is used as an adjunct to existing staff to maintain submission deadlines. In some cases, the regional HIM or coder acts as a 'jack-of-all-trades', undertaking required clerical duties in addition to completion of the coding. Related to this issue is another commonly expressed view, relating to travel times. Fifteen per cent of public sector respondents noted this as an issue. For many of the visiting coders and HIMs, significant travel time is involved in getting to more rural and remote locations – between 1 hour and 13 hours of travel for each visit, in addition to the requirement to pay for accommodation, meals and incidentals and other travel expenses such as petrol and insurance cover. Additionally, nearly 3% of public sector respondents reported that they have been forced to employ untrained HIMs and coders in response to recruitment difficulties, and a further 6.77% reported that they have insufficient coders to undertake relief work and have difficulties with backfilling positions to enable coders to take holiday or sick leave.

Strategies to deal with shortages

Some hospitals have taken other steps to get their coding completed, including the use of contract coders or coding companies (3.65%), as noted above. This is a burgeoning industry, particularly in Victoria where there is significant pressure to ensure that coding is complete and accurate in time to meet departmental deadlines. Other facilities have a process in place to forward discharge summaries or 'front sheets' off-site to get coded and processed in another facility (3.91%). In the early 1990s, there was a push to ensure that all coding was decentralised and completed at facility level in order that the coder had access to a full record of a patient's episode of care to inform the coding process. In some rural areas, this has obviously not been a success and it is concerning that front sheet coding is still performed in some locations in Australia. It is anticipated that increasing use of electronic records or scanning/digitising medical records will make off-site coding a more attractive and cost effective option in the future. Nearly 6% of respondents made comments relating to the ability of coders to work from home or from a remote location once electronic records are available.

A little over 10% of respondents providing free text comments indicated that salaries for HIMs and coders are insufficient and do not reflect the level of responsibility that these positions carry. Just over 4% indicated that there is a lack of career progression for HIMs and coders.

Professional profile and education issues

Around 15% of respondents expressed the view that currently available education and training courses for HIMs and coders are inadequate, either because they are too expensive, insufficiently comprehensive or unable to be accessed easily. A number of respondents expressed concern that most of the former university courses for HIMs have recently closed and predicted even more dire staff shortages as the effect of these closures is felt in the workplace. Nearly 8% of respondents thought that HIM and coding are largely unknown fields of work and that more promotion of these professions amongst school leavers, other health staff and university students is necessary. One respondent indicated that '*the university offering the HIM course … does not produce graduates that are workforce ready. The … coding course doesn't produce graduates with anything but coding skills. The university course is not seen as a sexy career… However those people working in the industry love their jobs. So there is a big gap between the expectations and the reality*.'

There was a dichotomy of opinion regarding the place of short training courses for coders, with some respondents indicating that this is the only way to get coders trained quickly, and

others reporting that graduates of such courses have insufficient coding experience to be immediately useful. However, nearly all respondents who commented on educational issues noted the necessity to provide coders with hospital experience and mentoring following completion of a training program, however that program was provided. This was noted by 17.45% of all respondents.

Private sector

The most commonly reported issues reported by private sector respondents were:

- educational issues – cost, availability, adequacy, usefulness
- need for/utilisation of coder training at hospital level
- use of contract coders or coder companies
- salaries/awards
- need for pool of relief HIMs/coders.

The private sector respondents reported issues that were generally the same as those expressed by public sector respondents, but the focus on each issue differed and the problems are less acute in this sector. The most commonly expressed issues from the private sector related to the cost and availability of comprehensive coder training offerings (6.24%) and the need to provide on-site training for coders at hospital level prior to them being allowed to code unsupervised (5.67%). These concerns are likely a reflection of the important business aspects of coding experienced by this sector. More private sector respondents reported the use of contract coders or coding companies (4.54%) compared with the public sector, again reflecting the reality of coding and its relationship to cash flow in the private sector. The use of roving coders, regional HIMs and coders or those from other local hospitals was not common in private sector facilities (0.19%) although 3.21% of respondents indicated that they have problems because of a lack of relief HIMs and coders. Less than 1% of all private respondents reported difficulties with recruitment although over 4% reported problems with salary scales and 1.32% reported that career progression is a problem. Over 3% of private sector respondents noted that there is a general lack of awareness of the skills and abilities of these coding and HIM professionals, or even that they exist at all.

Overall

It appears that not only is there predicted to be a shortage of HIMs and CCs in the future, but that this shortage exists now. The use of shared regional personnel, HIM and coding contractors and off-site coding all mask the true picture of the ability of the current workforce to service information requirements adequately. Management and coding of health data is not seen as a priority, there is a lack of awareness of the important roles of HIMs and CCs, and difficulties are reported with recruitment and retention. Respondents reported concern regarding the adequacy and accessibility of educational offerings and stressed the need for providing work-based practical experience for newly trained staff prior to them being allowed to code unsupervised.

Developments over time

Working part-time

Table 10: Estimated per cent distribution of Clinical Coder and Health Information Manager working part-time: 2001, 2006 and 2009

	2001	2006	2009
Per cent working part-time	39.0	41.9	50.1

Note: 2001 data includes 30 not-stated responses, 2006 data includes 48 not-stated responses.

Source: ABS Census of Population and Housing 2001 and 2006, data available on request, AIHW National Coding Workforce Survey 2010.

There has been a general increase in the percentage of Coding Clerks and HIMs working part-time (less than 35 hours per week), from 39.0% in reported in the 2001 ABS Census of Population and Housing to 41.9% in the 2006 Census. The increase continued in 2009 to 50.1% for CCs and HIMs as shown in the results of the 2010 AIHW National Coder Workforce Survey (Table 10).

Vacant positions

In 1994–95 nearly 10% of facilities reported they had current coder vacancies (non-FTE specific), which was similar to estimates for 2002 when 40 (9.5%) of 423 managers reported having vacancies for coders (McKenzie & Walker 2003). In the 2010 Coding Workforce Survey, results from a total of 889 responding facilities (public 584, private 305) recorded 93 FTE vacant CCs positions. The FTE number of vacant coder positions in 1994-95 was estimated to be 94 FTEs, within the 899 responding facilities, and in 2002 it was 38.1 FTEs, within the 422 responding facilities.

The breakdown by state, territory and sector is shown for 2002 and 2009 in Table 11 (breakdown for 1994-95 data is not available).

Table 11: Estimated per cent distribution of FTE vacant coder positions: state, territory and sector, 2002 and 2009

Sector and year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
2002									
Public	40.5	29.7	8.1	8.1	2.7	2.7	0.0	0.0	91.9
Private	5.4	0.0	0.0	0.0	2.7	0.0	0.0	0.0	8.1
Total[(a)]	**45.9**	**29.7**	**8.1**	**8.1**	**5.4**	**2.7**	**0.0**	**0.0**	**100.0**
2009									
Public	19.5	3.6	14.0	16.8	9.4	9.7	0.5	3.4	77.0
Private	5.7	0.0	11.8	4.3	0.1	0.0	1.1	0.0	23.0
Total[(b)]	**25.2**	**3.6**	**25.8**	**21.1**	**9.6**	**9.7**	**1.6**	**3.4**	**100.0**

(a) 2002 Total vacant coder positions = 37 (not including 3 missing responses).

(b) 2009 Total vacant coder positions = 93.

Source: The Australian Coder Workforce 2002: a report of the National Clinical Coder Survey, AIHW National Coding Workforce Survey 2010.

The FTE number of vacant Clinical Coder positions has increased nationally from 37 in 2002 to 93 in 2009. Care should be taken with these comparisons because of the differences in the proportions of responding facilities between the two surveys.

The proportion of positions vacant in the public sector has decreased by 14.9 percentage points from 2002 to 2009, with the greatest decrease being in NSW (40.5% to 19.5%) and the greatest increase in WA (8.1% to 16.8%).

Vacant CC positions in the private sector have increased nationally from 2002 to 2009 (by 14.9 percentage points), with the greatest increase in Queensland, from zero to 11.8%. Victoria, Tasmania and NT were zero in both periods.

Combining public and private numbers, Victoria had the greatest decrease in vacant coder positions from 2002 to 2009 (26.1 percentage points) and Queensland had the greatest increase (17.7 percentage points).

Age

Table 12: Proportion of Coding Clerks and Health Information Managers aged 45 years and over, 2001, 2006 and 2009

Sector and Age group	2001	2006	2009
45 years and over	34.7	43.1	51.8

Source: ABS Census of Population and Housing 2001 and 2006, data available on request, AIHW National Coding Workforce Survey 2010.

Between the 2001 and 2006 Census years there was an increase in the proportion of Coding Clerks and HIMs aged 45 years and over, from 34.7% to 43.1%. Results from the 2010 Coding Workforce survey indicated a further increase in the 45 years and over age group for CCs and HIMs, to 51.8% (Table 12).

Qualifications

Table 13: How coders learned to code: qualifications 1995, 2002 and 2009

Qualification	1995	2002	2009
On-the-job training	4.9	25.9	10.7
Training from Health Information Management Association of Australia (HIMAA) or Open Training Education Network (OTEN)	32.7	35.7	47.8
Degree or higher qualification in Health Information Management or similar field	34.2	29.9	39.2
Other	28.2	8.6	3.1

Notes

1. For 2002 'Other' training refers to health department training. For other definitions of qualifications see Appendix Table 28.
2. Total respondents for 1995 = 973, 2002 = 1,332, 2009 = 1,816.
3. For 1995 'Other' includes Certificate (MRL), Associate diploma (MRA) and health authority courses.

Source: HIMAA – Australian Coder Workforce Report 1995, The Australian Coder Workforce 2002: a report of the National Clinical Coder Survey, AIHW National Coding Workforce Survey 2010.

From results in the 1995 HIMAA Australian Coder Workforce Report, there has been an increase in the proportion of Clinical Coders learning to code through training by HIMAA or OTEN, from 32.7% to 35.7% in 2002, to 47.8% in 2009. Those learning through a degree or higher qualification in Health Information Management or similar field decreased by 4.3 percentage points to 29.9% in 2002 then increased to 39.2% in 2009.

On-the-job training increased considerably from 1995 to 2002 (4.9% to 25.9%) and then decreased to 10.7% in 2009 (Table 13).

Coding throughput

The 2002 Australian Coder Workforce Report calculated coding throughput using a 36.25-hour working week and 48-week year for FTE coders, resulting in an estimate of 7,467 separations coded per year per coder, or approximately 4.3 per hour (McKenzie & Walker 2003). The 2010 Coding Workforce Survey estimated 6,440 separations were coded for the year per coder, a 1,027 decrease from the 2002 calculations. Hourly, the number also slightly decreased per coder, from 4.3 in 2002 to 4 per hour per coder in 2009.

Working in the public sector

Table 14: Estimated per cent distribution of Clinical Coders and Health Information Managers working in the public sector: state and territory, 2001, 2006 and 2009

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
2001	65.5	66.3	63.8	57.3	64.6	58.3	75.0	50.0	**64.6**
2006	50.3	61.8	57.0	62.2	62.0	73.0	55.6	53.4	**57.3**
2009	61.1	68.2	63.1	70.1	62.0	64.9	70.8	82.4	**64.7**

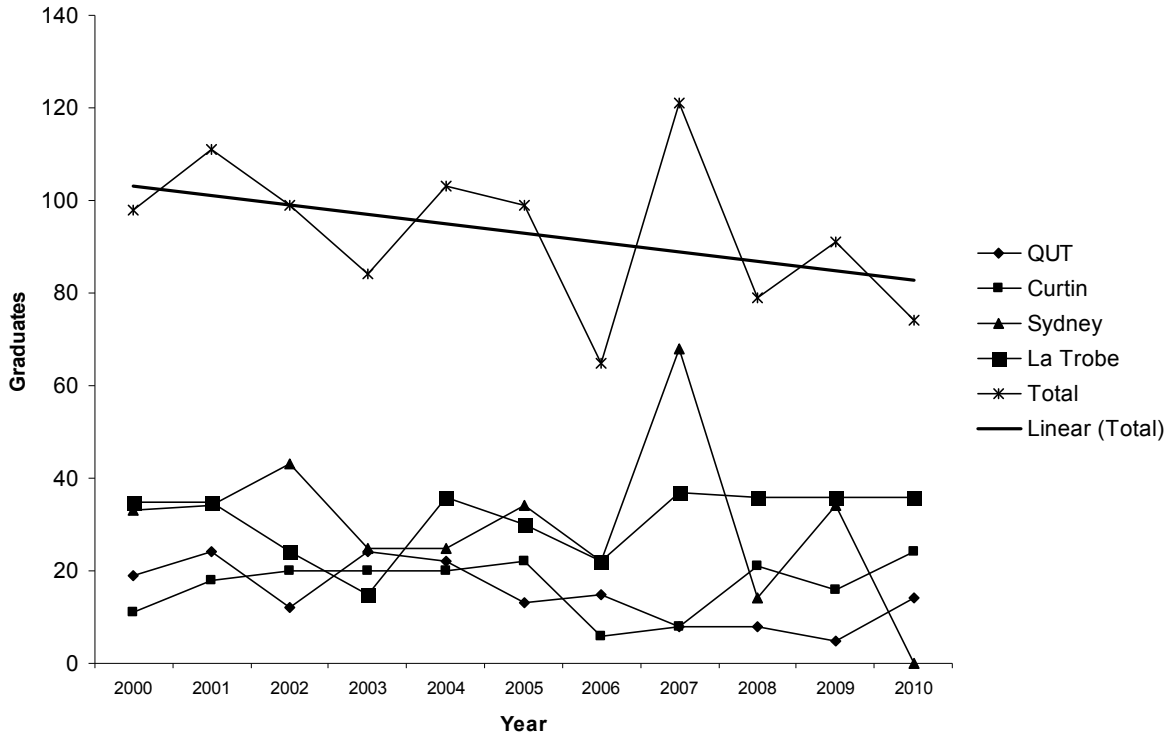
Source: ABS Census of Population and Housing 2001 and 2006, data available on request, AIHW National Coding Workforce Survey 2010.

The proportion of CCs and HIMs working in the public sector has remained fairly constant across the eight years covered by the three data points in Table 14.

Educational outputs

HIM graduate numbers – universities

Figure 6 and Table 33 show there has been a steady decline in the number of HIMs graduating from the four undergraduate university programs over the past 10 years, with now only two courses remaining, expecting to graduate between 50 and 60 students each year. The universities have noted that most of these students have secured employment as HIMs prior to completing their study.



Note: The peak for Sydney figures in 2007 can be explained as an affect of a one-off quota increase in enrolment places in 2003, and 2007 being the subsequent graduates of this cohort.

Source: University contacts.

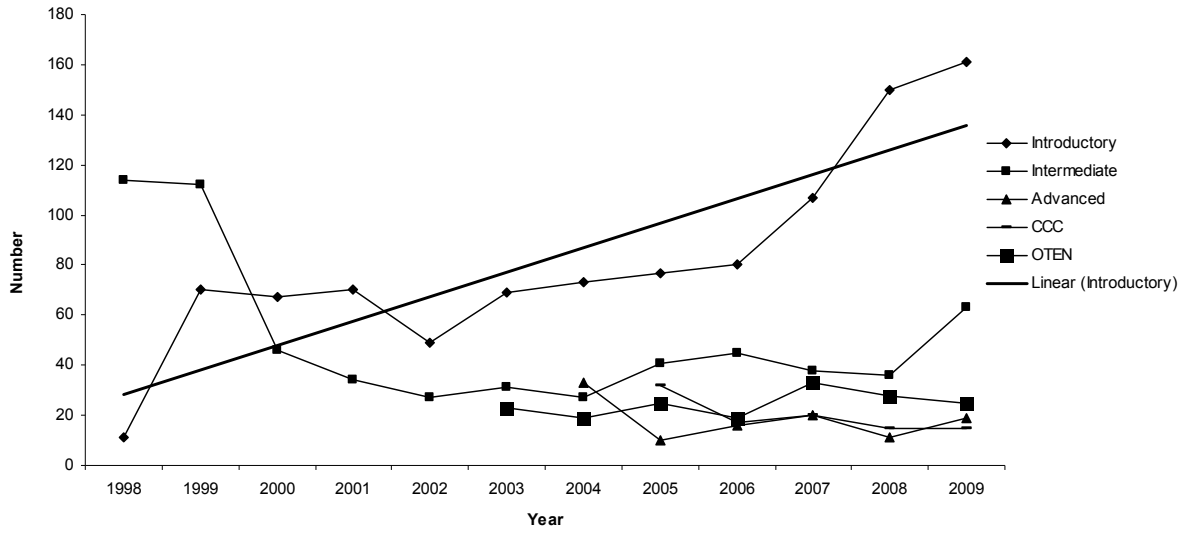
Figure 6: Graduate numbers for HIM courses: by year and university, 1999 to 2010

Clinical Coder graduate numbers

HIMAA

Since 1998, increasing numbers of students have completed the HIMAA Introductory coding course annually (Figure 7 and Table 34) with a total of 1,015 having completed the course, 105 of these being overseas students. In addition, 638 have completed the Intermediate and 119 the Advanced coding courses, providing more highly skilled coders. Eighty-five people have also been awarded the Clinical Coder Certification since the ICD-10-AM certification was introduced in 2005.

