



The Australian Coder Workforce 2002:

a report of the National Clinical Coder Survey

Kirsten McKenzie and Sue Walker



National Centre for Classification in Health – Australia

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NCCH (Sydney)

Faculty of Health Sciences
The University of Sydney
PO Box 170
Lidcombe NSW 1825

NCCH (Brisbane)

School of Public Health
Queensland University of Technology
Victoria Park Road
Kelvin Grove QLD 4059

NCCH (Melbourne)

School of Public Health
La Trobe University
Bundoora VIC 3086

www.fhs.usyd.edu.au/ncch/

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This report was written by:

Kirsten McKenzie - Research Fellow
National Centre for Classification in Health

Sue Walker - Project Manager and Associate Director
National Centre for Classification in Health

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National Centre for Classification in Health

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National Centre for Classification in Health

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National Centre for Classification in Health

Melanie Spallek - Student Intern
National Centre for Classification in Health

Members of the survey design group included:

Kavia Cheng, Angela Randall
Health Information Management Association of Australia (HIMAA) Ltd

Joan Knights, Lesley Ward
Clinical Coders' Society of Australia Ltd

Sue Walker, Kirsten McKenzie, Ann Jones, Shannon Watts, Kerry Innes,
Gerard Viswasam, Karen Peasley
National Centre for Classification in Health



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Glossary

Term	Meaning
ACBA	Australian Coding Benchmark Audit
CCSA	Clinical Coders' Society of Australia Ltd
Clinical coder	Someone who allocates ICD-10-AM codes to diagnoses and procedures as part of their work
Coding	Where the term 'coding' is used in this survey, the following activities are included: <ul style="list-style-type: none"> ● allocating ICD-10-AM codes using books or an encoder ● data entry or indexing of codes ● checking of edit reports ● updating coding books ● quality assurance activities relating to coding ● participating in meetings to discuss coding issues ● any other activity related specifically to coding
Coding manager	The person in the hospital, day care facility or other health care organisation who is directly responsible for ensuring that information about a patient's episode(s) of care is coded using ICD-10-AM. In most cases this will be the person responsible for ensuring that coded data are submitted to the State or Territory morbidity statistics collection and to whom enquiries about these data are initially directed
DON	Director of Nursing
EHR	Electronic Health Record
FTE	Full-time equivalent employee
HIM	The term HIM is used to refer to Health Information Managers/ Management and Medical Record Managers/Management
HIMAA	Health Information Management Association of Australia Ltd
HIS/MRD	Health Information Service/Medical Record Department
MRA	Medical Record Administrator/Administration
NCCH	National Centre for Classification in Health
PICQ	Performance Indicators for Coding Quality

Section I

Background

I.1 Previous research

In 1994–1995, the Health Information Management Association of Australia (HIMAA) was funded by the Commonwealth government to conduct a nation-wide survey of clinical coders working in Australian hospitals. The survey provided data about the coder workforce in terms of its size, the educational backgrounds of coders, circumstances relating to their employment and their needs in terms of continuing support.

The data supplied by coders and managers provided the baseline information for work subsequently undertaken by the HIMAA and to some extent by the National Centre for Classification in Health (NCCH) and the Clinical Coders' Society of Australia (CCSA), to support and develop the clinical coding profession.

At the time the original survey was conducted, casemix was not widely used for the management of health services in Australia, although the Victorian health department had begun to implement casemix-based funding. The Commonwealth had published the Casemix Development Project Strategic Plan for 1993/4–1997/8. Priority Area 1 of the plan was related to the development of relevant classification systems to describe hospital outputs and the coder survey was directly related to this priority. It is anticipated that casemix has had a major effect on the size and responsibilities of the coding profession since that time. Previously coded data was largely used by state health departments and hospitals for planning, epidemiological studies and research. Casemix and costing has added an entirely new requirement for accurate and complete patient data.

It has now been nearly eight years since the original survey was conducted and ICD-10-AM and casemix are in use in all states and territories. It is reported anecdotally that the roles and responsibilities of clinical coders have changed significantly over this time period and that the workforce has grown in size and stature.

I.2 Coder support organisations

In 2002, three organisations worked towards providing support for the clinical coder profession in Australia: the NCCH, HIMAA and the CCSA.

The NCCH (the Centre) is an Australian expert centre in health classification theory and coding systems that is funded primarily by the Commonwealth Department of Health and Ageing, the Australian Institute of Health and Welfare (AIHW) and the Australian Bureau of Statistics (ABS). The NCCH maintains the *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification* (ICD-10-AM) (which comprises the Australian modification of the ICD-10 for diseases, plus the Australian Classification of Health Interventions and the

Australian Coding Standards). The NCCH provides support to the ABS and the AIHW in their use of the ICD-10 and ICD-10-AM for national data collections. The Centre also provides Australian coders with opportunities for continuing education, develops products to support the work of coders and for assessment of coding quality, conducts research and has an active consultancy service for national and international clients.

The HIMAA is Australia's peak body representing the interests of the health information management profession. In addition to promoting and supporting the profession, the Association delivers distance education programs in coding and related subjects. These programs are principally aimed at entry-level coders, although intermediate and advanced courses are also available.

The CCSA is an organisation originally established by the HIMAA to represent the clinical coder profession. The establishment of the CCSA was one of the major outcomes of the National Coder Workforce Issues Project in the mid-1990s. The Society is also active in the provision of coder training, mainly through short courses and workshops. It provides a peer support network for coders.

These three organisations were involved in the development and conduct of the 2002 National Clinical Coder Survey.

Section 2

Survey development and process

2.1 Purpose of survey

The National Centre for Classification in Health, in collaboration with the HIMAA and the Clinical Coders' Society of Australia, developed a follow up survey to the 1994–1995 nationwide survey of clinical coders. The follow up survey's aim is to quantify the changes that have occurred in the coder workforce over the last eight years and to provide data about the coder workforce in terms of employment conditions, duties, resources, educational backgrounds, and access to and need for continuing education. In addition, coders were given the opportunity to express their views in relation to the future role of clinical coders and the impact of electronic health records (EHRs) on coding practice.

The results of the survey will assist in future strategic planning through formulation of coder employment forecasting and in the development of future coder education programs. The survey will also identify the views of coders themselves relating to their roles and recognition that the NCCH, HIMAA and the CCSA can consider in future work programs.