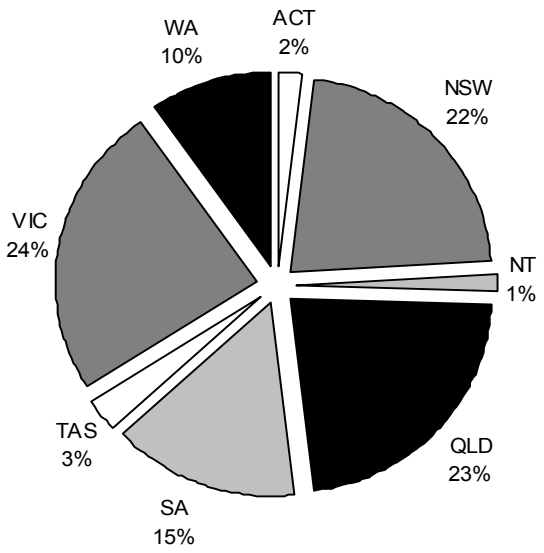
The majority of those trained as coders are female (935) compared with males (80); a ratio of approximately 1:12. However, males are more likely to undertake the highest level of training with a ratio of 9:1 for those completing the advanced training.



Source: HIMAA and OTEN.

Figure 7: Numbers of students completing HIMAA and OTEN courses by year, 1998 to 2009

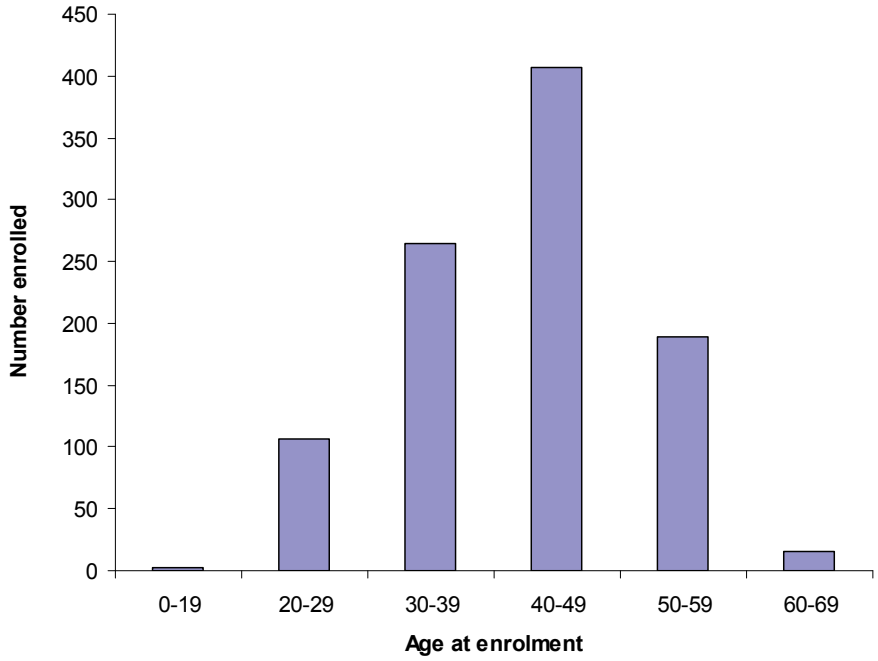
The students who completed the Introductory coding course offered by HIMAA have come from every state in the nation, with the percentages outlined in Figure 8.



Source: HIMAA.

Figure 8: Home State of Introductory Students, June 2009

Almost two-thirds (62%) of all Introductory course students did not commence study until the age of 40 years or older, as shown in Figure 9, and this picture has not changed over the period of analysis since 1998, which has implications for the attrition rates due to retirement.

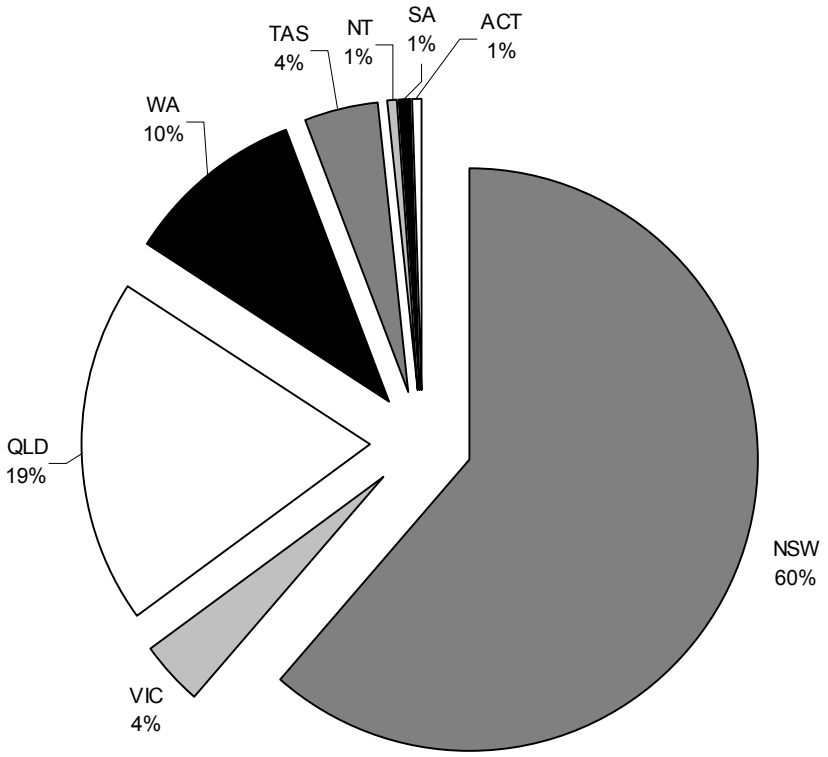


Source: HIMAA.

Figure 9: Age at enrolment of introductory course students, June 2009

Open Training and Education Network (OTEN)

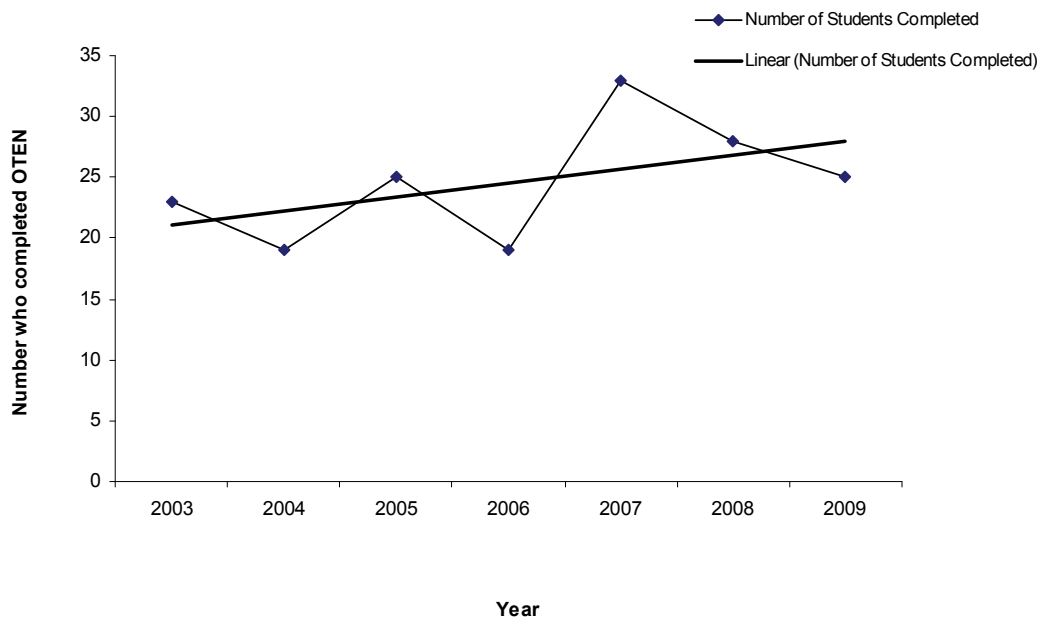
OTEN has only been offering its current coding module since 2003, so data were only available for students completing the clinical classification unit (8878E). During the period 2003 to 2009, 172 students in total completed this program, and the majority of these were based in NSW (Figure 10), which is not surprising given OTEN is part of the NSW TAFE.



Source: OTEN.

Figure 10: Home state of OTEN students, 2003 to 2009

OTEN has not attracted large numbers of students to the program, and the numbers have not varied greatly over the 7-year period, as shown in Figure 11.



Source: OTEN.

Figure 11: Number of students who completed the OTEN course, 2003 to 2009

As with the HIMAA program, the majority of those trained are female, with a ratio of approximately 17:1. No age information was able to be obtained on the OTEN students.

5 The future workforce needs

All indications from the jurisdictions' own assessments and the available survey results are that the coding workforce will need to be significantly augmented over the next 5 years to deal with the existing vacancies, to accommodate increased activity around new major health reforms, e-health introduction and new technology, and the rollout of ABF across all states and territories. Future projections are dependent on the extent of the impact of each of these environmental factors, as outlined earlier, and the workforce adaptation to new models of service delivery and extended roles.

As noted, population increases, coupled with the ageing population, and the impact of chronic illness on hospital services activity and the acuity and complexity of cases, as well as projected retirements and attrition rates within the labour pool, will further impact these workforce groups.

The figures contained in this section are estimates of the number of additional FTEs required to undertake coding work over the following 5-year period to 2013–14. There has been no attempt made to break these numbers down by jurisdiction or level of qualification or skill required. This would need to be the subject of a further body of work.

There was also no attempt made to estimate the additional number of people, as opposed to FTEs, but given the current coding workforce has greater than 50% of staff working part-time (see Table 4), the number of people required will certainly be greater than the number of FTEs.

In addition, individual health services will differ in their ratios of CCs, HIMs and CSs due to variation in their funding models, specialty profile, volume of services, location, and how the services are managed locally.

No attempt has been made in this section to estimate the number of CSs required for the future, as until this workforce can be more clearly defined there is no baseline data on which to base projections. However, it can be reasonably assumed that more are needed than are currently employed, and that the need will increase due to the same factors that are affecting the HIM and CC workforce at present.

Approach to projections

It is important to understand that to apply the stock-flow model to projections depends on a combination of:

- estimates for the various stock-flow elements which must be drawn from a variety of data sources of varying quality
- assumptions (guided more or less by data) about real-world influences, which might be expressed differently by different stakeholders.

The paragraphs below offer projections based on one plausible combination of these inputs to the model. But the model has been set up in such a way as to permit the application of other data and other assumptions. This potential is just as valuable as the particular projections presented here.

Workforce stocks and flows

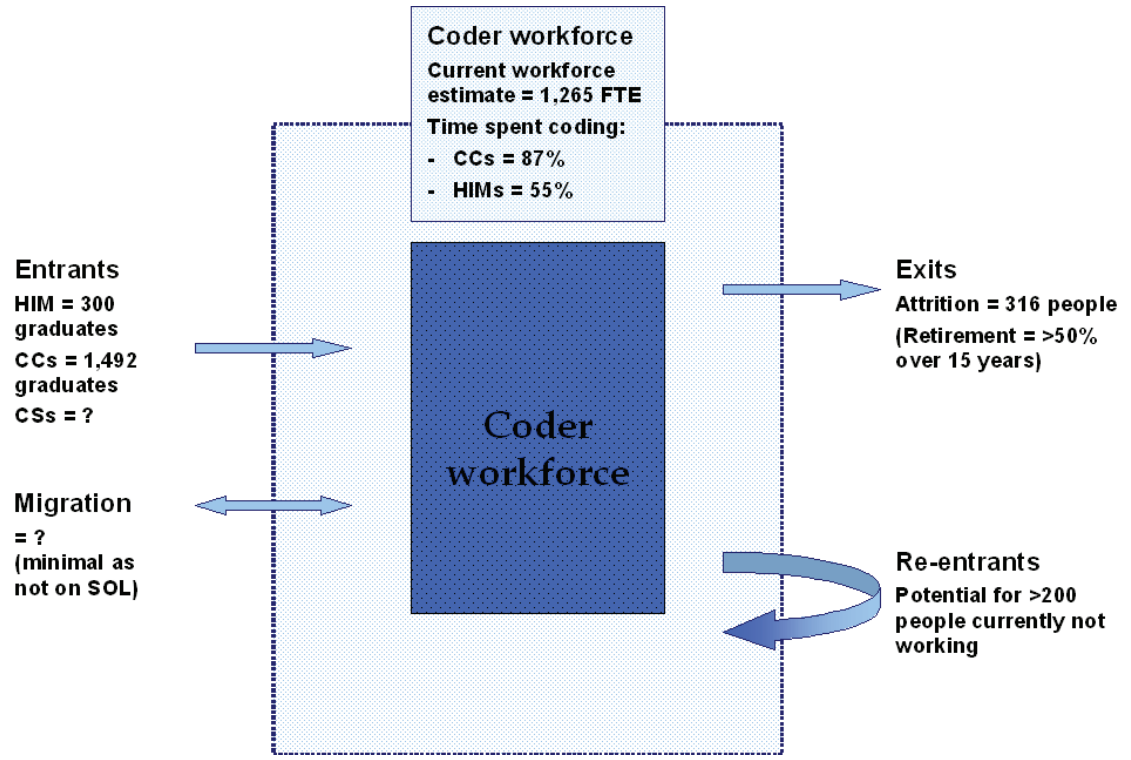


Figure 12: Coder workforce: stocks and flow: projections over 5 years

Inflow projections = 1,792 people over 5 years

Although it was found that 50.1% of the coding workforce surveyed are currently working part-time and that this figure has continued to rise over the previous 8 years (see Figure 10), there is no current estimation of how many hours these people are working. Thus only the number of people trained can be calculated.

There has been a steady decline in enrolments in HIM courses around Australia, but a considerable growth in those enrolling in clinical coding courses. Historical figures have been used to make the following calculations:

- New HIMs entering the workforce is calculated at 300 people
- Additional CCs from existing HIMAA and OTEN courses at current growth rate equal 1,492 people
- Re-entry numbers are not estimated, but given the WA experience could be as high as 200 people.

Outflow projections = 316 people over 5 years

Gathering data regarding the number of coders who leave coding positions in a given year is difficult, so assessment of whether the supply met the demand was not possible.

Using a conservative attrition rate of 5% per annum, and the number of FTE coders required to code the number of annual separations nationally of 1,265 FTEs as an estimate of the

current workforce, the numbers of coders expected to leave the workforce over the next 5 years is 316 FTEs.

This does not take into account the potential impact of reduced work hours or outward migration, and given that 51.8% of the existing coding workforce is over the age of 45 years (see Table 12), it would be expected that approximately 50% of the current workforce will retire over 15 years.

Total net gain projection = 1,476 people over 5 years.

Workforce needs based on workloads

The number of actual HIMs and CCs will be more than the number of FTEs calculated in this section, and these calculations are made based on a range of assumptions outlined in Appendix 4.

FTEs required for current and future coding = 3,101 (high) or 1,757 (low) FTEs

Staffing required to code the existing episodes of care = 1,265 FTEs

This is based on:

- an FTE coder coding 6,440 separations per year, thus:
  - 4 records per hour x 38 hours x 46 weeks = 6,440 records coded per year
- total separations for 2008–09 = 8,148,448, thus:
  - 8,148,448 separations/6,440 separation per FTE = 1,265 FTEs.

Staffing required to code the anticipated increase in admitted episodes of care = 193 FTEs

This is based on a 3.5% average annual increase in the number of hospital separations nationally (see Table 31) and the number of records coded per year per FTE coder as 6,440. Even if there is no change in the environment, this equals an additional **193** additional coders required over the next 5 years.

Staffing required for ABF of Outpatient Occasions of Service (OOS) = 1,493 (high) or 149 (low)

Assuming that OOS numbers remain relatively stable and that each OOS takes 5 minutes to code, high range calculations assume that all OOS will be coded, thus:

- 31,323,335 OOS/12 records per hour = 2,610,278 hours of coding time
- 1 FTE coder = 1,748 hours per year
- To code all OOS = 2,610,278/1,748 = 1,493 FTEs.

Low range calculations of an additional 149 FTEs are based on only 10% of all OOS being coded as an audit function, assuming that the rest are coded using automated coding software. However, this may require this group of coders to have higher order skills to perform an auditing function. For more information on the introduction of ABF for OOS, please refer to Chapter 3.

e-health implications and LHN = 150 FTEs

The Queensland Health report calculated that an additional 30 FTEs would be required due to the implementation of e-health and technology and the implementation of ABF. Based on the fact that Queensland delivers approximately 20% of the total national separations, the additional FTEs required nationally could be calculated as:

30 x 5 = **150 FTEs.**

However, dependant on the number of LHNs created under the NPA, this number may increase significantly to accommodate the functions required at these local centres.

Increased staffing levels for ABF on admitted patients = ?

Due to the national roll-out of ABF, their will be an increased requirement for auditing, reporting and education. Using Victoria experience as a case study, the high level of qualifications of those undertaking coding (>75% of all coding performed by HIM university graduates) (Figure 3) and the investment made in auditing and education, may be an indication of the need that the other jurisdictions will face with the implementation of ABF.

Other workforce issues and implications

Sustainability for the coding workforce cannot be achieved alone through recruitment and training. It will require a reconfiguration of the workforce and changed and expanded roles to ensure the uptake of new and emerging technologies and the increased focus on the quality and accuracy of coded data. HIMs and CCs will need to adapt their work practices, ensuring that they are performing their skilled work, while allowing administrative support staff to undertake ancillary administrative functions.

Training and education may need to be reviewed to ensure changing skill requirements are achieved especially with the introduction of e-health, electronic records and technological advances. Current education and training pathways may limit the supply of appropriately skilled and experienced staff. Current models of service also create difficulties for staff within general health services to maintain specific coding skills.