2.2 Major objectives

The major objectives of this study were to:

- Develop and distribute questionnaires to hospitals and day-care facilities employing clinical coders
- Enter data onto a database and analyse the questionnaire results
- Prepare and publish findings regarding the coder workforce in Australia.

2.3 Survey methodology

2.3.1 Content of questionnaires

A survey design group, incorporating members of each of the three organisations, NCCH, HIMAA and CCSA, met to decide on the range of questions to be asked. A number of the questions originally developed for the 1994–1995 survey were considered for incorporation into the 2002 survey. There were five broad issues to be addressed:

Who codes?

- The size of the workforce
- The backgrounds of people coding
- The types of coding training undertaken by coders
- Salary and industrial conditions

What do coders do?

- Tasks of coders besides coding
- Use of classifications other than ICD-10-AM
- Role of coders in the future

Where is coding done?

- Location of coders within facilities

How is coding done?

- Resources used in coding
- Quality of coding
- Access to computing facilities

How are coders supported?

- Continuing education
- Courses and certification.

2.3.2 Survey format

The survey itself had two parts. Part 1 of the survey was for completion by the manager of the clinical coding service in each hospital. The aim of this part of the survey was to determine strategic issues relating to the size and composition of the coder workforce and to elicit management views about the current coder environment and potential future changes in the roles and responsibilities of coders.

Part 2 of the survey was for coders themselves. It asked questions about the professional backgrounds of those people who work as clinical coders, the education and training they received to learn how to code, the circumstances of their employment and their salary range, the coder support activities offered by the three organisations that they utilise or find most helpful, the issues that impact on their ability to code accurately and completely and their views about possible changes to their roles and responsibilities in the future. Perceived needs for continuing education were also queried. A significant number of free-text responses were requested in order to give coders the opportunity to provide as much detail as they wished.

2.3.3 Questionnaire distribution

The National Clinical Coder Survey was aimed at the managers of coding services and individual clinical coders in every public and private hospital and day care facility in Australia. Only those hospitals that submit unit record morbidity data (either coded or uncoded) to their respective state or territory health department's admitted patient data collection were deemed eligible to be included in the survey.

The names and addresses of facilities throughout Australia were obtained from members of the NCCH's Coding Standards Advisory Committee who represent each state and territory. A total of 1,357 facilities formed the original list. A Microsoft Access® database was developed to store the addresses. Subsequently, each state or territory list was checked against hospital lists obtained from the appropriate health department websites and against other information found on the Internet or the online Telstra Yellow pages (<http://www.yellowpages.com.au>) to confirm that only hospitals and day facilities were on each list. A total of 80 facilities were subsequently removed from the list for the following reasons:

- 53 ineligible facilities (for example, addresses were for regional health authorities, government departments, health insurance funds, and aged care facilities)
- 27 duplicate addresses/wrong addresses.

Thus, a total of 1,277 surveys were sent to eligible facilities in July 2002. Of these, 749 were public hospitals or day care centres and 528 were private facilities or day care centres. Responses were due by the end of August 2002.

2.3.4 Respondents

Of the 1,277 facilities contacted, a total of 424 managers responded to the survey, representing a 33.2% response rate. The number of coders to respond to the survey was 1,031. Detailed information about the respondents is available in [Respondents' profile](#).

2.3.5 Database development

A Microsoft Access® database was developed for the storage of information about the facilities contacted, the manager and coder information, and the survey responses.

2.3.6 Questionnaire processing

Upon receipt, surveys were allocated two identification (ID) numbers: a facility ID and a survey ID (separate numbering systems were used for manager and coder surveys). The facility ID enabled linkage between the respondent and their facility of employment, and allowed for the tracking of facilities that had responded. For 37 respondents, insufficient information was provided regarding the name and address of the facility, and linkage between the respondent and facility was not possible in these cases.

Respondents were also allocated a survey ID number, and this was written on both the information sheet of the survey where the respondent's personal details were recorded, and on the first page of the survey responses. The information sheets were subsequently removed from the survey responses to ensure the confidentiality of respondents. The unique ID however, allowed for the future linkage of data if necessary.

Reminder notices were posted on the NCCH website and via the HIMAA E-Bulletin, and were sent to the Code-L list server several times after the initial survey was mailed, resulting in a small number of extra questionnaires received after the due date.

2.4 Notes to tables

For all tables, the number of respondents and missing values are indicated within or below the table. For the majority of questions, a breakdown of responses by the locality characteristics of state/territory, public/private, and metropolitan/rural/remote location is provided in Appendix 2. Where there are less than 50 responses to questions, this breakdown is only provided if it is deemed to be of interest to the

coding community. Totals are provided in tables only where they are necessary for the calculation of percentages, not when they duplicate information in previous tables relating to the same question. In the tables where breakdowns are provided by locality characteristics, the total number of respondents per state for each category is provided for easier interpretation of the figures. (Note: There are no private hospitals in remote locations so no figures are provided for these).

Section 3

Respondents' profile

3.1 Response rate

Of the 1,277 facilities contacted, a total of 424 managers responded to the survey, representing a 33.2% response rate. A total of 1,031 coders responded to the survey, representing an average of approximately two coders per manager.

3.2 Respondent categories

Respondents to the survey comprised three categories:

1. Manager only – Completed only the manager part of the survey
2. Manager and Coder – Completed both the manager and coder part of the survey
3. Coder only – Completed only the coder part of the survey.

Figure 1 shows the percentage of individuals per respondent category. The results from those respondents that are both managers and coders will be reported in both the manager and coder sections of the report.

(respondents=1,157 missing=0)

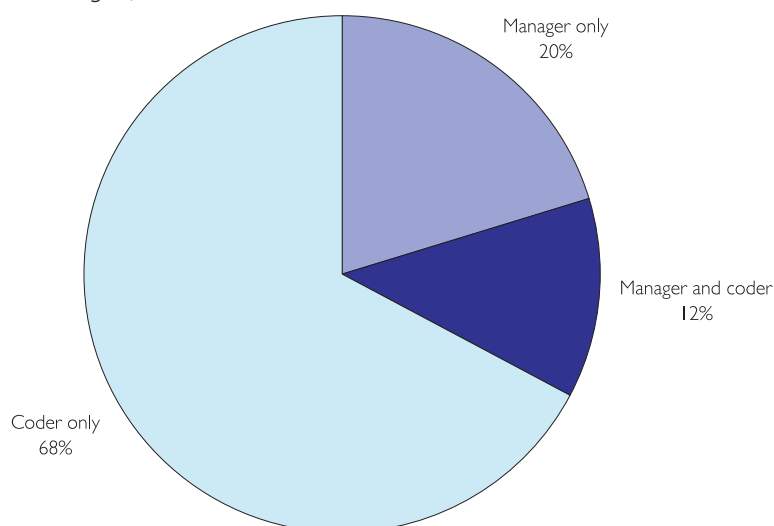


Figure 01: Number of individuals per respondent category

3.3 Location of respondents

Table 1 shows the number of respondents per category by state/territory. While 41% of managers that responded from public facilities were located in metropolitan areas, 77% of managers who responded from private facilities were located in metropolitan areas. In contrast, while 57% of coders who responded from public facilities were located in metropolitan areas, 81% of coders who responded from private facilities were located in metropolitan areas.