Additional roles that require the skills of coders may emerge as the health system is reformed, including the need for HIMs working in the area of primary care and aged care, and these would require additional FTEs over and above the calculations included in this report.

6 Recommendations

Using the valuable information gathered from the range of sources already outlined in this document, and based on existing strategies already being used in a number of jurisdictions, a series of recommendations are included below that, if actioned, could assist in redressing the existing and projected shortfall in the coding workforce.

The recommendations are firstly included in an 'Action Strategies' table, and then outlined in further detail in three categories as Immediate, Short-term and Longer-term strategies.

All the recommendations are based on the premise that there are three key ways to deal with workforce shortfalls in any area, which are:

- increase workforce numbers and hours worked
- retain the existing workforce
- increase output of the existing workforce.

It is also critical to note that these recommendations are not sequential, and that it is essential that many of these are undertaken concurrently; firstly to address the existing vacancies of >175 FTEs nationally, and secondly, to increase the workforce to meet the growing demand for the future. The lag time to obtain additional skilled workers is significant and action must be commenced immediately to meet the existing and growing needs.

It is recommended that the first thing required is the establishment of a Coder Workforce Taskforce under the auspices of HWA to undertake proper workforce planning. This will include assessment of where coding workforce staff are needed, how many and at what level of skill, etc. The outcome of the work of the taskforce will be an integrated plan to address workforce shortages and to determine actions based on the recommendations and action strategies noted below.

Table 15: Recommended action strategies, short- and long-term

	Increase workforce	Retain workforce	Increase output of existing workforce	Cross-cutting strategies
CCs	▪ ***Find non-working CCs*** ▪ ***Conduct refresher training*** ▪ *Provide flexible course delivery* ▪ *Put on MODL list* ▪ Train other staff to code ▪ Provide apprenticeships/ traineeships for hospital-based supervision of new coders ▪ *Consider short course training through VET sector* ▪ *Explore encoder options for non-acute sector coding*	▪ ***Improve workplace conditions; for example, physical environment, flexible work hours/locations*** ▪ *Develop methodology for RPL to AQF levels* ▪ *Investigate a national award structure* ▪ Create career paths, including progression to HIMs ▪ Explore articulation from VET to university sector	▪ Explore employment of coders at local hospital network level ▪ Create Educator and Auditor roles at the local hospital network level ▪ Improve access to records for remote coding by uptake of electronic record solutions ▪ *Investigate the value of coding software for improved quality and speed*	▪ *Improve pay rates* ▪ *Promote all of these careers/ professions nationally* ▪ Provide targeted rural scholarships and training incentives ▪ Establish a national coding auditing function ▪ Conduct national clinician training on diagnosis assignment and documentation ▪ *Enhance continuing professional development opportunities* ▪ Create ABF 'cells' with CCs, HIMs and CSs at the new local hospital network level
HIMs	▪ ***Find non-working HIMs*** ▪ *Engage with universities and provide guaranteed sponsorship for enrolments for undergraduate programs* ▪ *Provide flexible course delivery* ▪ Explore short course model to 'build up' to degree ▪ Offer scholarships to study ▪ Offer internships	▪ *Improve understanding of skills and abilities of HIMs* ▪ *Review pay rates that equate to Health IT roles to stop attrition* ▪ Create career paths, including progression to CSs ▪ *Improve continuing education availability*	▪ Restructure roles to remove 'process' functions and focus on information management ▪ Explore employment of HIMs at local hospital network level	
CSs	▪ *Define these roles nationally* ▪ *Engage with education suppliers to design and conduct training* ▪ Train existing staff as CSs		▪ *Upskill existing workers to new national ABF model* ▪ Create positions at the local hospital network level	

Note: Key: Italicised and bold recommendations = Immediate actions

Italicised recommendations = Short-term actions

Immediate actions

1. **Find non-working HIMs and CCs to fill current vacancies**

   The existing >175 FTE vacancies for coders around the country requires immediate action, and the most expedient way to address this issue is to identify those trained to code who are not working in the field. The example from WA, where an additional 40 prospective coders were identified by contacting HIMAA course graduates demonstrates that this strategy has potential to fill immediate gaps in the workforce nationally and has the potential to engage >200 additional staff nationally, based on the WA example.

   Once these coders are found, it would be valuable to determine why they have not been working and the factors that would influence them to return to the coding workforce.

   To ensure they are fully equipped to rejoin the workforce, it will be necessary to offer many of these coders some refresher training. Courses already exist to meet these needs; for example, HIMAA piloted a refresher training program in 2009 with four coders, and this 12-week program is now available to anyone wishing to return to work as a coder. La Trobe University has also offered refresher training in the past.

   It is recommended that:

   - **a national coder workforce register be established, by using an opt-in method allowing all coders interested in having their details recorded to contact the register**
   - **those who register be asked why they are not currently working as coders, and what changes they would need to attract them back to the coding workforce**
   - **all providers of training in clinical coding be engaged by DoHA to contact previous graduates to request that they contact this register if they are considering returning to work as a coder**
   - **funding be allocated to provide refresher training to this group, where required, to get them work ready.**

2. **Promote immediate improvement in current work arrangements for existing staff**

   The results of this study and many other reports, have demonstrated the significant issues faced by coders in their daily work circumstances, including lack of understanding and support for their role, lack of access to computers, noisy work environments, inadequate desk space, etc.

   Limited flexibility in employment arrangements also impacts on staff recruitment and retention. For example, in rural and regional areas funding for HIM and CC positions often only extends to part of a full-time position.

   It is recommended that:

   - **flexible working arrangements for coders are explored within existing HR constraints; for example, working from home, purchased leave, carers leave, etc.**
   - **consideration be given to locating coders outside medical records departments so they are not drawn into 'other duties'**
   - **improvements be made to physical work conditions for coders to ensure maximum productivity; for example, access to computers and appropriate workstations, access to reference materials**
   - **the use of standardised audit tools, such as PICQ and ACBA be promoted.**

Short-term actions

3. **Support a more in-depth body of work on the Costing Specialist workforce, with the aim of developing a set of competencies and training packages**

   The results of this study show that currently those that undertake work as Costing Specialists are not well defined and are difficult to identify within the health sector. Many people with skills in clinical costing and casemix are not engaged in roles that contain these words in their title, but rather perform duties related to costing as part of a broader role, such as finance officer. With the national implementation of ABF, the need for more and better trained specialists in this field will be required, and a dedicated piece of work to better ensure the development of competencies for the existing workforce, as well as the increase in the workforce capable of delivering on these initiatives, is suggested.

   It is recommended that:

   - **work is commissioned to investigate the existing workforce, with the aim of defining the competencies required for workers in this field at various levels**
   - **engagement with training providers is commenced immediately to discuss the development of training modules on clinical costing for delivery at a number of levels for a range of existing workers in the health sector, including engagement with the National Hospital Cost Data Collection.**

4. **Finalise the development of an Australian Qualifications Framework (AQF) qualification for clinical coding, and assist existing coders to obtain recognition of prior learning (RPL)**

   The lack of definition of the skills required to be a coder has long been an issue in identifying the workforce and for remunerating them appropriately. HIMAA has recently undertaken a body of work, in conjunction with the Community Service and Health Industry Skills Council, to establish three units of competency in clinical coding at the Certificate III and IV level and is now delivering these as a registered training organisation (RTO).

   However, no industry-recognised current qualification exists, which limits opportunities for coders and their employers to gain access to educational funding initiatives, such as apprenticeship subsidies (see Appendix 7). For example, the Queensland Government Administrative Employees Training and Development Education Incentive Fund offers funding to assist eligible permanent AO3 and AO4 CC staff to gain an AQF qualification which is relevant to the administrative stream. If there was a full Certificate in Clinical Coding, this funding could be accessed.

   It is recommended that:

   - **support be provided to assist the fast-track development of a Certificate III in Clinical Coding, including units on ABF, so that apprenticeships can be offered to new coders and advantage taken of nationally funded apprenticeship programs**
   - **support be provided to fast-track the development of more flexible, distance and online learning options to allow more access for staff in rural areas to this training.**

5. **Promote careers in Clinical Coding, HIM and Clinical Costing nationally**

   The field of HIM is poorly understood both by the general public and many managers and clinicians within the health workforce. This has led to a lack of awareness of the contribution of this workforce within the health service. The HIM profession has been described by some

as 'invisible'. There is little knowledge of HIM as a profession amongst school leavers unless students have worked in the health industry or know someone who does.

This has created a steady decline in enrolments in HIM courses around Australia, which may be due to the poor marketing of courses, as noted in the recent Queensland Health report on HIMs and CCs. It may be possible to reverse this trend if specific targeted marketing were undertaken and followed up with career pathway progression strategies to suit the next generation of the health workforce.

To address this situation a number of strategies can be commenced immediately to assist in the promotion of careers in these areas.

It is recommended that:

- **these careers are promoted through the National Careers and Employment Road show**
- **Information is provided on the Community Services and Health 'Careers That Matter' website**
- **HWA be consulted and used as the vehicle for engagement with universities**
- **promotion of existing undergraduate courses in HIM be supported to keep them viable with adequate numbers and producing sufficient graduates to meet market need. Targeted marketing strategies are developed to promote CC and HIM as career options, including highlighting the information technology and e-health aspects of these roles, towards high school age groups and relevant undergraduate students**
- **universities that previously offered HIM programs and other universities be engaged to explore opportunities for reinstating or commencing programs if minimum numbers can be guaranteed through sponsored places**
- **universities be encouraged to recognise the Certificate III in Clinical Coding as prior learning for undergraduate HIM programs.**

6. **Seek to have these careers listed on skills shortage lists**

The results of this study, and indeed many previous studies, have highlighted a long-term workforce shortage that is increasing, and is expected to reach critical levels in the near future without further action. One way to increase the workforce is to have these careers recognised by the relevant government departments as an area of skill shortage. This will provide additional incentive opportunities for Australians to study in this field, including access to apprenticeship payments, and an opportunity to attract trained workers from overseas.

Thus it is recommended that:

- **DoHA initiate discussions with the Department of Education, Employment and Workplace Relations regarding getting HIMs, CCs and CSs on the National Skills Needs List**
- **DoHA initiate discussions with the Department of Immigration and Citizenship regarding getting HIMs, CCs and CSs on the Skilled Occupation List (SOL).**

7. **Investigate the value of coding software for improving quality and speed**

A number of the jurisdictions noted that they have invested heavily in the use of coding software to improve the quality and consistency of coded data, and as a measure to increase the output of their staff. However, there is little or no evidence that these applications are providing these benefits.

It is recommended that a small research study be funded to scientifically investigate whether or not there are quality and productivity gains from the use of these tools, and the results made available to the jurisdictions to inform their decisions.

8. **Enhance continuing professional development opportunities**

A number of the reports and previous studies, as well as the comments received from this coder survey, noted the need for more opportunities for existing staff to keep their skills up to date, particularly with the rapid changes in the environment that are occurring. This will be increasingly important with the implementation of ABF, national performance reporting, LHNs and e-health changes. However, due to the increasing pressures from low staff numbers and increased workplace demands, coders have reported having little time or support to attend continuing educational opportunities.

It is recommended that:

- **those who employ coders are encouraged to provide funding and support for staff to participate in continuing professional development opportunities**
- **those who provide continuing professional development opportunities consider how to do this more flexibly to maximise the participation of coders nationally; for example, through webinars, online learning modules, etc. Establishment funding may be required for some of these initiatives.**

9. **Undertake a national review of salary and industrial conditions for CCs, HIMs and CSs**

Variations in pay rates seem to exist across the country, and are noted in a number of jurisdictional reports, with no standardised rates or conditions and no means of recognising the skills and qualifications of many parts of the workforce. In addition, the relatively low levels of pay have meant that many qualified coders have moved into other more financially rewarding areas of health information related work, including e-health.

A report written as part of the National Coder Workforce Issues Project (HIMAA 1995) regarding industrial conditions for Clinical Coders reported that a single federal award to set out uniform terms and conditions for coders was desirable. However, little has changed industrially for coders in most jurisdictions, and this remains an issue, as highlighted in the comments received in the survey. In addition, coders indicated that salaries were insufficient for their level of responsibility, and highlighted the need for clear national award structures for coders that provide recognition for their skills.

It is recommended that:

- **higher pay levels for all aspects of the coding workforce are considered to stop leakage into other higher paid roles**
- **a review of existing industrial arrangements is undertaken, including a jurisdictional comparison of awards, pay rates and conditions, that would provide further recommendations for standardisation. This review could also usefully compare with CC and HIM conditions with similar occupations and identify likely cost implications from enhancing CC and HIM employment conditions**
- **investigation is undertaken into the appropriateness of a nationally consistent pay structure, seeking advice from HWA, to determine how pay aligned to the AQF framework would allow the existing workforce to demonstrate competency and obtain RPL for experience.**

Longer-term actions

10. Provide scholarships, internships and training incentives

Scholarships and bursaries are already being considered and trialled by some jurisdictions and this model of engaging workers appears to be successful in developing a workforce in the locations they are required. Internships have been successful in a number of other fields, such as accounting, and provide a pool of workers to undertake lower level tasks while concurrently studying within the field. This would also provide a mechanism for succession planning at local levels to manage issues arising from attrition and retirement in the coding workforce.

It is recommended that:

- **targeted rural scholarships and training incentives for students to undertake distance education as HIMs and CCs be provided to areas of workforce need**
- **internships be trialled in some areas for HIM undergraduates so that they are able to work while undertaking their degree and be mentored by experienced HIMs**
- **apprenticeships in clinical coding are established nationally once the full qualifications framework is developed to provide access to employer and employee benefits under the Australian Apprenticeships program, and local mentoring by experienced coders.**

11. Establish Coding Workforce Units at the Local Hospital Network level

Under the new health reform model, the LHN will be the level of the organisation responsible for funding, as well as the provision of performance information, for a specified geographic area. A key strategy will be to build service and workforce models (including training and research opportunities) for HIM and clinical coding services at this level, to encourage and support attraction and retention of skilled staff.

Professional development and supervision of inexperienced and trainee staff imposes a significant impost on the workload of HIMs and CCs at the facility level, and can be the main factor inhibiting the employment of new staff. This particularly impacts on rural and regional services and workforce recruiting practices.

It is recommended that:

- **Coding Workforce Units are established at the LHN level that include CCs, HIMs and CSs to ensure that the coded data at all facilities in the LHN is collected, analysed and reported consistently within the required timeframes**
- **these units contain coding auditor and educator roles to provide support and review for all coders within the LHN**
- **these coding auditors and educators provide support to coding apprentices or HIM interns in the network to relieve the burden to the facility staff, similar to those support mechanisms already established for nurses.**

12. Use technology to improve access to records to allow remote coding

Some innovation has already commenced in the area of remote coding. A number of the contract coding companies have already commenced remote coding of electronic and scanned records, and this particular use of technology presents significant opportunities to use the scarce coding workforce more effectively. Many coders, particularly in regional

areas, reported spending many hours per month travelling to remote facilities to code the records there, often including overnight stays at significant cost, and it is felt that a financially robust business case could be made for the implementation of record scanning for such locations.

Many other uses of technology may provide opportunities to gain greater output from the existing coding workforce and emerging opportunities should continue to be investigated and trialled as these come online. However, while the introduction of innovative technology may assist in diminishing workforce demand pressures, there is some concern based on past experiences that the introduction of technology has sometimes resulted in an increased demand for services rather than a decreased workload, and this should also be monitored.

It is recommended that:

- **the uptake of scanned and electronic health records be promoted, specifically in regional areas, to allow remote coding**
- **new technologies be constantly considered for opportunities to reduce the workload on coders, and reviewed to ensure that they do, in fact, reduce workload.**

13. Conduct national clinician training on diagnosis assignment and documentation

A lack of clinical documentation has been identified by previous researchers as a significant problem to obtaining high quality coded data (Curtis et al. 2002; O'Malley et al. 2005). Curtis et al. (2002) recommended that clinicians (medical, nursing, and medical records staff) are made aware of the documentation requirements for accurate coding (McKenzie & Walker 2003). Coders also report spending significant amounts of time deciphering clinical notes, clarifying diagnoses, and searching for documentation that substantiates the diagnoses provided. Additional difficulties are faced in many rural areas where overseas trained doctors, who have not been instructed on how diagnoses are to be recorded to meet the needs of coding in Australia, are working.

It is recommended that:

- **a national training program be developed for clinicians on correct principle and additional diagnosis recording and improved clinical documentation**
- **a program of training be delivered nationally, and included in medical school undergraduate level programs.**

14. Establish a national coding auditing, education and support function

With the move to a national ABF model and performance reporting, the need for nationally consistent analysis of coded data will be critical to ensure consistent application of coding standards and compliance with coding and grouping rules. The model currently in place in Victoria for state-wide auditing demonstrates this need, and this model could be used as the basis for a similar function at the national level. It is vital that this function is controlled by a government agency to ensure appropriate governance and coordination of support and advice on code allocation decisions due to their impact on government expenditure.

It is recommended that:

- **a national level auditing, education and support unit be established within a government agency to undertake audits, provide feedback on coding quality issues, and to promote consistency in quality coding, auditing and reporting practices**

- **this unit provide a coding support service for coders to enable them to get real-time advice and support for coding queries, using web-based solutions, where possible.**

15. Define a career path for the coding workforce to integrate the existing workforce and create promotional pathways

Career pathways are currently not well defined for the coding workforce, with limited access to ongoing education, training, and professional development particularly in rural and remote areas. The lead times for training to adequate competency levels are also significant. The health information discipline training pathways also frequently cross over and influence each another with no single point of entry into the coding workforce professions.

Qualifications gained at school, vocational level and university could be linked flexibly to allow students to enter and exit the educational pathways depending on personal needs or the circumstances of the individual. To allow this to happen, vocational level courses offered by RTOs, such as the HIMAA, or other recognised but non-award units, such as those offered by the NCCH and NCHIRT, will need to be recognised by universities for the purpose of establishing credit transfer and articulation arrangements with degree programs in a range of academic disciplines.

Career paths also need to be established for skilled coders, auditors and educators and educational pathways established for CCs wishing to move into a career in HIM, or for HIMs to become CSs.

Flexible education models that allow articulation from the vocational sector to tertiary programs, with multiple entry and exit paths, are required to better articulate programs across the tertiary education sector (see Figure 13). This is necessary to cater for students who do not currently meet the standard academic conditions of entry or who do not already have academic qualifications. Figure 13 below provides a diagram that demonstrates these pathways, which also attempts to depict the relative size of the individual components required.

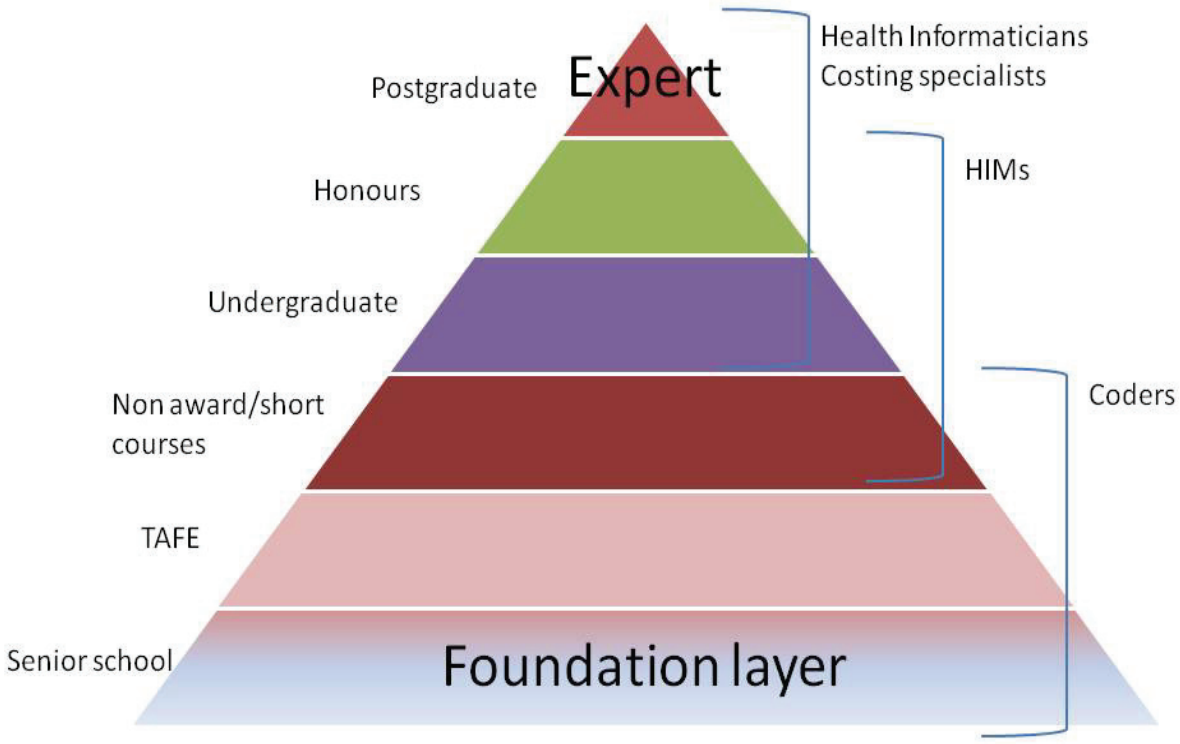
Course design also needs to be reviewed, with programs offered in both face-to-face and in blended online learning formats. Programs that can be taken as short courses and built on to a point that equates to an academic award are needed. Increasingly, flexible or blended learning alternatives are seen as more attractive study option for a wide range of reasons including but not limited to:

- meeting the expectations of a technologically savvy generation
- maximising limited resources
- supporting academic credit recovery programs
- supporting family and/or work commitments
- suiting students who live in remote or isolated communities
- matching students with programs where desired subject(s) or program(s) are not available locally (Griffith University 2008; Queensland University 2008).

It is recommended that:

- **work is commissioned to investigate the Victorian coding workforce mix, with the aim of identifying what roles are employed in Victoria, why the higher skill mix is required and what changes occurred in the workforce with the introduction of casemix**

- **following the establishment of a Certificate III in Clinical Coding, support is provided to developing Certificate IV and Diploma level certificates in Clinical Coding that can be used for articulation into university level programs and for career and pay progression markers**
- **work be continued, in collaboration with a range of education providers at all levels and with industry representatives, to design a career pathway model that meets the needs of the future workforce, and delivers the competencies required by industry.**



Source: NCHIRT 2010 Personal Communication.

Figure 13: Potential / existing training pathways into HIM disciplines

Appendix 1 - List of consultations

Name	Role
Australian Government Department of Health and Ageing	
David Grant	Classification Management and Statistics Section, Healthcare Service Information Branch, Acute Care Division
Kelvin King	Director, Classification Management and Statistics Section, Healthcare Services Information Branch, Acute Care Division
David Martin	Assistant Secretary, Health Care Services Information Branch
Australian Centre for Clinical Terminology and Information (ACCTI), Centre for Health Service Development University of Wollongong	
Kerry Innes	Manager
ACT Health	
Roma Davidson	Coding Team Leader, Calvary John James Hospital
Louise Edmonds	Information Management Unit, ACT Health Department
Sharon Gibbons	Coding Manager, The Canberra Hospital
Lee Miller	Health Information Manager, Clinical Coding Calvary Health Care ACT
NSW Health Department	
Amelia Chee	Clinical Information Specialist, Data Collections and Quality Unit, Demand and Performance Evaluation Branch
Joanne Chicco	
Susan Claessen	
Jane Dimond	Area Advisor Health Information , Management Manager Patient Information & Medical Record Service, Royal Prince Alfred Hospital
Debbie Lane	Area Clinical Coding Manager, Greater Western Area Health Service
Margie Luke	
Robyn Lunt	Area HIM, Greater Southern Area Health Service
Ric Marshall	
Robyn Sheridan	Area HIM, Greater Western Area Health Service
NT Department of Health and Families	
Jill Burgoyne	Health Information Manager, Alice Springs Hospital
Queensland Health	
Kathryn Carmichael	Manager Health Information Services Gold Coast Health Service District
Bonita Findlay	Coding Manager Gold Coast Health Service District
Jane Ingram	Principal Workforce Planner, Workforce Design & Liaison Unit , Clinical Workforce Planning and Development Branch
Corrie Martin	Principal Data Quality Officer, Statistical Standards Unit, Health Statistics Centre
Sandra Martyn	Director, Statistical Standards, Health Statistics Centre
Colin McCrow	Senior Applications Specialist, Decision Support & Analysis Team, InfoOperations Branch

South Australian Department of Health	
Catherin Garvey	A/Chief Health Information Officer, Information Management – Medical Record Advisory Unit
Lesley Ward	
Tasmanian Department of Health and Human Services	
Peter Mansfield	Manager, Clinical Data Services, Information Unit, Policy, Information & Commissioning Unit
Kirstie Mountain	Client Record Advisor Strategic Portfolio Services, Information Support Services
Victorian Department of Health	
Dean Athan	MIS Manager, Peninsula Health
Franco Greco	Project Director, National Reform Projects Funding and Information Policy Branch
Jennie Shepheard	Senior Health Information Manager Health Data Acquisition, Funding and Information Policy Hospital and Health Service Performance
WA Health	
Deborah Yagmich	Principal Coding Trainer, Coding Education, Information Management and Reporting, Health Information Network
Coding Contractors	
Debbie Abbott	Resolutions
Anna Coote	PH Prime Care
Sam Gentile	Rolls Printing
Andrea Groom	Healthcare Management Advisors
Doug Henry	Pavilion Health Pty. Ltd
Keith Holden	The Coding Company
Jude Kratzmann	MediCODE
Louise Matthews	Matthews Health Coding Solutions
Beth Reid	Pavilion Health Pty. Ltd
Educators	
Carolyn Allison	Open Training and Education Network
Kerryn Butler-Henderson	Curtin University of Technology
Kerin Robinson	La Trobe University
Robert Steele	Sydney University
Sue Walker	NCHIRT, Queensland University of Technology
Lyn Williams	Education Services Manager, Health Information Management Association of Australia
Maryann Wood	Queensland University of Technology
Professional Organisations	
Robert Blue	Chief Executive Officer, Health Information Management Association of Australia
Joan Knights	President, Clinical Coders Society of Australia
International	
Ireland	
Deirdre Murphy	Manager, HIPE & NPRS Unit, Health Research & Information Division, ESRI

Canadian	
Kelly Abrams	Vice President, Education & Professional Practice Canadian Health Information Management Association
New Zealand	
Patsy MacAulay	Manager Clinical Coding, Waikato District Health Board
UK	
Lorraine Nicholson	President of International Federation of Health Record Organisations

Appendix 2 – Project scope and objectives

The following is an extract from the Schedule to the Memorandum of Understanding between the Department of Health and Ageing and the Australian Institute of Health and Welfare for the procurement of services in relation to 'A report on the Clinical Coders, Health Information Managers and Costing Specialists (coding workforce) shortfall'.

Project description

Clinical Coding is the translation of narrative descriptions of diseases, injuries and procedures into alphanumeric codes. These codes form part of a data collection that is used for research as well as the provision of information for health service planning and financing decisions.

These codes are derived from the International Classification of Diseases, tenth edition (ICD-10), developed by the World Health Organization.

With the move to ABF, it is likely that new classifications will be developed which will increase the demand for qualified members of the coding workforce.

While the issue of a shortfall in the coding workforce has been raised anecdotally in a number of national forums, no recent study has been done to quantify the scope of the shortfall or a consolidated set of recommendations to address it developed with the jurisdictions.

The schedule's objective is to:

- conduct a survey to provide a quantifiable number of coding staff currently employed and their demographics and also identify projected numbers for the future to cover the anticipated increased demand
- produce a report on the activities currently being implemented in the jurisdictions to address these issues and
- provide recommendations on a way forward for a more consolidated national strategy to address future needs, taking into account e-health and broader developments.

Outline of the project

AIHW will provide the Department with a report on the Clinical Coders, Health Information Managers and Costing Specialist (Coding Workforce) Shortfall.

AIHW will develop the scope, content, instrument, frame estimation and validation procedures for the survey of today's Clinical Coders, Health Information Managers and Costing Specialists workforce.

The scope of the survey is aimed at the Clinical Coders, Health Information Managers and Costing Specialists employed by hospitals and Health Departments.

The survey information collected about the future Clinical Coders, Health Information Managers and Costing Specialists workforce will need to relate to the 'demand side' that is the projected numbers of Clinical Coders, Health Information Managers and Costing Specialists needed to meet the anticipated expansion of coding activity. The report will include illustrative 'what-if' calculations of future workforce supply, based on the population characteristics gathered in the survey and on a range of assumptions about future exit/retention rates.

Appendix 3 – Survey methodology

Survey method and issues

This component of the Coding Workforce Shortfall project describes the methodology used to collect data on the coding workforce. The coding workforce has been defined by DoHA as the occupations of Clinical Coder, Health Information Manager and Costing Specialist. The survey collected data about CCs and HIMs only. The definitions of CCs and HIMs in the survey were based on the ABS standard classification of occupations (ANZSCO).

- *A clinical coder is someone who assigns codes to narrative descriptions of patients' diseases, operations and procedures in accordance with the ICD-10-AM classification to allow for storage, retrieval and analysis of health data.*
- *A health information manager is someone who plans, develops, implements and manages health information services, such as patient information systems, and clinical and administrative data, in order to meet medical, legal, ethical and administrative requirements of health care delivery.*

To enable some comparisons over time, the definitions above, and the scope of health-care facilities in the 2010 study, align with an earlier comprehensive report on CCs and their managers, *The Australian coder workforce: 2002* (McKenzie & Walker 2003).

Data collection

Survey population

Aggregate data about hospital-based CCs and HIMs were collected via a web-based survey of coding managers employed in hospitals and day care facilities. These health-care facilities were identified via the AIHW's Hospital Morbidity Database (AIHW HMDB) which formed the population frame for the survey. The characteristics and activity data for each facility were also extracted and matched by facility to the survey data. This enabled the coder resources (the workforce) to be analysed in combination with a measure of the required volume of clinical coding work (health facility separations).

The survey targeted some 1,170 health establishments with admitted patients in 2008–09 and for which morbidity data had been provided to the AIHW HMDB.

Data for each facility were collected by approaching one person working at the facility, either the coding manager or supervisor, to take part in the survey. Many of the people in these roles were responsible for more than one health facility, and were asked to complete more than one survey form. Given this, the survey questionnaire was kept as short as possible, while still obtaining the necessary information (see Attachment 1).

Survey preparation

Respondent contact

The survey email and follow-up email dispatches, the secure survey site and technical operations were outsourced. Being a web-based survey, the operation required a list of email addresses for contacts in each health facility and because one did not already exist, considerable time and resources were invested in compiling it. State and territory health departments provided support, supplying where they were able, administrative information about public sector facilities. This was used as a base which was supplemented by contact information obtained by 'cold' calls by telephone. Similarly, DoHA provided some contact information about the private sector facilities and this was supplemented with information obtained by telephone. In addition to this activity, the HIMAA and CCSA sent an email, alerting their members to the survey and encouraging their support. This resulted in further additions to the list of contacts from HIMs in both private and public sector facilities.

All hospital contact email addresses were checked by sending an email to each contact, confirming their details and determining all facilities for which they were responsible for clinical coding. The email also contained an explanation of the survey, its purpose, importance and how the data would be used.

Questionnaire

A draft questionnaire was designed to meet the identified data requirements and provided to a small cross-section of clinical coding managers/HIMs for feedback. Before being finalised, the questionnaire and supporting explanatory information were also reviewed by state-based colleagues with expertise in collecting similar data.

Enumeration

The survey was conducted over 5 weeks (from 23 April to 28 May 2010) during which time, query resolution and respondent support was provided by the AIHW team.

Maximising response

All methods of encouragement to participate were important to the final overall response because participation in the survey was voluntary. Pre-survey, the task of compiling the email contact list also served as preparation for gaining a good response to the survey. The email which was sent to facility contacts explaining the purpose of the survey and the importance of quality, reliable results, also established personal links with the AIHW which was important to enlisting survey support. The information which was distributed to all HIMAA and CCSA members was to raise awareness of the survey, but also to enhance support for its completion.

During the survey, response was monitored by state, sector and peer group in order to target follow-up activity and minimise bias in the final data set. Reminder emails were sent to contacts approximately 2 weeks and 3 weeks after the initial survey emails. In addition, targeted follow-up by telephone focused on contacts responsible for multiple facilities because, being geographically clustered, their non-participation was more likely to skew the results. The telephone follow-up was undertaken both by AIHW and colleagues in the state and territory health departments.

Final response

Responding facilities

The overall response to the survey was 75%. Response from public facilities was 86% and from private facilities, 61%. The distribution by jurisdiction, sector and peer group is shown below (Table 16).

Table 16: Per cent survey response: sector and peer group, states and territories, 2010

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Peer group				**Public facilities**					
Large major cities	100	86	100	100	100	. .	100	. .	95
Large regional and remote	86	100	100	75	. .	100	. .	. .	91
Medium (group 1)	100	100	100	80	100	. .	. .	. .	96
Medium (group 2)	88	75	100	100	70	. .	. .	. .	84
Mothercraft	33	33	0	. .	. .	. .	. .	. .	29
Multi-purpose services (MPS)	94	100	89	88	100	100	. .	. .	92
Hospices	. .	. .	. .	. .	. .	100	. .	. .	100
Other non-acute	64	. .	. .	. .	. .	. .	. .	. .	64
Principal referral	92	78	93	100	100	100	100	100	90
Rehabilitation	100	. .	. .	100	100	. .	. .	. .	100
Small non-acute	100	83	95	75	68	100	. .	. .	88
Small regional acute	89	83	89	100	57	100	. .	. .	84
Small remote acute	100	. .	80	92	75	. .	. .	100	87
Specialist women's and children's	100	100	100	100	0	. .	. .	. .	91
Unpeered and other	79	86	78	67	79	100	. .	. .	82
Psychiatric	75	100	100	0	0	. .	. .	. .	69
Total public	89	84	88	85	73	100	100	100	86
				Private facilities[(a)]					
Total private	*62*	*53*	*65*	*49*	*73*	*83*	*50*	*100*	*61*
Total	**77**	**70**	**78**	**73**	**73**	**97**	**67**	**100**	**75**

(a) Peer group is not available for private health-care facilities.

Source: AIHW National Coding Workforce Survey 2010.

Non-responding facilities

There were 96 public and 196 private facilities which did not respond to the survey. For public facilities the distribution across peer group and the proportion of separations they represented in 2008–09 are shown in Table 17. Peer group and hospital separations are not available for private facilities.