Table 01: Respondents by state/territory

State/territory	Managers		Coders		Manager-coders	
	n	%	n	%	n	%
Australian Capital Territory	1	0.4	0	0	0	0
New South Wales	61	26.5	173	19.9	69	43.1
Northern Territory	1	0.4	2	.2	2	1.3
Queensland	47	20.4	91	10.4	19	11.9
South Australia	29	12.6	73	8.4	11	6.9
Tasmania	5	2.2	9	1.0	3	1.9
Victoria	59	25.7	165	18.9	46	28.8
Western Australia	27	11.7	56	6.4	7	4.4
(managers=230 missing=34; coders=569 missing=302; manager-coders=157 missing=3)						

Table 2 shows the respondents compared to non-respondents based on facility characteristics by state/territory. Based on the overall sample size, the respondents are representative of the population (using a 95% confidence interval). The number of respondents from public and private facilities is representative of their respective populations (90% confidence interval). While the number of respondents from metropolitan hospitals is representative of the population (90% confidence interval), caution is needed when interpreting the results of respondents from rural and remote facilities, due to small sample sizes from hospitals in these locations. While approximately half of all managers who were contacted in public metropolitan facilities responded, a slightly smaller 43% of managers from private metropolitan facilities responded. The reverse was true for rural facilities, with one-third of managers in public rural facilities responding, compared to a two-thirds response rate from managers in private rural facilities.

Table 01 shows manager respondents by locality characteristics, and Table 02 shows coder respondents by locality characteristics.

Table 02: Manager respondents compared to non-respondents by state/territory

Facility characteristics	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
Metropolitan									
Respondents	1	36	0	8	9	0	27	9	90
Non-respondents	1	34	1	15	8	4	21	8	92
Rural									
Respondents	0	34	0	16	15	3	30	10	108
Non-respondents	0	99	0	50	50	16	60	25	300
Remote									
Respondents	0	4	3	9	2	0	0	4	22
Non-respondents	0	12	1	75	10	2	2	35	137
Total									
Respondents (missing=14)	1	74	3	33	26	3	57	23	220
Non-respondents	1	145	2	140	68	22	83	68	529
Private									
Metropolitan									
Respondents	0	45	0	17	13	3	41	9	128
Non-respondents	2	99	1	47	36	4	84	25	298
Rural									
Respondents	0	11	0	16	1	2	7	2	39
Non-respondents	0	21	0	19	8	4	8	2	62
Remote									
Respondents	0	0	0	0	0	0	0	0	0
Non-respondents	0	0	0	0	1	0	0	0	1
Total									
Respondents (missing=11)	0	56	0	33	14	5	48	11	167
Non-respondents	2	120	1	66	45	8	92	27	361

3.4 Facility characteristics

Managers indicated the categories which best described their facilities using the following distinctions: free standing day care facility/hospital/other, public/private, and teaching/non-teaching. Upon inspection of the results from the first category, the 'other' category was divided into two types of facilities – multipurpose facilities and early parenting centres. Table 3 shows the breakdown of respondents by facility categories.

The majority of respondents worked in hospitals, with 81% of managers and 90% of coders working in a hospital facility. Managers and coders from public facilities comprised 55% and 65% of the sample respectively.

Table 03: Respondents by facility categories

Facility category	Managers		Coders	
	n	%	n	%
Hospital	345	81.4	662	90.4
Free standing day care facility	61	14.4	60	8.2
Multipurpose facility	15	3.5	9	1.2
Early parenting centre	3	0.7	1	0.1
(manager respondents=424 missing=0)				
(coder respondents=732 missing=299)				
Public	234	55.4	474	64.8
Private	188	44.6	258	35.2
(manager respondents=422 missing=2)				
(coder respondents=732 missing=299)				
Non-teaching	205	67.2	310	54.2
Teaching	100	32.8	262	45.8
(manager respondents=305 missing=119)				
(coder respondents=572 missing=459)				

The number of beds available in the facilities ranged from 1 to 3,313, with the average number of beds being 130. Table 04 shows the number of respondents by categories of bed sizes. Approximately two-thirds of managers responded from facilities with 100 or less beds, compared to nearly one-third of coders who responded from facilities with 100 or less beds. The majority of coders worked in facilities with between 201 and 500 beds.

Table 04: Respondents by facility bed size

Number of beds	Managers		Coders	
	n	%	n	%
10 or less	49	13.1	36	5.6
11–50	114	30.4	107	16.6
51–100	77	20.5	104	16.1
101–200	61	16.3	97	15.0
201–500	63	16.8	232	36.0
More than 500	11	2.9	69	10.7
(manager respondents=375 missing=49; coder respondents=645 missing=386)				

The number of annual separations for the 2001–2002 financial year from facilities ranged from 1 to 109,927. The average number of separations was 11,468. Table 05 shows the number of respondents by categories of separations. Similar to the findings for bed size, two thirds of managers and one-third of coders worked in facilities with fewer than 10,000 separations in the 2001–2002 financial year.

Table 05: Respondents by facility annual separations (2001–2002)

Separations	Managers		Coders	
	n	%	n	%
<500	36	10.0	24	3.7
500–999	25	7.0	15	2.3
1,000–9,999	175	48.7	202	31.1
10,000–19,999	58	16.2	124	19.1
20,000–29,999	27	7.5	93	14.3
30,000–49,999	21	5.8	86	13.3
>50,000	17	4.7	105	16.2
(manager respondents=359 missing=65; coder respondents=649 missing=382)				

Section 4

Part I – Managers' results

4.1 Facilities using ICD-10-AM

Of the 424 facilities that responded, 422 indicated that they used ICD-10-AM to code data, and two indicated that they did not. One of the two facilities that stated that they did not use ICD-10-AM, was a public, teaching hospital with less than 50 beds located in Tasmania. The other was a public, non-teaching free standing day care facility with less than 50 beds and 6,420 annual separations located in Western Australia.