Overall, the non-responding facilities had 10.9% of total separations in 2008–09 and this was evenly distributed across peer groups (at around 1% or less) except for principal referral hospitals which had 6.4% of total separations. However, the total number of principal referral hospitals (both responding and non-responding) account for 64% of the total separations across all public facilities in the survey and, although only 7 out of 71 of them did not respond, this appears relatively high in the separations figures when they are actually well represented at the peer group level.

Table 17: Survey non-response for public facilities: sector, peer group and proportion of separations, 2010

	Total number of facilities	Number non-responding	% of separations in peer group	% of total separations
Large major cities	22	2	12.4	1.0
Large regional and remote	22	2	11.4	0.7
Medium (group 1)	27	1	3.4	0.2
Medium (group 2)	62	10	15.9	0.7
Mothercraft	7	5	82.2	0.2
Multi-purpose services (MPS)	75	6	4.7	0.0
Other non-acute	11	4	37.9	0.1
Principal referral	71	7	9.9	6.4
Psychiatric	13	4	40.1	0.1
Small non-acute	76	9	64.5	0.1
Small regional acute	109	17	30.9	0.4
Small remote acute	38	5	5.3	0.1
Specialist women's and children's	11	1	49.8	0.6
Unpeered and other	126	23	4.9	0.2
Total	**679**	**96**	**10.9**	**10.9**

Source: AIHW National Coding Workforce Survey 2010.

Survey estimation

When evaluating whether to estimate for missing survey data in the coding workforce survey, two aspects were examined: population estimation (which accounts for units missing from the population of interest) and imputation (which can reduce the level of item non-response, that is, when respondents provide partially completed questionnaires).

Population estimation is designed to be part of the data processing for a sample survey in which the sample has been scientifically selected before the survey is conducted. It involves applying an expansion factor to each responding unit using known data about the entire population. This enables an estimate of the whole population (not just the respondents) to be produced when aggregate output is generated.

In the coding workforce survey, coding managers for all hospitals/day care facilities within the scope of the survey were sent questionnaires and technically, it was a census. However, not every coding manager responded and the result is a data set based on a very large 'self-selecting sample' of the population. Consequently, the group of facilities in the data set is not a random

selection and the usual measures of variability in survey results (standard errors) are not a suitable means of gauging the reliability of results.

A non-random respondent group also results in some bias in the group's response and underlying characteristics, and the estimation process can only adjust for characteristics which are known for the entire population. Characteristics which are known only for respondents, including any bias in them, will be expanded by the estimation process and not change to any skewness in their profile.

Regarding imputation, the questionnaires received had very little missing information and this could be managed through standard data editing and cleaning.

In summary, survey estimation is not a suitable path because the responding population is not random. Further, because of the very high response to the survey overall and the very low incidence of partially completed questionnaires, the need for estimation is low and would not enhance either the data set or the analysis.

Data collection issues

Before collecting data about CCs and HIMs, the following methodological and operational issues needed to be addressed:

- identifying the target population
- double counting coders
- scope of the data collection
- reference period.

Further, the options for addressing these issues were limited by the time constraints associated with the overall project.

Identifying the target population

As a workforce, CCs have some characteristics which make them difficult to count accurately. An individual Clinical Coder can work in more than one health-care facility, and in both the private and public sectors. Most do this by working as employees of multiple facilities, while others are employees of contract coding companies or are self-employed. HIMs however, seem to move between facilities to a lesser extent, making them easier to measure as a group.

Unlike some other occupations in the health sector, such as nurses, there is no national register of CCs or HIMs. There is a professional association for each of these occupations; however, not all people employed in these professions are members of the associations.

Therefore, the way to find members of the coding workforce needed to be via the health-care facilities for which they code. It was recognised that the most detailed information would be obtained by individually identifying and surveying all CCs and HIMs. However, this was assessed as being not feasible within the project timeline. Instead, one person in each health-care facility was contacted to provide information about all the CCs for that facility. That person was the coding manager or supervisor, and usually an HIM.

The major difficulty with this approach was avoiding double counting coders working in more than one facility or those contracted who would be identified at the facility and through the company employing them.

Double counting

By conducting a facility-based survey, double counting CCs was inevitable because of the highly mobile/flexible way in which they work. In order to limit the double counting, the survey of health facilities included CCs who were employees and excluded CCs working for contract coding companies. The latter group were identified through their employer and excluded from the count for any facility for which they coded.

Overall, some CCs (mainly hospital employees) were counted more than once, while others (self-employed contract CCs) were excluded from the count. Therefore, an FTE figure has been calculated from their hours worked in order to provide a measure which accounts for the double counting.

However, some estimation of the 'headcount' of workers has been included to enable their characteristics as a group to be examined. The figures were difficult to produce from the survey and are based on a manual filtering of survey data aimed at removing duplicates. Headcounts in Tables 1 and 5 must be considered estimates of counts because it is possible not all duplicates were removed.

Scope of the data collection

Clinical Coders

Information was collected by survey about CCs employed by health-care facilities and by five large private agencies which contract out their clinical coding services. All CCs employed by health facilities were in-scope for the survey. CCs employed by small coding businesses were excluded because of the project time constraints. Also generally excluded were self-employed, single coder operations unless they were identified as being the only coder for a facility.

Health Information Managers

Health Information Managers working in health facilities and directly in the coding (and related) processes were in-scope. People work as HIMs in a much larger range of agencies than CCs, including all levels of government and health insurance companies. For the purposes of this project, the work performed by HIMs who are not employed in health facilities or are not directly involved in the coding process, is assumed to be ‘secondary’, or indirect involvement, rather than ‘primary’, or direct involvement, in the clinical coding processes. That is, they may use the data resulting from the clinical coding that occurs in health facilities but have no involvement in the clinical coding process itself. These HIMs were excluded from the coding workforce profile in this report.

Health facilities

To enable some comparisons over time, information collected for the 2010 survey of health facilities was based on the same scope as the 2002 study of CCs by McKenzie and Walker (2003). That is, hospitals/day care facilities which supply unit record morbidity data to their respective state/territory health departments. Facilities which did not have beds/admitted patients, such as community-based care, were excluded from the frame. The rationale was that they were unlikely to have CCs on staff and the time and resources would be better used in targeting facilities which did.

Further, health facilities with beds/admitted patients were a focus of the study in order to compare the volume of coding work (using health facility separations data) with the FTE numbers in the workforce who were undertaking the clinical coding.

Reference period

Data on health-care facility separations, which have been used in the analysis of survey data, were obtained from administrative sources. The most recent administrative data available relate to the 2008–09 financial year and in order to align with this, the survey reference period was also the 2008–09 financial year.

Limitations of the survey data

Conducting a survey of health facilities rather than a survey of CCs and HIMs, has effects on the utility of the data. First, a headcount of CCs and HIMs is very difficult to produce from the data because of the extremely mobile nature of the work. Second, the aggregate data by facility which was collected does not allow the characteristics of the coding workforce to be cross-tabulated, limiting the data to broad level analysis, only. Third, comparisons with earlier surveys are limited because the collection unit in earlier data was the CCs themselves, as well as their managers.

To minimise the headcount problem, some filtering of the survey results has enabled an estimate to be produced for each state and territory. However, it is likely that not all the double counting was adjusted and the figures should be treated as estimates only.

To enable some quantification of the workforce load, a derived FTE figure has been used for the main analysis. The FTE was produced by

Estimated total hours ÷ 38 hour 'standard week'.

Monthly hours were collected in the survey because coding hours per week fluctuate considerably, due to the monthly coding deadlines. The standard week was converted to a monthly figure by using a '46-week year', to adjust for leave periods and public holidays.

It should be noted that some information reported in the survey, such as hours worked, will have been estimated rather than based on records.

Attachment 1: Survey questionnaire

Coding Workforce Survey

The information captured in this survey relates to all employees in your health facility who are clinical coders and health information managers actively involved in the production of coded data, including yourself. The definitions used for this survey are below, as defined in the ANZSCO workforce codes.

A **clinical coder** is someone who assigns codes to narrative descriptions of patients' diseases, operations and procedures in accordance with the ICD-10-AM classification to allow for storage, retrieval and analysis of health data.

A **health information manager** is someone who plans, develops, implements and manages health information services, such as patient information systems, and clinical and administrative data, in order to meet medical, legal, ethical and administrative requirements of health care delivery.

The survey **excludes:**

1. clinical coders engaged from external coding contractors; and
2. health information managers not working in a coding-related role.

Some people undertake tasks which relate to **both** clinical coding and health information management and for this survey they should be assigned to the occupation in which they worked the **most hours**.

If you are responsible for providing coding services for more than one hospital or day procedure facility, you will need to complete a separate survey form for each facility. There should be a link below for each facility you have been identified as responsible for. If this list is not correct, please contact Vicki Bennett at Vicki.bennett@aihw.gov.au urgently.

- Name of Facility 1
- Name of Facility 2 etc

(continued)

Coding Workforce Survey

Please confirm this is the name of the facility for which you are filling out this form.

Facility name (auto-populated)

○ Yes

○ No

If no, please list the name of the hospital or day procedure facility

Please note: data will be produced as aggregate statistics only, and individual facilities will not be identified in the analysis or the reporting of results

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(continued)

Coding Workforce Survey

1. Including yourself, but excluding clinical coders from external contracting companies, how many employees (including casual/non-ongoing staff) were clinical coders and health information managers at 30 June 2009?

Include people who are not primarily coders but who do coding work.
As well as people doing clinical coding work, include people involved in related activities, such as coding audits and training coders.

	Clinical Coders	Health Information Managers
Number of males		
Number of females		
Total	0	0

2. At 30 June 2009, how many of those clinical coders and health information managers were in each of the following age groups?

	Clinical Coders	Health Information Managers
< 25 years		
25 - 34 years		
35 - 44 years		
45 - 54 years		
Over 54 years		

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(continued)

Coding Workforce Survey

3. The following relates to the highest level of training in clinical coding and/or health information fields.

How many of the staff doing clinical coding and health information management in your health facility have the following as their highest level of training?

	Clinical Coders	Health Information Managers
On-the-job training		
Training from Health Information Management Association of Australia (HIMAA) or Open Training Education Network (OTEN)		
A degree in Health Information Management or similar field		
A post-graduate qualification in Health Information Management or similar field		
Other		

If other, please specify:

4. How many people doing clinical coding have less than 2 years experience in coding work?

Include people who are not primarily coders but who do coding work

Clinical Coders and Health Information Managers

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(continued)

Coding Workforce Survey

5 How many of the clinical coders and health information managers were working part-time at 30 June 2009?

Clinical Coders	Health Information Managers

6. The following is about the number of hours usually worked per month by clinical coders and health information managers, including people who are not primarily coders but who do coding work.

	Total Clinical Coders' hours	Total Health Information Managers' hours
a) How many hours per month do the clinical coders and health information managers spend doing clinical coding and related processes, such as coding audits and coding training? *If hours vary from month to month, please provide an average.*	*Please provide one figure which is the total of all hours by all coders, combined.*	*Please provide one figure which is the total of all hours by all HIMs, combined.*
b) How many hours per month do the clinical coders and health information managers spend doing other work, ie work not related to coding? *If hours vary from month to month, please provide an average.*	*Please provide one figure which is the total of all hours by all coders, combined.*	*Please provide one figure which is the total of all hours by all HIMs, combined.*

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(continued)

Coding Workforce Survey

7. How many clinical coder or health information manager positions were vacant at 30 June 2009?

(Please record the full-time equivalent (FTE) number).
If there were no vacancies, please record zero.

Clinical Coder positions FTE	Health Information Manager positions FTE

8 During the financial year ending 30 June 2009, did you utilise any external clinical coding services supplied by contracting companies?

- ○ Yes
- ○ No

9. The *following* question is for *private* hospitals and day procedure facilities, *only*:

	Beds and/or chairs
How many beds are available in your facility? *For day hospital facilities, include chairs, trolleys, recliners and cots which are used mainly for post-treatment recovery purposes.*	

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Coding Workforce Survey

62%

Please use the space below to provide any comments and/or recommendations you may have about shortages in the coding workforce or other related issues that you would like to contribute to the analysis and planning of the future coding workforce.

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Attachment 2: Detailed supplementary tables

Coding Workforce Survey

In this report, estimating the size of the coding workforce focuses on the FTE measure because workers are highly mobile and many work in more than one health-care facility. The FTE measure takes account of the known double counting of workers who were employed in more than one facility. However, a 'headcount' of workers enables their characteristics as a group to be examined and, in order to provide a broad level profile, Table 18 presents *estimates* based on survey data which have been filtered at the facility level. Responses to survey questions and respondents' comments were examined individually and CCs found to be reported against more than one facility were reassigned to just one.

The figures are estimates only, because it is possible that not all duplicates were removed. As well, the figures do not include any estimate of worker numbers employed in facilities which did not respond to the survey. It should be noted too, that these estimates exclude self-employed contract coders because they were out of scope of the survey. The resulting figures appear to be underestimations of the headcount. For this reason, the percentage distribution is shown, rather than counts, because it provides a more reliable overview of workforce characteristics and, with the high survey response, it is reasonable to assume that the CCs and HIMs in the responding group were a fair representation of the overall workforce employed in health facilities.

The data presented in Table 19 through to Table 22 relate to the characteristics of responding health-care facilities in the survey. The tables are based on counts of facilities and their characteristics. Staff numbers are presented as FTE measures in order to account for double counting (see introduction above): coding staff figures were calculated from hours worked and vacant positions were collected as FTEs in the survey.

Table 18: Estimated per cent distribution of characteristics of Clinical Coders and Health Information Managers employed in public sector health-care facilities, states and territories, 2009

Characteristic[(a)]	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Sex									
Male	34	23	20	7	6	4	2	2	99
Female	294	309	216	96	108	20	15	12	1,076
Age group (years)									
<25	5	20	16	7	—	—	—	—	49
25–34	46	90	39	8	10	4	—	1	200
35–44	87	91	58	31	16	3	4	3	293
45+	183	104	123	57	78	17	13	10	589
Qualifications									
On-the-job training	25	4	6	19	10	11	2	0	78
Training from HIMAA or OTEN	166	73	150	46	94	21	11	12	576
Degree or higher qualification in Health Information Management or similar field	130	231	68	36	2	3	3	2	478
Other	10	6	10	7	0	1	1	—	35
Less than 2 years experience	37	51	44	30	8	3	2	2	177
Working part-time	160	167	71	30	50	12	5	1	497
Total	**328**	**332**	**236**	**103**	**114**	**24**	**17**	**14**	**1,175**

(a) Total number includes 7 non-stated responses.

Source: AIHW National Coding Workforce Survey 2010.

Table 19: Private sector health facility characteristics, by size, June 2009

Size (number of beds)	Number of responding facilities	Estimated monthly coding hours	FTE staff coding per month[(a)]	FTE CC and HIM positions vacant at 30 June 2009	Count of facilities with part-time staff	Per cent of health-care facilities using contract coding services
10 or less	80	2,001	13.7	3.3	59	16.3
11–50	78	4,205	28.9	1	65	22.1
51–100	53	6,919	47.5	4	43	34.0
101–200	42	9,847	67.6	11	34	42.9
201–500	10	5,806	39.9	7	9	50.0
More than 500	4	8,636	59.3	11	4	75.0
Not stated	38	806	5.5	2.13	11	18.4
Total	**305**	**38,220**	**262.4**	**39.43**	**225**	**26.6**

Source: AIHW National Coding Workforce Survey 2010.

Table 20: Characteristics of health-care facilities: ASGC remoteness area, June 2009

ASGC	Number of responding facilities	Estimated monthly coding hours	FTE staff coding per month[(a)]	FTE CC and HIM positions vacant at 30 June 2009	Percent of facilities with part-time staff	Per cent using contract coding services
Major cities	351	89.537	614.7	85.6	74.6	28.8
Other	531	40912	280.9	89.8	52.4	13.6
Not stated	7	278	1.9	2.0	42.9	28.6
Total	**889**	**130,727**	**897.4**	**177.4**	**61.1**	**19.7**

Source: AIHW National Coding Workforce Survey 2010.

Table 21: Characteristics of health-care facilities: sector, states and territories, June 2009

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Public sector									
Have coding staff with less than 2 years experience	171	102	83	62	43	17	2	3	483
Have part-time CCs/HIMs	118	88	49	12	35	11	2	1	316
Used contract coding services	20	20	18	22	10	1	2	1	94
Private sector									
Number with less than 2 yrs experience [(a)]	89	61	59	19	32	5	2	1	269
Number working part-time[(a)]	71	57	47	12	32	4	2	1	227
Used contract coding services	33	18	16	9	2	2	1	—	81

(a) Total includes 1 not-stated response.

Source: AIHW National Coding Workforce Survey 2010.

Table 22: FTE Clinical Coder and Health Information Manager positions vacant: sector and ASGC remoteness area, June 2009

Sector and ASGC	Clinical Coder positions	Health Information Manager positions	Total
Public			
Major cities	33.67	23.4	57.07
Other	37.8	43.13	80.93
Total	*71.47*	*66.53*	*138*
Private			
Major cities	17.1	11.43	28.53
Other	3.3	5.6	8.9
Not stated	1	1	2
Total	*21.4*	*18.03*	*39.43*

Source: AIHW National Coding Workforce Survey 2010.

Census

Notes on Census data

In the 2001 ABS Census, occupation data were classified to the ABS ASCO, 2nd edition, whereas the 2006 census data were coded to ANZSCO, a newer classification which enables coding of much more detailed occupations. However, there was no change to the Coding Clerk or HIM occupations and data from the two Census years are comparable. From both classifications, the occupation of Coding Clerk is used in the tables below and is defined as the specialisation of Medical Record Clerk and Clinical Coder combined. Separate figures for Clinical Coders are not available.

In each Census there is a relatively small proportion of respondents who do not supply enough information to determine a precise occupation. There are also respondents for whom an occupation cannot be coded. These factors result in an undercount of people in individual occupations. Counts of persons in an occupation may vary from one table to the next and therefore, totals may not be the same in all tables. Reasons for this include a variation in response rates to individual questions, resulting in some persons being excluded from analysis, and the ABS routinely applies small random changes to cells in order to protect confidentiality; this leads to small differences in total values between tables.

Table 23: Number Coding Clerks and Health Information Managers, by sex and age group, 2001 and 2006

Sex and Age group	Coding Clerks 2001	Coding Clerks 2006	HIMs 2001	HIMs 2006
Male				
<25	38	57	12	8
25–34	38	47	31	57
35–44	59	56	31	40
45–54	39	65	22	50
55+	16	42	3	9
Female				
<25	143	180	113	92
25–34	280	273	262	378
35–44	499	473	238	296
45–54	511	642	125	247
55+	182	349	28	77
Total				
<25	181	237	125	100
25–34	318	320	293	435
35–44	558	529	269	336
45–54	550	707	147	297
55+	198	391	31	86

Note: Totals may not equal the sum of their parts as cells were randomly adjusted to avoid the release of confidential data.

Source: ABS Census of Population and Housing 2001 and 2006, data available on request.

Table 24: Coding Clerks and Health Information Managers, by sector and qualifications, 2001 and 2006

Sector, Qualifications	Coding Clerks 2001	Coding Clerks 2006	HIMs 2001	HIMs 2006
Public				
Postgraduate degree level	—	13	—	67
Graduate Diploma and Graduate Certificate level	—	12	—	52
Bachelor Degree Level	138	173	374	481
Advanced Diploma and Diploma level	—	132	—	86
Certificate level	33	259	3	28
Not stated/inadequately described	135	116	15	10
Total Public	*306*	*705*	*392*	*724*
Private				
Postgraduate degree level	—	16	—	61
Graduate Diploma and Graduate Certificate level	—	16	—	29
Bachelor Degree level	95	193	182	287
Advanced Diploma and Diploma level	0	107	—	56
Certificate level	22	165	3	16
Not stated/inadequately described	73	106	8	12
Total Private	*190*	*603*	*193*	*461*
Total				
Postgraduate degree level	—	29	—	128
Graduate Diploma and Graduate Certificate level	—	28	—	81
Bachelor Degree level	233	366	556	768
Advanced Diploma and Diploma level	0	239	—	142
Certificate level	55	427	6	44
Not stated/inadequately described	211	222	23	22
Total	*499*	*1,314*	*585*	*1,185*

Notes:

1. Total for 2001 includes 3 Coding Clerks who did not state their sector and for 2006, 6 Coding Clerks who did not state their sector.

2. Totals may not equal the sum of their parts as cells were randomly adjusted to avoid the release of confidential data.

Source: ABS Census of Population and Housing 2001 and 2006, data available on request.

Table 25: Coding Clerks and Health Information Managers, by sector and hours worked, 2001 and 2006

Sector and hours worked	Coding Clerks 2001	Coding Clerks 2006	HIMs 2001	HIMs 2006
Public				
0–15	112	172	42	75
16–24	156	208	52	75
25–34	176	182	40	75
35–40	560	561	282	372
41–48	50	47	87	91
49+	39	39	60	70
Hours not stated	15	19	4	9
Total Public	*1,108*	*1,228*	*567*	*767*
Private				
0–15	109	139	31	42
16–24	129	183	37	50
25–34	121	182	45	55
35–40	284	365	122	231
41–48	23	35	42	54
49+	16	31	35	48
Hours not stated	8	13	3	3
Total Private	*690*	*948*	*315*	*483*
Total				
0–15	221	311	73	117
16–24	289	391	89	125
25–34	297	364	85	130
35–40	849	926	404	603
41–48	73	82	129	145
49+	55	70	95	121
Hours not stated	23	36	7	12
Total	*1,807*	*2,180*	*882*	*1,253*

Notes:

1. Totals may not equal the sum of their parts as cells were randomly adjusted to avoid the release of confidential data.

2. 2001 Total includes 9 non-stated numbers for Coding Clerks and for 2006, 4 non-stated numbers for Coding Clerks.

Source: ABS Census of Population and Housing 2001 and 2006, data available on request.

Attachment 3: Classifications

Table 26: Public hospital peer group classification

Peer group	Subgroup	Definition
Principal referral and Specialist women's and children's hospitals	Principal Referral	Major city hospitals with >20,000 acute casemix-adjusted separations, and Regional hospitals with >16,000 acute casemix-adjusted separations per annum.
	Specialist women's and children's	Specialised acute women's and children's hospitals with >10,000 acute casemix adjusted separations per annum.
Large hospitals	Major city	Major city acute hospitals treating more than 10,000 acute casemix-adjusted separations per annum.
	Regional and Remote	Regional acute hospitals treating >8,000 acute casemix-adjusted separations per annum, and Remote hospitals with >5,000 casemix-adjusted separations.
Medium hospitals	Group 1	Medium acute hospitals in Regional and Major city areas treating between 5,000 and 10,000 acute casemix-adjusted separations per annum.
	Group 2	Medium acute hospitals in Regional and Major city areas treating between 2,000 and 5,000 acute casemix-adjusted separations per annum, and acute hospitals treating <2,000 casemix-adjusted separations per annum but with >2,000 separations per annum.
Small acute hospitals	Regional	Small Regional acute hospitals (mainly small country town hospitals), acute hospitals treating <2,000 separations per annum, and with less than 40% non-acute and outlier patient days of total patient days.
	Remote	Small Remote hospitals (<5,000 acute casemix-adjusted separations but not 'multipurpose services' and not 'small non-acute'). Most are <2,000 separations.
Sub-acute and non-acute hospitals	Small non-acute	Small non-acute hospitals, treating <2,000 separations per annum, and with more than 40% non-acute and outlier patient days of total patient days.
	Multi-purpose services	
	Hospices	
	Rehabilitation	
	Mothercraft	
	Other non-acute	For example, geriatric treatment centres combining rehabilitation and palliative care, with a small number of acute patients.
Unpeered and other hospitals		Prison medical services, dental hospitals, special circumstance hospitals, Major city hospitals with <2,000 acute case mix-adjusted separations, hospitals with <200 separations etc.
Psychiatric hospitals		

Source: AIHW Australian hospital statistics 2007–08.

Table 27: Structure of ASGC remoteness areas

	Value	Abbreviation
Major cities of Australia	0	MC
Inner Regional Australia	1	IR
Outer Regional Australia	2	OR
Remote Australia	3	R
Very Remote Australia	4	VR

Source: ABS Outcomes of ABS views on remoteness consultation 2001.

Table 28: Inclusions of qualifications in The Australian Coder Workforce 2002: a report of the National Clinical Coder Survey

2010 survey definitions	Inclusions from 2002 report
On-the-job training	On-the-job
Training from Health Information Management Association of Australia (HIMAA) or Open Training Education Network (OTEN)	Through HIMAA distance education course through HIMAA accelerated course and through OTEN coding course
A degree in Health Information Management or similar field	As part of undergraduate HIM/MRA degree
A postgraduate qualification in Health Information Management or similar field	As part of HIM postgraduate degree
Other	Health department training

Source: The Australian Coder Workforce 2002: a report of the National Clinical Coder Survey; AIHW National Coding Workforce Survey 2010.

Attachment 4: Free text comments from contract coding company managers

Table 29: Comments/ recommendations from five large contract coding companies – telephone interviews, 2010

Issues/problems encountered

Large interest in Victorian private facilities as many don't have proper coding modules in their PAS for collecting and submitting data and existing data submission processes are changing to require electronic submission only.

Harder and harder to get staff.

Hospitals want experienced staff, and see it as an 'expert' service:

- don't want to 'hold someone's hand'
- returning workforce, need to get them to do refresher course
- allow them to work flexible hours (9–3).

Quality an issue.

Staff have kids and don't travel.

Training

1st priority – throughout should be training/quality for all levels of coders.

One provider noted that they take people with medical backgrounds like nurses and medical sciences graduates and train them by speciality. These staff are required to do an HIMAA course and if they pass they are reimbursed half the fees.

Plenty of people doing the HIMAA course but need more training. Won't take them on as a rule.

Affordability – $2,500 for HIMAA course.

Train and then leave.

Some government subsidises are available for trainees, up to $4,000, but the trainee must already be in the job.

Pay

Pay rates range from $35/hour to $70/hr, and some paid on the state award rate

Budgets – cost versus experience

Workplace practices and employment conditions

Every Wednesday from 3–5pm they have online training using Skype, which is used to discuss interesting examples.

Buddy sessions with 10 coders.

Coding meetings 2–3 times a year.

PICQ audits each month.

Scanning would be good but is seen as expensive.

Allows Innovation – remote coding from home but need good internet and PC.

Use existing workforce more flexibly.

Contract staff – fill urgent short-term need and are more convenient.

Only employ casuals or subcontractors.

Older HIMs like to work for private company – more productive. Some subcontract, some employed.

Employ experienced coders with minimum of a couple of years' experience.

Quotes

'If I want Coders I'm going to have to create them myself'.

'In my day…new grads all went to a job to code'.

Source: AIHW National Coding Workforce Survey 2010.

Appendix 4 – Future workforce projection calculations

There is no simple formula for projecting the coding workforce requirements for the future as there are a significant number of factors, many of which are not yet well established, that will influence both the supply of and demand for these workers. Individual health services will differ in their ratios of CCs, HIMs and CSs due to variation in their funding models, specialty profile, volume of services, location, and how the services are managed locally.

For the purposes of this report, a number of different calculations have been undertaken estimating the additional number of coders required due to a range of anticipated changes in the health sector as outlined in Section 3 of this report. These include:

- growth in separations due to an ageing population and rising chronic disease levels
- implementation of ABF for admitted and non-admitted hospital services
- e-health implementation impacts
- national health reform, including the establishment of LHNs.

Baselines and assumptions

For the purposes of calculating the workforce needs for the future a number of assumptions and baselines need to be set. These are not definitive, and could be changed given any further information or decisions about how policies are to be implemented, but they do provide a basis on which to make the calculations outlined below. The assumptions are as follows.

- A 5-year period from 2009–10 to 2013–14 to project the workload increases and changes
- All figures are reported as whole numbers
- Annual coding hours/year/FTE equivalent coder has been calculated using the following methodology:
  - annual coding hours = 38 hours/week x 46 working weeks/year = 1,748 hours
- Historical numbers of separations and OOS, as published in the Australian Hospital Statistics
- A coding throughput rate of 4 records per hour, based on the results of this survey (see Table 31), which is slightly lower that the rate of 4.3 calculated in the 2002 report (McKenzie & Walker 2003)
- An attrition rate of 5% per annum has been used, based on the average coder turnover rate in Queensland Health of 5.3% per annum over the previous 5 years.

No assumptions have been made for the impact of expanded roles based on health reform changes.

Calculations

Inflows expected = 1,792 people

Although it was found that 50.1% of the coding workforce surveyed are currently working part-time and that this figure has continued to rise over the previous 8 years (see Figure 10), there is no current estimation of how many hours these staff are working. Thus it is not possible to estimate the number of FTE equivalent coders that the subsequent calculations will add to the workforce requirements, but it can be assumed to be less than the number of people trained.

Additional HIMs = 300 people

Due to the decrease in the number of academic institutions providing training in HIM, it is assumed that the number of HIMs graduating each year will remain substantially unchanged without further intervention. Thus for the purposes of this report, the calculation of new HIMs is as follows:

2 university programs each graduating 30 students/year x 5 years = **300 HIMs.**

Additional CCs = 1,492 people

HIMAA and OTEN have both demonstrated some growth in the number of new coders trained over the proceeding decade (see Figure 7), with a combined average growth rate of 16.6% in the previous 5 years. If it is assumed that this growth is maintained at the current rate the number of additional CCs trained over the next 5-year period would be **1,492 people** (Table 30).

Outflows expected = 316 people

With 51.8% of the existing coding workforce over the age of 45 years (see Table 12), and with this figure increasing over the preceding 8 years, as well as almost two-thirds of all those learning to code commencing at age 40 years or over (Figure 9), it can be expected that there will be significant attrition in the coding workforce over the next 5 years. This may be due to retirement, or a reduction in hours as coders move towards retirement, but over a 15-year period it would be expected that approximately 50% of the existing workforce will have retired.

Table 5 estimates the current FTE coders as 897.4, with an additional 177.4 FTE vacancies, giving a current national figure of 1,075 FTE coders and HIMs. Given the supplementary role of contract coders, and the small non-response rate to the survey, the figure calculated below, based on the number of FTE staff required to code the number of annual separations nationally of 1,265 FTEs, seems a reasonable estimate (see calculation below).

Using a conservative attrition rate of 5% per annum, as per the Queensland Health report, the numbers of coders leaving the workforce can be calculated as follows:

1,265 FTEs x 5% x 5 years = 316 FTEs.

This makes no estimation of the potential impact of reduced work hours or outward migration.

FTEs required to meet current and future needs = 3101 (high) or 1,757 (low)

Staffing required to code the existing episodes of care = 1,265 FTEs

Using the national average separations coded/hour calculated from this study as 4, and the hours worked by a coder coding full-time in a year as 1,748, an FTE coder is assumed to code 6,440 separations per year, i.e.:

4 records x 38 hours x 46 weeks = 6,440 records coded per year.

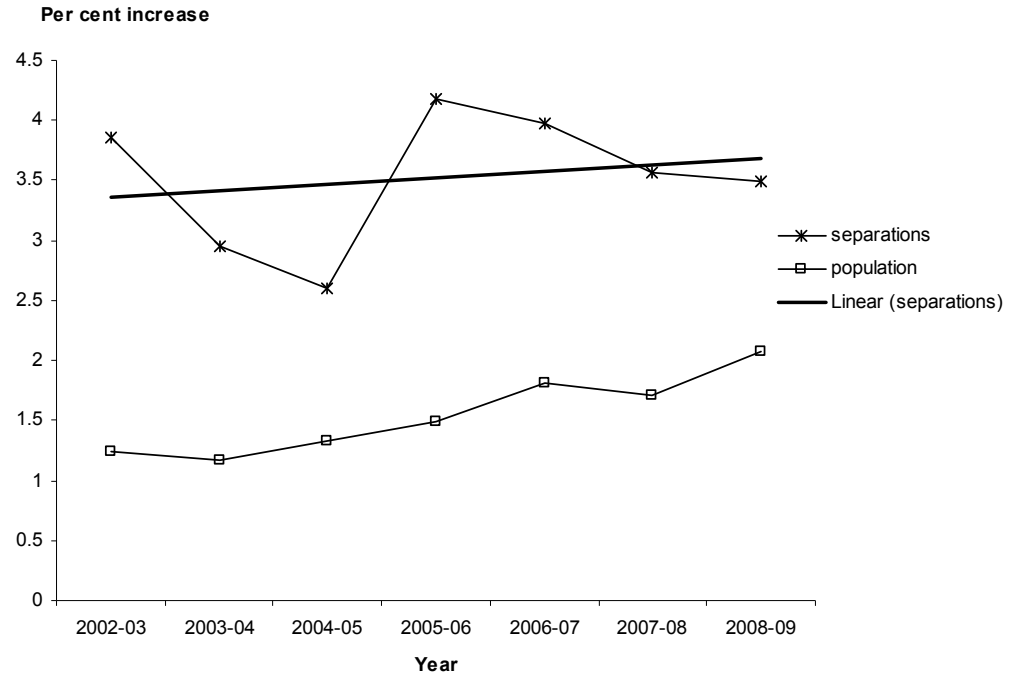
Given the total number of separations for 2008–09 was 8,148,448, the total number of FTEs required to code this number of separations is calculated as:

8,148,448 separations /6,440 separations per FTE = 1,265 FTEs.

Staffing required to code the anticipated increase in admitted episodes of care = 193 FTEs

Over the period 2001–02 to 2008–09 there was, on average, a 3.5% increase each year in the number of hospital separations nationally (see Table 30 and Figure 14). Assuming this trend continues to be relatively stable, the 2008–09 figure of 8,148,448 will have risen to 9,677,800 by 2013–14; an increase of 285,196 separations in the first year, rising to 327,269 additional separations requiring coding in the fifth year.

This current trend line is assumed to be sufficient to adjust for future population ageing, increased incidence of chronic disease and increased utilisation of services.



Note: Population data for years 2006–07, 2007–08 and 2008–09 are preliminary.