4.2 Manager positions

Managers stated their position/job title and these responses were then categorised into a total of 9 titles with an 'other' category for uncommon titles. Figure 02 shows the percentage of managers with each position/job title and Table 06 shows the breakdown of job titles by state/territory.

Over half of all managers were HIMs. The highest percentage of managers who were HIMs was in Victoria, where three-quarters of respondent managers were HIMs. This contrasts with Tasmania and South Australia where one-quarter of managers were HIMs.

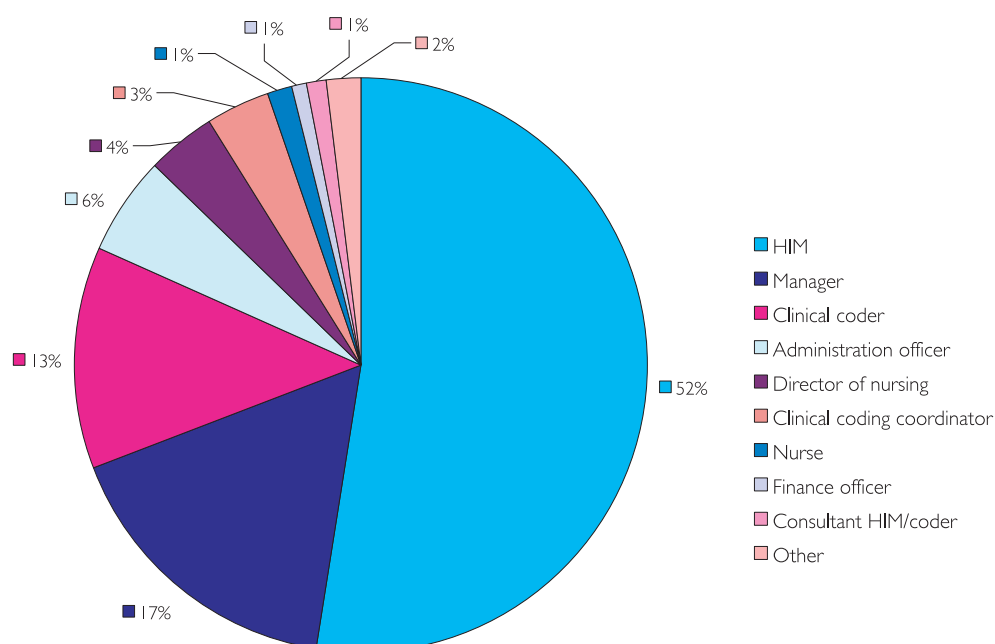


Figure 02: Position/job titles of managers

Table 06: Position/job titles of managers by state/territory

Title	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
HIM	1	67	1	28	11	2	79	15
Manager not otherwise specified	0	23	1	11	8	2	12	4
Clinical coder	0	16	1	9	6	2	6	6
Administration officer	0	15	0	3	1	1	0	1
Director of Nursing	0	3	0	7	2	1	1	1
Clinical coding co-ordinator	0	1	0	0	5	0	2	5
Nurse	0	0	0	2	2	0	0	1
Finance officer	0	0	0	3	1	0	0	0
Consultant HIM/coder	0	3	0	1	0	0	0	0
Other	0	1	0	1	4	0	2	0
<i>Total</i>	<i>1</i>	<i>129</i>	<i>3</i>	<i>65</i>	<i>40</i>	<i>8</i>	<i>102</i>	<i>33</i>
(respondents=381 missing=43)								

4.3 Coding workforce

Managers reported whether they had staff currently enrolled in an ICD-10-AM training course. A total of 332 managers (78.7%) responded that they did not have staff enrolled, 83 (19.7%) had staff enrolled, and 7 (1.7%) did not know if their staff were enrolled or not. Of those who stated that they did have staff enrolled in an ICD-10-AM training course, 60 (75.9%) reported that they had 1 staff member enrolled, 13 (16.5%) had 2 staff members enrolled, and 5 (7.7%) managers had 3 or more staff members enrolled.

Managers indicated whether they had any existing vacant positions for coders in their facilities. 383 managers (90.5%) responded that there were no vacant positions and 40 managers (9.5%) responded that there were vacancies for coders. Table 07 shows the number of vacant coder positions by state/territory and public/private facility status.

Nearly 28% of all metropolitan public facilities had vacancies for coders, compared to only 2% of metropolitan private facilities. In rural locations, 7% of public facilities and none of the private facilities had unfilled coder positions.

Managers were then asked how many vacant full-time equivalent (FTE) positions were available. Calculations from the data received showed there were 38.1 FTE coder positions available across Australia, with 25 of these vacant positions located in public metropolitan facilities, and nearly half of these 25 positions being located in New South Wales.

Table 07: Number of facilities with vacant coder positions by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total	% of total
Public										
Metropolitan	0	12	0	1	1	0	9	2	25	27.8
Rural	0	3	0	2	0	1	2	0	8	7.4
Remote	0	0	0	0	0	0	0	1	1	4.5
<i>Total</i>	<i>0</i>	<i>15</i>	<i>0</i>	<i>3</i>	<i>1</i>	<i>1</i>	<i>11</i>	<i>3</i>	<i>34</i>	<i>15.4</i>
Private										
Metropolitan	0	2	0	0	1	0	0	0	3	2.3
Rural	0	0	0	0	0	0	0	0	0	0
Remote	0	0	0	0	0	0	0	0	0	0
<i>Total</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>3</i>	<i>1.8</i>

(respondents=37 missing=3)

Managers also indicated if they were planning to create new coder positions in 2002. Most (348, 83.3%) stated that no new positions were to be created, 31 (7.4%) stated that positions were to be created, and 39 (9.3%) were not sure. Calculations from the data received showed there were the 33 new coder positions to be created in 2002 throughout Australia, encompassing a total number of hours of 944. This equates to the equivalent of 26 new FTE coder positions (based on a 36.25 hour working week). The highest number of new coder positions to be created was in Victoria with a total of 5.7 new FTE positions proposed. Table 08 shows the total number of planned new coder positions by state/territory.