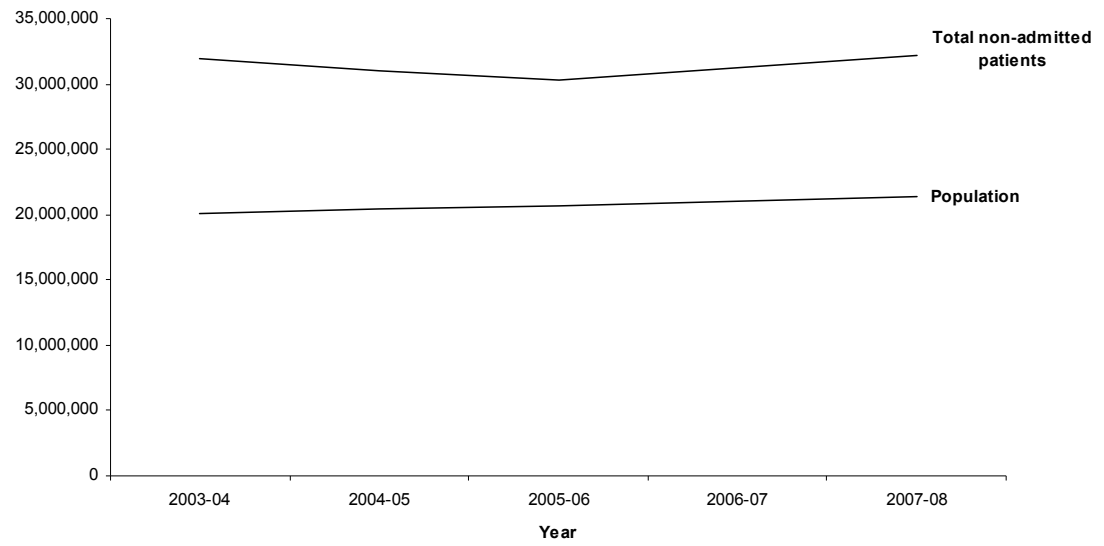
Source: ABS Australian Demographic Statistics 2009, AIHW Australian hospital statistics 2005–06, 2006–07 and 2007–08, AIHW Hospital Morbidity Database.

Figure 14: Percent increase in national hospital separations and population, 2002–03 to 2008–09

Using the figure calculated above for the number of records coded per year per FTE coder as 6,440, Table 30 below shows the numbers of FTE coders required in 2009–10 as 1,310 growing to 1,503 by 2013–14. Even if there is no change in the environment, this equals an additional **193** coders required over the next 5 years.

Staffing required for ABF of OOS= 1,493 (high) or 149 (low)

From 2003–04 to 2007–08 there were on average 31,323,335 OOS per year nationally with no apparent increase or decrease in these numbers over the 5 years (Figure 15), thus for the purposes of this analysis, the number of OOS is assumed to remain constant into the future.



Note: Population data for years 2006–07, 200–-08 and 200–-09 are preliminary.

Source: ABS Australian Demographic Statistics 2009; AIHW Australian hospital statistics 2005–06, 2006–07 and 2007–08; AIHW Hospital Morbidity Database.

Figure 15: National total non-admitted patients and population, 2003–04 to 2007–08

The following calculations are based on the assumption that each OOS takes 5 minutes to code, that is, 12 OOS can be coded per hour. This assumption is made based on expert coder advice.

High range calculations

Assuming that all OOS will require coding:

31,323,335 OOS/12 records per hour = 2,610,278 hours of coding time

1 FTE coder = 1,748 hours per year

To code all OOS = 2,610,278/1,748 = 1,493 FTEs.

Low range

If OOS coding is automated in some way or is undertaken by clinical staff, and only a sample of records are 'checked', for example 10%, the number of extra FTEs required may only be **149**. However, it would probably follow that the skill level of this group may need to be higher as they would be performing an auditing function.

E-health implications and LHN = 150 FTEs

In the Queensland Health report is was assumed that an additional 30 FTEs would be required, based on two FTE staff per health service district, for implementation of expanded roles around e-health and technology and the implementation of ABF. This includes an extra four FTEs for corporate and state-wide functions.

Using the Queensland figures as a model, and based on the fact that Queensland delivers approximately 20% of the total national separations, the additional FTEs required nationally could be calculated as:

30 x 5 =**150 FTEs.**

However, this may be a low end estimation if the new unit of ABF, performance reporting and e-health management will be the LHN, as proposed in the NPA. The number of staff required will be dependant on the number of LHNs created, which is anticipated to be larger than the existing number of districts/area health services.

Increased staffing levels for ABF on admitted patients = ?

Due to the national roll-out of ABF, the focus on the quality and accuracy of the coded data will be increased. This can already be seen in the number of jurisdictions who have outlined plans to commence state-based audits, and the introduction of coding auditor and educator roles. The increased requirement for auditing, reporting and education will create a need for more skilled coders with extended responsibilities.

Victoria provides an existing case study of a coding workforce that has adapted to the use of coded data for case-based payment. The high level of qualifications of those undertaking coding (>75% of all coding performed by HIM university graduates) (Figure 3), and investment made in auditing and education, may be an indication of the need that the other jurisdictions will face with the implementation of ABF. This is will be a significant challenge given the current decline in the number of HIM graduates.

Attachment 1: Projection calculation tables

Table 30: Projected numbers of CCs trained through existing courses

Year	HIMAA	OTEN	Total	% increase on previous year	Average % increase over 5 years
2004	73	19	92	. .	. .
2005	77	25	102	10.9	. .
2006	80	19	99	-2.9	. .
2007	107	33	140	41.4	. .
2008	150	28	178	27.1	. .
2009	161	25	186	4.5	**16.2**
2010	. .	. .	216	. .	. .
2011	. .	. .	251	. .	. .
2012	. .	. .	292	. .	. .
2013	. .	. .	339	. .	. .
2014	. .	. .	394	. .	. .

Note: Total projected CCs trained 2010–14 = 1,492 people.

Source: HIMAA and OTEN.

Separation Projections

Table 31: Hospital separations by state and projected annual increases and FTE Clinical Coders, 2001–02 to 2014–15

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Grand Total	Annual increase	Average annual increase
2001–02	1,953,347	1,669,697	1,287,794	624,511	560,064	150,136	89,131	63,491	6,39,8171	**3.86%**	
2002–03	2,000,150	1,800,946	1,304,330	648,096	571,110	148,191	93,624	78,537	6,644,984	**2.95%**	
2003–04	2,037,680	1,868,335	1,361,060	657,439	585,341	148,885	101,328	81,157	6,841,225	**2.60%**	
2004–05	2,091,444	1,927,696	1,410,607	691,975	577,425	135,720	96,805	87,178	7,018,850	**4.18%**	
2005–06	2,186,362	1,992,825	1,461,848	714,353	597,864	157,118	105,836	95,777	7,311,983	**3.98%**	
2006–07	2,270,505	2,075,659	1,526,644	740,059	619,971	162,655	110,397	97,027	7,602,917	**3.56%**	
200–-08	2,324,657	2,153,463	1,612,264	783,620	611,927	169,301	115,919	102,795	7,873,946	**3.49%**	**3.52%**
2008–09	2,413,183	2,190,644	1,697,281	829,595	630,040	153,119	125,636	108,950	8,148,448	**Annual increase**	**No. of FTE coders**
2009–10	Projections	. .	. .	. .	. .	. .	. .	. .	8,433,644	**285,195.7**	**1,310**
2010–11	Projections	. .	. .	. .	. .	. .	. .	. .	8,728,821	**295,177.5**	**1,355**
2011–12	Projections	. .	. .	. .	. .	. .	. .	. .	9,034,330	**305,508.7**	**1,403**
2012–13	Projections	. .	. .	. .	. .	. .	. .	. .	9,350,531	**316,201.5**	**1,452**
2013–14	Projections	. .	. .	. .	. .	. .	. .	. .	9,677,800	**327,268.6**	**1,503**

Note: Separations are reported by state of hospitalisation and will include patients normally resident in another state/territory.

Source: Australian hospital statistics 2005–06, 2006–07 and 2007–08; AIHW Hospital Morbidity Database.

Table 32: Coding workforce[a] throughput, by peer group and state, at June 2009

Peer group	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
				FTEs per month[b]					
Principal referral and Specialist women's and children's hospitals	129.5	72.0	116.7	18.2	26.6	6.3	8.8	9.5	387.6
Large hospitals	23.0	24.7	5.9	4.4	3.1	1.1	3.7	. .	65.9
Medium hospitals	24.1	14.4	9.0	2.8	7.9	. .	. .	. .	58.2
Small acute hospitals	5.8	4.5	3.2	3.7	0.7	—	. .	1.3	19.3
Sub-acute and non-acute hospitals	6.9	2.0	1.7	3.0	1.1	—	. .	. .	14.7
Unpeered and other hospitals	2.1	3.1	0.8	—	—	—	. .	. .	6.3
Psychiatric hospitals	1.3	—	—	. .	. .	. .	. .	. .	1.4
Total	**192.7**	**120.8**	**137.6**	**32.3**	**39.5**	**7.5**	**12.5**	**10.8**	**553.5**
				Average separations per month[c]					
Principal referral and Specialist women's and children's hospitals	76,959	50,088	48,707	9,998	16,347	2,979	5,714	6,675	217,469
Large hospitals	13,237	17,277	4,060	5,834	1,335	755	1,775	. .	44,273
Medium hospitals	14,197	6,749	4,584	2,118	3,155		. .	. .	30,802
Small acute hospitals	3,261	1,829	2,274	2,206	526	155	. .	756	11,007
Sub-acute and non-acute hospitals	2,458	1,775	1,172	828	516	56	. .	. .	6,805
Unpeered and other hospitals	307	970	185	74	26	111	. .	. .	1,673
Psychiatric hospitals	414	0	12	. .	. .	. .	. .	. .	427
Total	**110,833**	**78,687**	**60,996**	**21,059**	**21,905**	**4,056**	**7,489**	**7431**	**312,455**
				Average throughput per month					
Principal referral and Specialist women's and children's hospitals	594	696	418	548	614	473	651	705	561
Large hospitals	575	699	685	1334	432	687	479	. .	672
Medium hospitals	590	470	508	764	397	. .	. .	. .	529
Small acute hospitals	560	407	700	599	717	7518	. .	586	570
Sub-acute and non-acute hospitals	357	876	709	278	472	2731	. .	. .	464
Unpeered and other hospitals	146	309	243	309	1279	5366	. .	. .	266
Psychiatric hospitals	319	0	295	. .	. .	. .	. .	. .	314
Total	**575**	**652**	**443**	**652**	**554**	**543**	**600**	**691**	**564**

(continued)

Table 32 (continued): Coding workforce[(a)] throughput, by peer group and state, at June 2009

Peer group	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
				Hourly rate[(d)]					
Principal referral and Specialist women's and children's hospitals	4.46	3.60	6.48	3.04	5.33	3.15	8.77	4.73	4.67
Large hospitals	1.53	1.65	1.18	0.73	1.54	1.10	3.71	—	1.46
Medium hospitals	0.63	0.68	0.75	—	0.66	—	—	—	0.65
Small acute hospitals	—	—	—	—	—	—	—	—	—
Sub-acute and non-acute hospitals	—	—	—	—	—	—	—	—	—
Unpeered and other hospitals	—	—	—	—	—	—	—	—	—
Psychiatric hospitals	—	—	—	—	—	—	—	—	—
Total	**0.87**	**0.86**	**1.08**	**—**	**0.51**	**—**	**6.24**	**2.15**	**0.81**

(a) Includes Clinical Coders and Health Information Managers, excludes Costing Specialists.

(b) FTE total had 0.24 (0.23 for QLD, 0.01 for TAS) non-stated responses for peer group. FTE values have been rounded to 1 decimal place.

(c) Monthly average separations total for state includes 1806.83 (922.00 for large hospitals, 828.42 for medium and 56.42 for small acute hospitals) non-stated responses and 6.00 (Tas) for peer group.

(d) Total includes hourly throughput rate of 1 non-respondent.

Note: Average monthly coding throughput is calculated by dividing the average monthly separations by the FTE.

Source: AIHW National Coding Workforce Survey 2010; AIHW Hospital Morbidity Database.

Appendix 5 – Existing education and training courses

Health Information Management courses

Undergraduate degree courses

Previously, four tertiary undergraduate Health Information Management programs were delivered in Australia at the following institutions:

- La Trobe University, Victoria
- Curtin University of Technology, Western Australia
- Queensland University of Technology, Queensland
- University of Sydney, New South Wales.

From 2011 onwards, undergraduate qualifications in Health Information Management will only be delivered by Curtin University of Technology in Western Australia, and through a double degree program at La Trobe University in Victoria, as follows:

- Curtin University of Technology
  - Bachelor of Health Science (Health Information Management major)
  - This is a 3-year degree program that is available for study both on-campus and via distance.
- La Trobe University
  - Bachelor of Health Sciences and Master of Health Information Management
  - This is a 4-year double degree program only in on-campus mode
  - Bachelor of Information Systems/Master of Health Information Management
  - This is an integrated double degree program completed over 4 years, only in on-campus mode.

Postgraduate courses

From 2011 onwards the following postgraduate courses will be available:

- Curtin University of Technology
  - Masters of Science (Health Information Management)

    2 years full-time on-campus or via distance
- La Trobe University
  - Masters of Health Information Management

    2 years full-time only in on-campus mode (with plans for online delivery).

Other universities, such as QUT, now offer some health information units as part of postgraduate programs in Health Services Management and Health Science. An increasing number of Health Informatics programs have also commenced at various universities around the country, but these do not contain clinical coding training components.

Clinical coding courses

Education and training in clinical coding are provided as either a course component of a broader HIM qualification, or as a course in its own right. Courses currently delivered, or planned for implementation in 2011, are outlined below.

Postgraduate courses

- Curtin University of Technology
  - Graduate Certificate in Clinical Classification: 1 semester full-time internal or fully external course. The entry requirements are bachelor's degree and formal medical terminology training or 2 years relevant work experience
  - Postgraduate Diploma in Clinical Classification: 1 year full-time internal or fully external course. The entry requirements are bachelor's degree or Graduate Certificate of Clinical Classification and Medical Terminology.
- La Trobe University
  - Graduate Diploma in Clinical Coding: planned for commencement in the near future.

The Queensland University of Technology offered a Graduate Certificate in Health Science (Clinical Classification) in 2010 but this has been discontinued from 2011 because of lack of enrolments.

Vocational level courses

- HIMAA

  HIMAA Education Services provide a range of courses approved under the Australian Qualifications Framework via distance education, both nationally and internationally. These include:
  - Comprehensive Medical Terminology – approximately 240 hours of study
  - Introductory ICD-10-AM, ACHI and ACS – approximately 170 hours of study to obtain a Statement of Attainment at the Certificate III level
  - Intermediate ICD-10-AM, ACHI and ACS clinical coding – approximately 70 hours of study to obtain a Statement of Attainment at the Certificate IV level
  - Advanced ICD-10-AM, ACHI and ACS clinical coding – approximately 250 hours of study to obtain a Statement of Attainment at the Certificate IV level. Students who successfully complete this course are also able to undertake an additional examination to obtain the Clinical Coder Certification (CCC)
  - Special Courses/Workshops – HIMAA can also provide fast-tracked (structured) comprehensive medical terminology and introductory clinical coding courses that use the same course content as the courses outlined above but are designed and packaged to meet specific client's needs.

- OTEN
  - Basic coder training
  - OTEN is currently developing a 'study skills package' that will include Interpret and Apply Medical Terminology Appropriately and Produce Coded Clinical Data competencies which should be available in the second half of the year. This course is run through NSW TAFE, and is also offered by distance education. Students obtain a Statement of Attainment at the Certificate III level. OTEN does not plan to offer the higher level coding units at this point; only this first introductory subject as part of this short course to help students get started in the field of clinical coding.
- La Trobe University
  - Short course in Clinical Coding Auditing – this course has been designed to develop skills in the auditing of coded data, and in analysing, reporting and acting on the audit outcomes
  - ICD-10-AM Coding Refresher Course – this course aims to refresh skills and knowledge for those who have previously undertaken coder training but have been out of the workforce for some time.
- Other providers
  - QUT has offered short courses for Queensland Health staff in the past, using a model which included workplace practical experience in additional to face to face instruction
  - NCHIRT and NCCH provide short courses in coding under contract to various organisations on an 'as needs' basis.

Other coding training is often conducted 'in-house' or through continuing professional education sessions provided by employers, or by other consultant private training providers.

Table 33: Graduate numbers for HIM courses: year and university, 1999 to 2010

Year	QUT	Curtin	Sydney	La Trobe	Total
1999	15	. .	. .	. .	15
2000	19	11	33	35	98
2001	24	18	34	35	111
2002	12	20	43	24	99
2003	24	20	25	15	84
2004	22	20	25	36	103
2005	13	22	34	30	99
2006	15	6	22	22	65
2007	8	8	68	37	121
2008	8	21	14	36	79
2009	5	16	34	36	91
2010	14	24	0	36	74

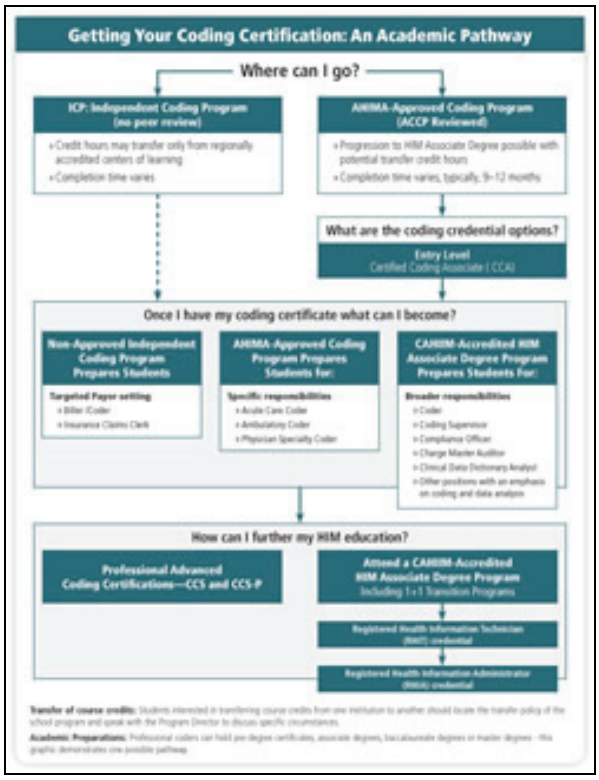
Source: University contacts.