Table 08: Number of new coder FTE positions by state/territory

FTE positions	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
< 0.2 FTE	0	0	0	0	0	0	2	0
0.21 FTE–0.49 FTE	0	1	0	0	0	0	1	0
0.5 FTE–0.59 FTE	0	0	0	0	0	0	0	3
0.6 FTE–0.79 FTE	0	2	1	1	1	0	0	0
0.8 FTE–0.99 FTE	0	0	0	0	0	0	1	0
1 FTE	0	3	0	4	0	0	4	0
2 FTE	0	0	0	0	1	0	0	1
<i>Total FTE positions</i>	<i>0</i>	<i>4.83</i>	<i>0.69</i>	<i>4.94</i>	<i>2.69</i>	<i>0</i>	<i>5.70</i>	<i>3.72</i>

(respondents=27 missing=4)

Combining the number of existing current vacancies for coders and the number of new positions to be created for coders, it was calculated that 64.1 new FTE coders are required by respondent hospitals.

4.4 Coding service: Location and responsibility

Managers indicated whether coding for their facility was done on-site or off-site, with 386 (98.5%) stating that coding was done on-site and 6 (1.5%) indicating it was done off-site (missing responses from 32 managers). For those facilities that indicated coding was done off-site, managers specified that coding was undertaken at other local hospitals.

Managers were then asked whether coding was part of the health information service/medical record department (HIS/MRD) in their facility. In 337 (88.2%) of facilities for which responses were received, coding was part of the health information service/medical record department, whereas in 50 (11.8%) of facilities, coding was part of other hospital departments or sections. Figure 03 shows the responsibility of the health information service/medical record department for coding by state/territory.

South Australia was the state least likely to code within HIS/MRD, with 25% of South Australian managers stating that coding was undertaken in other sections.

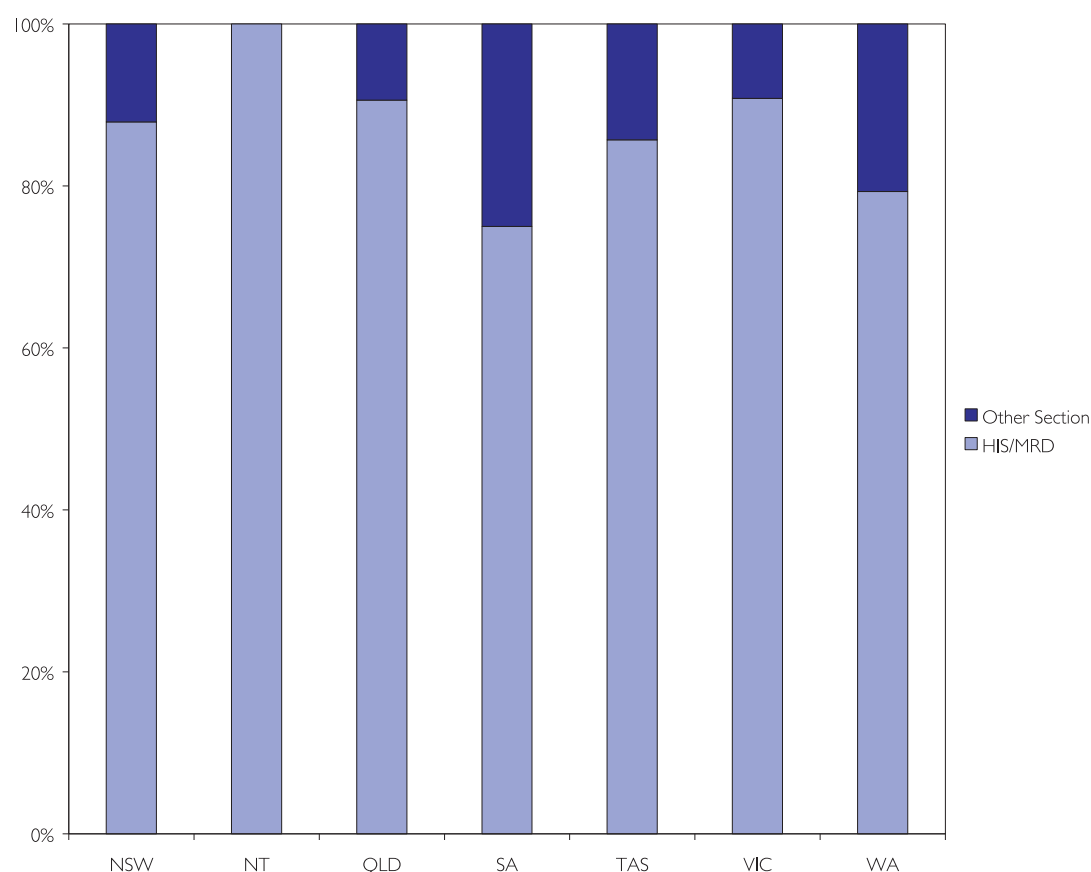


Figure 03: HIS/MRD responsible for coding by state/territory

If coding was a part of another section, managers indicated which section or person had this responsibility. Table 09 shows the number of facilities where coding is done in each section (Note: HIS/MRD section is included in this table for comparison). If coding was not part of HIS/MRD, it was most likely to be performed by coders' external to the hospital (for example, contractors or coders in nearby hospitals) or within the financial/administration departments of the hospital.

Table 09: Sections responsible for coding

Section	n	%
HIS/MRD	337	88.2
External coder	15	3.9
Administration/Finance	14	3.7
Other management area	9	2.3
Nursing	7	1.8
(respondents=382 missing=42)		

4.5 Coding quality

4.5.1 Factors affecting coding quality

Managers considered a list of factors that may have an impact on the accuracy, completeness, and timeliness of coding, and indicated the perceived severity of impact of each factor at their facility on a scale from no impact to an enormous impact (4 point scale). For ease of interpretation, the categories of 'no impact' and 'slight impact' were combined into a 'no impact' category. The categories of 'moderate impact' and 'enormous impact' were combined into an 'impact' category. Table 10 lists the responses of managers for each factor in order of impact. Table 11 lists the responses of managers for each factor by public/private status of their facility (in order of impact for public facilities). Figure 04 illustrates the top five factors identified by public facility managers as affecting coding quality, and the factors where major discrepancies were evident between public and private facilities are depicted. Table 12 lists the responses of managers for each factor by metropolitan/rural/remote status of their facility (in order of impact for metropolitan facilities). Figure 5 illustrates the top five factors identified by metropolitan facility managers as affecting coding quality, and the factors where major discrepancies were evident between metropolitan/rural/remote facilities are depicted. As each factor was a separate item in the survey, there are differences in the number of respondents and corresponding missing values. The minimum numbers of respondents and maximum numbers of missing values are reported below each table.

The factor considered most likely to affect coding quality according to managers was incomplete medical record content, with 72.2% of managers stating that this had an impact. This was closely followed by principal diagnosis not being identified (65.8%), complications/co-morbidities not being identified (64.0%), illegible medical record entries (59.5%) and the necessity for coders to perform multiple tasks (43.1%).

Some differences were evident between the responses of managers from public and private facilities, with complication/co-morbidities being not identified believed to affect coding quality by 67% of managers in public facilities compared to 60% of managers in private facilities. Similarly, coders performing multiple tasks was viewed as an important factor affecting coding quality by 47% of managers in public facilities compared to 40% of managers in private facilities.

Managers from rural facilities reported more problems with illegible medical records compared with those in metropolitan or remote localities, with the percentage impact being 64%, 58% and 44% respectively across these localities. Remote locations managers acknowledged the lack of continuing education as problematic, with 44% of those managers stating that this factor had an impact on the quality of coding, compared to 36% in rural facilities and 29% in metropolitan facilities. In Queensland, a lack of continuing education to update skills had equal impact on coding quality as coders having to perform multiple tasks. In Western Australia, a distracting work environment and lack of training available for coders were rated equally as the fifth most important factors affecting coding quality.

Table 10: Managers' views of factors affecting coding quality

Factor	Impact		No Impact	
	n	%	n	%
Incomplete medical record content	280	72.2	108	27.8
Principal diagnosis not identified	254	65.8	132	34.2
Complications/co-morbidities not identified	247	64.0	139	36.0
Illegible medical record entries	231	59.5	157	40.5
Performing multiple tasks	163	43.1	215	56.9
Work environment is too distracting	126	33.1	255	66.9
Lack of continuing education to update skills	122	32.8	250	67.2
Not enough coders available for employment	115	32.2	242	67.8
Medical records unavailable	106	28.0	272	72.0
Lack of training available for coders	102	27.6	267	72.4
Not enough coders employed in facility	87	23.1	289	76.9
Inexperience of coders in this facility	81	21.6	294	78.4
Limitations of ICD-10-AM as coding system	53	14.8	305	85.2
Lack of linkages between computers	46	12.5	323	87.5
Difficulties with data entry of codes	41	11.0	331	89.0
Lack of reference books or guidelines	40	10.8	329	89.2
Difficulty obtaining current coding books	19	5.2	347	94.8
(n=>357 missing values <=67 for any one factor)				

Table 11: Managers' views of factors affecting coding quality by public/private status

Factor	Public impact		Private impact	
	n	%	n	%
Incomplete medical record content	148	71.2	131	73.6
Complications/co-morbidities not identified	140	67.3	105	59.7
Principal diagnosis not identified	139	67.1	113	63.8
Illegible medical record entries	119	57.2	110	61.8
Performing multiple tasks	96	46.6	67	39.2
Lack of continuing education to update skills	75	36.6	46	27.7
Not enough coders available for employment	74	37.0	41	26.3
Work environment is too distracting	74	35.6	52	30.2
Medical records unavailable	69	33.7	36	21.1
Not enough coders employed in facility	62	30.4	25	14.6
Lack of training available for coders	60	29.4	41	25.0
Inexperience of coders in this facility	51	25.2	30	17.4
Limitations of ICD-10-AM as coding system	27	13.8	25	15.5
Lack of reference books or guidelines	22	10.9	18	10.8
Lack of linkages between computers	21	10.4	25	15.0
Difficulties with data entry of codes	20	9.9	21	12.5
Difficulty obtaining current coding books	12	6.1	7	4.2

(n>=357 missing values <=67 for any one factor)

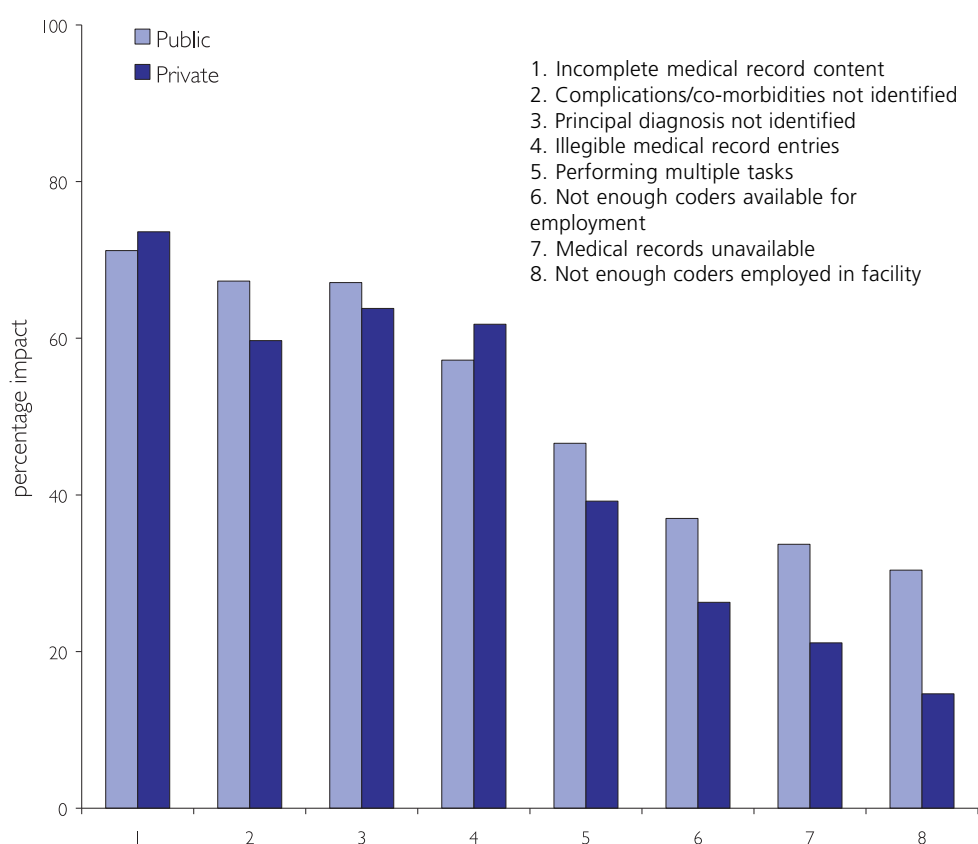


Figure 04: Managers' views of factors affecting coding quality by public/private status