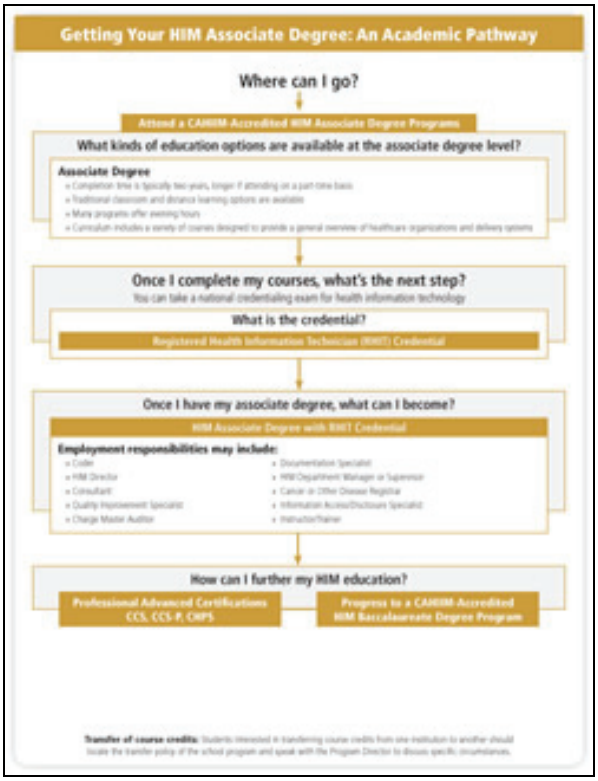
Table 34: Numbers of students completing HIMAA courses by year and course level, 1998 to 2009

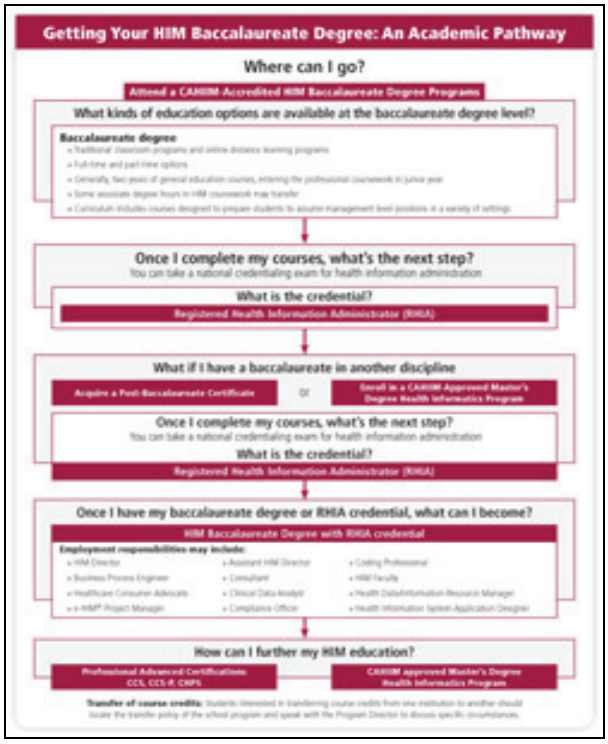
Year	Introductory	Intermediate	Advanced	CCC
1998	11	114	. .	. .
1999	70	112	. .	. .
2000	67	46	. .	. .
2001	70	34	. .	. .
2002	49	27	. .	. .
2003	69	31	. .	. .
2004	73	27	33	. .
2005	77	41	10	32
2006	80	45	16	17
2007	107	38	20	20
2008	150	36	11	15
2009	161	63	19	15

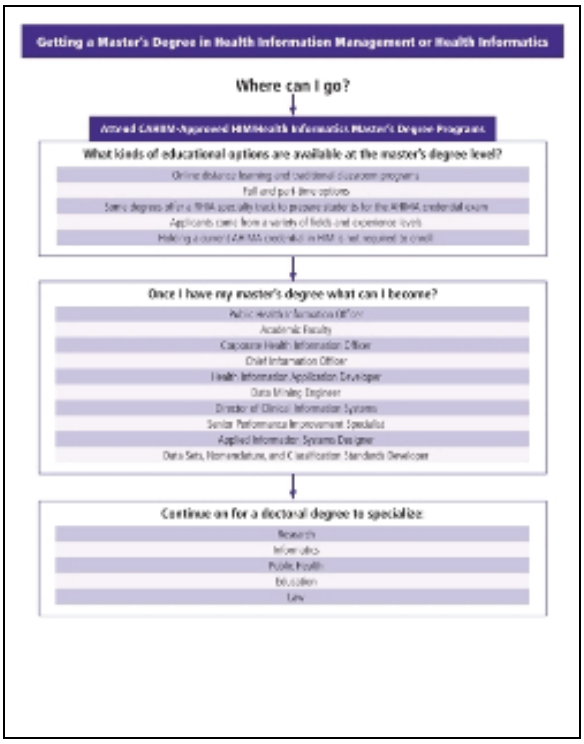
Source: HIMAA and OTEN.

Appendix 6 – American academic pathways examples









Source: AHIMA 2010.

Appendix 7 – Apprenticeship information

What is an apprenticeship?

An apprenticeship or traineeship is a training contract between an employer and an employee in which the apprentice or trainee learns the skills needed for a particular occupation or trade (Skills Victoria 2010). Australian Apprenticeships provide staff with relevant hands-on experience, skills and knowledge through structured (on-the-job and off-the-job) training. Unlike full-time university or college, apprentices and trainees are paid a wage while undertaking their qualification (Queensland Apprenticeship Services 2008).

Australian Apprenticeships encompass all apprenticeships and traineeships. They combine time at work with training and can be full-time, part-time or school-based.

Australian Apprenticeships are available in a variety of certificate levels in more than 500 occupations across Australia, in traditional trades, as well as a diverse range of emerging careers in most sectors of business and industry, including community services and health.

Benefits to the employer

The Australian Government has introduced a number of initiatives to assist employers who take on an Australian Apprentice, particularly where the Australian Apprenticeship is in a trade experiencing a skills shortage. These initiatives provide financial incentives to eligible employers through the Australian Apprenticeships Incentives Program.

Employers of an Australian Apprentice may be eligible for financial assistance through:

- standard, additional and special incentives
- support for adult Australian Apprentices
- assistance for Australian Apprentices with disability
- support for employing a school-based Australian Apprentice
- securing Australian Apprenticeships
- Apprentice Kickstart Extension.

An employer of an existing worker who becomes an Australian Apprentice may attract incentives for a Certificate III, IV or Diploma or Advanced Diploma level qualification where:

- the employee is articulating from an Australian Apprenticeship at the Certificate II level to an Australian Apprenticeship at the Certificate III or IV level (within 12 months)
- the postcode of the employer's workplace and the qualification the Australian Apprentice is undertaking are eligible to attract the special Rural and Regional Skills Shortage commencement incentive; or
- the training contract, as declared by the relevant state/territory training authority specifies that the expected/nominal duration of the Australian Apprenticeship is 2 years or more (part-time employment is prorated).

The eligibility of existing workers to attract incentives also depends on the prior qualifications they hold and whether the Australian Apprentice meets the eligibility requirements of the program.

Employers may attract the standard commencement incentive of $1,500 for existing workers undertaking a Certificate III, IV or Diploma or Advanced Diploma level qualification. In addition, employers may be eligible to receive the standard completion incentive of $2,500 for an Australian Apprentice who successfully completes a Certificate III, IV or Diploma or Advanced Diploma level qualification where the expected/nominal duration of the Australian Apprenticeship is 2 years or more.

Benefits for the employee

Apprenticeships are the best way to combine training and employment and they can lead to a nationally recognised qualification.

Australian Apprenticeships are available to anyone of working age and do not require any entry qualifications. Applicants can be a school-leaver, re-entering the workforce or simply wishing to change careers.

Australian Apprenticeships offer:

- a great way to get a head start in a chosen career
- paid work and structured training that can be on the job, off the job or a combination of both
- 'competency-based' training which means trainees can complete their training faster if they reach the required skills level
- recognition of existing skills and prior experience and course credit granted, potentially reducing formal training time
- availability as full-time or part-time (also available part-time in many schools)
- nationally recognised qualifications and skills which provide the basis for further education and training over the course of a working life
- a pathway from school to work.

A summary of all of the Australian Apprenticeships Incentives Programs (apprentices and trainees) can be found at: <http://www.australianapprenticeships.gov.au/documents/publications/2010/SummaryOfIncentives12May.pdf> (DEEWR 2010a).

Australian Apprentices also may be eligible for income support through Youth Allowance, Austudy or ABSTUDY. More information is available from Centrelink <http://www.centrelink.gov.au/internet/internet.nsf/individuals/st_index.htm> (Centrelink 2010).

National Skills Needs List (NSNL)

The National Skills Needs List (NSNL) identifies trades that are deemed to be in national skills shortage based on research conducted by the Department of Education, Employment and Workplace Relations.

This list is used to determine eligibility for the following Australian Government initiatives:

- Support for Adult Australian Apprentices
- Tools For Your Trade payment
- Rural and Regional Skills Shortage incentive
- Securing Australian Apprenticeships initiative (The Australian Government 2010a).

Types of apprenticeship/traineeship options

In the past, apprenticeships focused on traditional trades and training took at least 3 years to complete. Traineeships, by comparison, covered a much wider range of occupations but the training was shorter, lasting between 1 and 2 years.

Over the last decade, however, the distinction between apprenticeships and traineeships has blurred with many higher level and longer traineeships being introduced. Apprenticeships and traineeships are now referred to nationally as Australian Apprenticeships, although some states and territories still make a distinction.

There are numerous types of Australian Apprenticeships that can be implemented (training.com.au 2010).

Australian school-based apprenticeship

Australian school-based apprenticeship is a mix of vocational, technical and academic education and training and paid employment. It allows students to complete their schooling while starting their Australian Apprenticeship, and get a head start on their career path where they can obtain a senior secondary certificate and credits towards a vocational qualification.

These apprenticeships at an Australian Technical College allow students in Years 11 and 12 to:

- start an apprenticeship while still at school
- participate in a combination of school, paid work and on- and off-site training
- progress towards gaining a nationally recognised qualification
- work towards completing their Year 12 Certificate
- develop business skills
- keep open the option of further education and training.

Australian Technical Colleges are based in all states and territories across Australia with further details at
<http://www.deewr.gov.au/Schooling/australiantechnicalcolleges/Pages/contacts.aspx>
(DEEWR 2010).

Full-time Australian Apprenticeships

Employing an Australian Apprentice full-time means that the employer is responsible for all the on-the-job training. In consultation with the apprentice, the employer is able to choose a training provider for the off-the-job training and determine a flexible training plan to suit the business needs.

Part-time Australian Apprenticeships

Many small to medium sized organisations choose to employ Australian Apprentices part-time. The Australian Apprenticeship/Traineeship Training Contract requires that the Australian

Apprentice receives a guaranteed pattern of work. This means employers must provide a minimum number of hours of on- and off-the-job training per week. The exact time of these requirements vary. In Queensland, for example, the total time spent training at work and with the registered training organisation (RTO) must be at least 15 hours per week.

Group training organisations

Group training organisations (GTOs) allow employers to employ an Australian Apprentice as they need them. The GTO acts as the 'primary employer' of Australian Apprentices and 'contracts' them out to businesses. GTOs may place an Australian Apprentice with more than one business over the life of that Australian Apprentice training contract, offering more flexibility to small businesses.

Existing staff

Existing staff may enter an Australian Apprenticeship. An existing worker is defined as an employee who has been with a business for more than 3 months full-time, or 12 months part-time, or casual. This gives employers the opportunity to upgrade the skills of existing employees who they know and trust with the further benefits of:

- being eligible for Australian Government funding
- a shorter training period due to recognition of previously acquired training, skills and on-the-job experience resulting in cost-effective, targeted training for the business.

Australian Government funding is available for existing employees if they can demonstrate a significant training requirement and:

- are commencing a Certificate III or IV where the full-time training duration is 2 years or more
- are commencing a Certificate III or IV and are eligible for Rural and Regional Skill Shortages commencement incentive of $1,100
- have completed a Certificate II Australian Apprenticeship with the business and commence Certificate III or IV training within 12 months of doing so.

Appendix 8 – Draft international curriculum for HIMs

This draft curriculum is being developed under the auspices of the International Federation of Health Records Organizations (IFHRO), the international body that supports national associations to implement and improve health records and the systems which support them. It is affiliated with the WHO.

TIER 1: Foundation Courses	
Domain I: Biomedical Sciences	**Competencies**
• Anatomy and Physiology • Medical Terminology • Pharmacology • Pathophysiology	1. Understand and be familiar with disease terms and disease processes 2. Familiar with health care surgical procedures, treatments and medications
Domain II: Computer Skills • Basic keyboard skills • File management • Specialized applications	1. Utilize a computer with word-processing, spreadsheet, presentation, database, and internet applications
TIER 2: HIM Core Content	
Domain III: Health data structure, content and standards	
• Content and Use of Health information • Health Record Functions • Health information sources • Retention, storage, and retrieval of information • Collecting, analyzing, and presenting healthcare data	1. Manage health data (such as data elements, data sets, and databases) 2. Monitor use of clinical vocabularies and terminologies used in health information system 3. Maintain processes, policies, and procedures to ensure completion of health record and accuracy of coded data 4. Perform data integrity checks
Domain IV: Health Statistics and Biomedical Research	
• Statistical research and evaluation • Epidemiology • Research design and methods • Data collection	1. Utilize statistical software 2. Analyze and present data for decision making and administrative reports 3. Identify sources of data and collect for analysis

Domain V: Information Technology and Systems/ Health Informatics	
• Computer technology and information systems • Health informatics • Communication technology • Database design and management • Systems development and implementation	1. Implement and manage use of technology to ensure data collection, storage, analysis and reporting of information 2. Perform database querying and data mining techniques to facilitate information retrieval 3. Apply knowledge of database architecture and design to electronic records and information systems 4. Participate in evaluation of existing and potential information systems 5. Apply appropriate standards to achieve interoperability of healthcare information systems 6. Understand and apply the systems development life cycle concepts 7. Formulate administrative reports 8. Enable data security and integrity using appropriate technology 9. Implement and enforce security policies 10. Contribute to the development of organization-wide networks and other administrative applications 11. Apply human factors in user interface design
Domain VI: Organization and Management	
• Management Theories and concepts • Principles of Problem Solving and decision making process • Quality Improvement concepts • Work-flow analysis and redesign • Risk Analysis and Outcomes Measurement • Strategic and business leadership and planning • Change management • Organizational behavior and assessment • Organizational benchmarking • Conflict Management • Team building • Project Management • Meetings Management • Communication skills	1. Organize and coordinate performance improvement programs 2. Conduct and report quality assessment studies 3. Measure Outcome Probability 4. Identify and analyze benchmarking data 5. Apply general principles of management in the administration of health information services 6. Ensure efficient workflow 7. Assign tasks and manage projects 8. Develop strategic and operational goals for information systems 9. Demonstrate and apply principles of organizational behavior to facilitate team building, negotiation, and change management 10. Understand and apply meeting management and group decision-making techniques 11. Evaluate and monitor change process

Domain VIII: Human Resources Management	
• Performance Management • Principles of Human resource management • Employee education and training	1. Facilitate staff recruitment, retention, and supervision 2. Develop and implement staff orientation, training, and continuing education programs 3. Benchmark staff performance data and conduct performance appraisals
Domain IX: Financial and Resource Management	
• Accounting and budgeting principles • Cost/Benefit analysis • Financial Management • Cost Management	1. Understand budgeting methods and accounting principles 2. Prepare and monitor budgets and contracts 3. Demonstrate and apply knowledge of cost-benefit analysis techniques to justify resource needs 4. Conduct resource and business operation reviews
TIER 3: Country Specific Content	
Domain X: Healthcare information requirements and standards	
• Standards and regulations for documentation • Legal aspects of health information	1. Develop health record documentation guidelines 2. Comply with regulations and standards
Domain XI: Clinical Classification Systems	
• Coding principles and Skills • Classification and nomenclature systems • Clinical vocabularies and terminologies • Retrieval and Abstraction of health information • Classification of disease and operations	1. Implement and manage applications and processes for clinical classification and coding 2. Apply the correct uses of classifications, nomenclatures, and terminologies 3. Accurately assign codes in compliance to standards 4. Apply knowledge in coding quality audits
Domain XII: Reimbursement Methodologies	
• Payment systems • Financial systems • Reimbursement management	1. Understand various payment systems 2. Manage the use of clinical data required in reimbursement systems
Domain XIII: Health Services Organization and Delivery	
• Structure and functions of healthcare system • Accreditation, certification, licensure standards • Health care organization and resources	1. Communicate and apply standards related to accreditation, licensure, and certification related to health information 2. Understand the healthcare organization's functions and delivery 3. Analyze and respond to health information needs

Domain XIV: Health care Privacy, Confidentiality, Legal and Ethical Issues	
• Health and medical laws • Health information laws, regulations, and standards • Confidentiality and release of information • Data privacy and security • Ethical issues in medical documentation • Policies and Procedures	1. Promote ethical standards of practice 2. Manage access and disclosure of health information 3. Interpret and comply to country's legal and regulatory requirements in relation to health information services 4. Enforce data privacy and security

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