Table 12: Managers' views of factors affecting coding quality by metropolitan/rural/remote status

Factor	Metro impact		Rural impact		Remote impact	
	n	%	n	%	n	%
Incomplete medical record content	149	72.0	93	72.1	14	73.7
Principal diagnosis not identified	131	63.9	86	66.2	12	66.7
Complications/co-morbidities not identified	131	63.6	83	63.8	14	73.7
Illegible medical record entries	120	57.7	83	64.3	8	44.4
Performing multiple tasks	77	38.5	68	53.1	9	47.4
Not enough coders available for employment	65	33.9	37	31.1	3	18.8
Medical records unavailable	63	31.3	29	22.7	5	27.8
Work environment is too distracting	60	29.7	50	39.1	6	31.6
Lack of continuing education to update skills	58	29.0	45	36.3	8	44.4
Lack of training available for coders	51	25.8	37	29.8	5	29.4
Not enough coders employed in facility	46	22.7	31	25.0	3	17.6
Inexperience of coders in this facility	44	21.9	27	21.6	3	17.6
Limitations of ICD-10-AM as coding system	36	18.9	12	10.0	1	5.9
Lack of reference books or guidelines	27	13.6	11	9.1	2	11.1
Lack of linkages between computers	23	11.7	16	13.1	2	11.1
Difficulties with data entry of codes	22	11.2	14	11.2	2	11.1
Difficulty obtaining current coding books	11	5.6	6	4.9	1	6.3

(n=>357 missing values <=67 for any one factor)

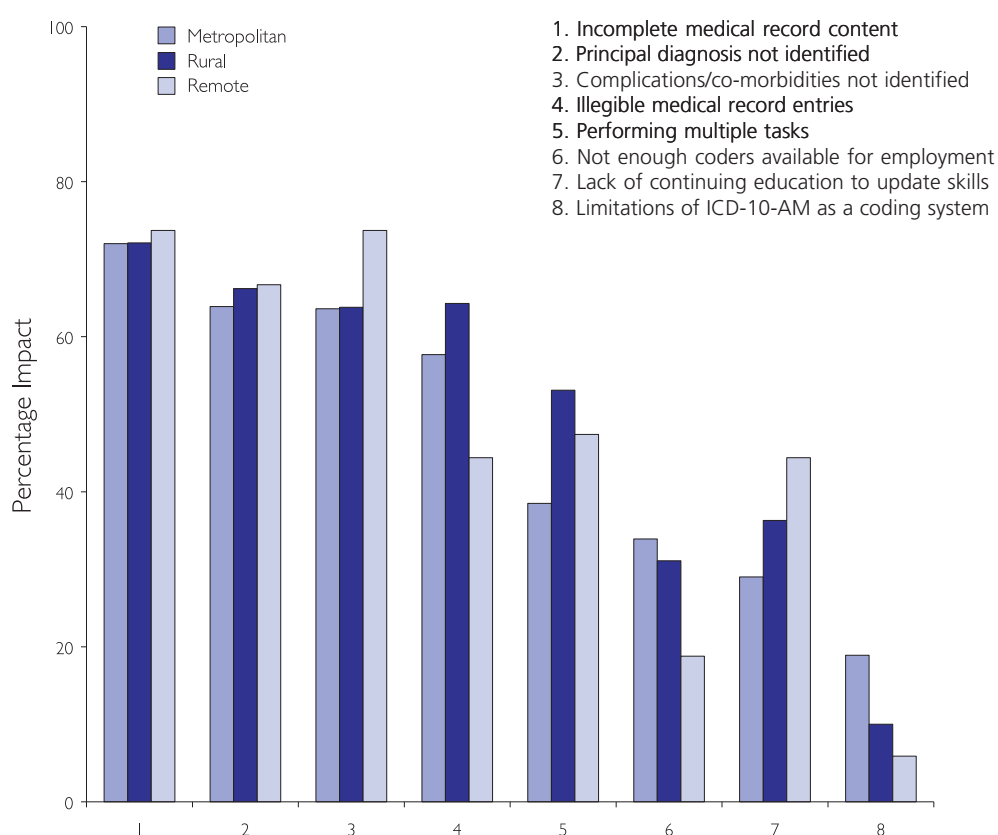


Figure 05: Managers' views of factors affecting coding quality by metropolitan/rural/remote status

Additional factors affecting coding quality were identified by 60 managers (14.1%). Responses were categorised into the seven factors shown in Table 13.

Table 13: Managers' views of factors affecting coding quality: Other factors

Factor	n	% of total (n=424)
Difficulties with coding in remote areas	13	3.1
Pressure to meet coding deadlines	12	2.8
Lack of interest in/knowledge about coding by clinicians	8	1.9
Too many changes in coding guidelines	7	1.6
Difficulties with technology/computers	6	1.4
Lack of clinical knowledge of the coder	5	1.2
Inexperience of relief staff	3	0.7
(respondents=54 missing=6)		

4.5.2 Quality activities

Managers related information about activities used to assess coding quality in their facilities. Two hundred and seventy managers (69.6%) stated that they assessed coding quality in their facility, while 118 (30.4%) stated that they did not. Table 14 shows the number of facilities assessing coding quality by state/territory.

Approximately 75% of managers from public facilities and approximately 65% of managers from private facilities in metropolitan and rural locations stated that there were activities to assess coding quality. However, only half of the managers in public facilities in remote locations stated that they formally assessed coding quality.

Cross tabulations were conducted between the presence of activities to assess coding quality and whether coding was part of the health information services/medical record department. In 71% (n=235) of facilities where coding was part of the health information services/medical record department, a process for assessing coding quality existed, whereas for facilities where coding was not part of the health information service, only 59% (n=29) of facilities assessed coding quality.

Table 14: Presence of activities to assess coding quality by state/territory

State/Territory	Yes	
	n	%
WA	24	80.0
VIC	72	72.0
QLD	45	71.4
TAS	5	71.4
NT	2	66.7
SA	23	65.7
NSW	76	65.5
ACT	0	0
Total	247	69.8
(respondents=354 missing=70)		

As a free-text response was required for the question regarding types of quality activities, the activities described varied. Categories of responses were identified based on whether the response reported one type of audit or combined several types of audits, with the resultant categories shown in Table 15. Table 16 shows these quality activities by state/territory.

Performance Indicators for Coding Quality and/or Australian Coding Benchmark Audit products were mentioned as audit tools in 80% of the responses from Tasmania, 66% of responses from South Australia, 54% of responses from Victoria, 43% of responses from New South Wales, 32% of responses from Western Australia, and 18% of responses from Queensland.

Table 15: Types of quality activities

Activity	n	%
ACBA only	36	13.3
PICQ only	13	4.8
ACBA and PICQ only	11	4.1
ACBA and other audits (except PICQ)	16	5.9
PICQ and other audits (except ACBA)	29	10.7
PICQ and ACBA and other audits	16	5.9
Clinician-coder meetings only	9	3.3
Peer review only	11	4.1
Health department audits only	6	2.2
Error DRG audits only	5	1.9
All other combinations of internal audits and/or external audits	118	43.7
(respondents=270 missing=0)		

Table 16: Types of quality activities by state/territory

Activity	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
ACBA only	0	14	1	5	2	1	8	0
PICQ only	0	0	0	1	2	0	5	3
ACBA and PICQ only	0	3	0	0	3	1	3	1
ACBA and other audits	0	9	0	2	2	0	3	0
PICQ and other audits	0	1	0	0	4	1	18	3
PICQ and ACBA and other audits	0	5	0	0	3	1	5	1
Clinician-coder meetings only	0	2	0	3	0	0	3	0
Peer review only	0	3	0	0	1	0	2	2
Health department audits only	0	1	0	0	0	0	1	4
Error DRG audits only	0	1	0	2	0	0	1	0
Other internal/external audits	0	36	1	31	7	1	24	11
Total	0	75	2	44	24	5	73	25
(respondents=248 missing=22)								

4.6 Planned changes to coding service

Managers reported whether they were planning to introduce any major changes to the way coding was carried out in 2002. More than two-thirds of managers (69.1%) stated that no major changes were planned, 64 (16.3%) were unsure of whether they were going to introduce any changes, and 57 (14.5%) stated that they were planning major changes. Nine distinct categories of change were identified from the managers' responses, and these are shown in Figure 06.

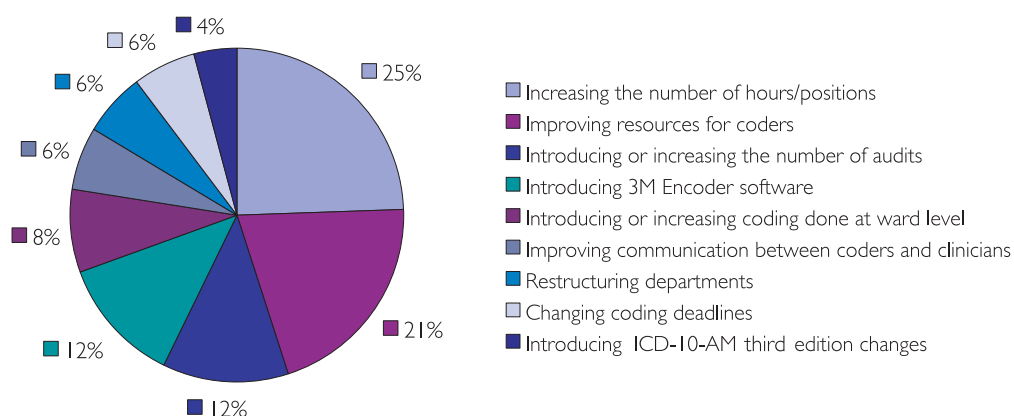


Figure 06: Planned changes to coding services

4.7 Coder education

Managers detailed the educational opportunities for coders in their facility. The first question relating to education asked managers what in-house educational opportunities were available to coders. Managers ticked all the relevant categories from a list and specified any additional in-house educational opportunities that were not part of the list provided. Managers were able to indicate as many educational opportunities as were available at their hospitals. Table 17 shows the number of managers who stated that these educational opportunities were available to coders in their facility. Table 18 indicates the educational opportunities identified by managers as available in their facilities, broken down by state/territory.

Table 17: Number of facilities with in-house educational opportunities available to coders

Educational opportunity	n	% of facilities
Area coding meetings	164	38.7
Departmental coding meetings	143	33.7
Clinician-coder meetings	112	26.4
Medical Science updates	48	11.3
Library sessions	8	1.9
(respondents=424 missing=0)		

Table 18: Number of facilities with in-house educational opportunities available to coders by state/territory

Educational opportunity	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Area coding meetings	0	65	3	24	20	4	21	8
Departmental coding meetings	0	41	0	21	11	5	42	14
Clinician-coder meetings and updates	0	36	0	16	11	2	28	10
Medical Science updates	0	14	0	9	2	1	17	2
Library sessions	0	2	0	1	1	0	3	0
<i>Respondents per state</i>	<i>1</i>	<i>130</i>	<i>3</i>	<i>66</i>	<i>40</i>	<i>8</i>	<i>105</i>	<i>34</i>
(respondents=387 missing=37)								

Sixty-seven managers listed other in-house educational opportunities available to coders and these were categorised into four areas. Table 19 shows the frequency of managers who stated that these other educational opportunities were available to coders.

Table 19: Other in-house educational opportunities available to coders

Educational opportunity	n	% of total (n=424)
Other external updates/workshops	29	6.8
Self education (via Internet, <i>Coding Matters</i> , Code-L etc)	21	4.9
Feedback from audits	11	2.6
Attendance at ward rounds	6	1.4
(respondents=67 missing=0)		

Managers reported whether they were involved in organising and/or conducting continuing education for coders in their facility, and if so, what percentage of their work time they spent doing this. Over half (n=215, 55.8%) stated that they were not involved in organising and/or conducting continuing education, while 170 (44.2%) were involved. Figure 07 shows the percentage of managers' time involved with continuing education by state/territory.

Metropolitan public facilities had the highest level of manager involvement in continuing education with over 60% of managers reporting their involvement. A smaller number of managers (45%) in metropolitan private facilities stated that they conducted or organised in continuing education. Nearly 40% of managers in both public and private rural facilities reported involvement with educational activities, however less than 20% of managers from remote public facilities were involved in this.

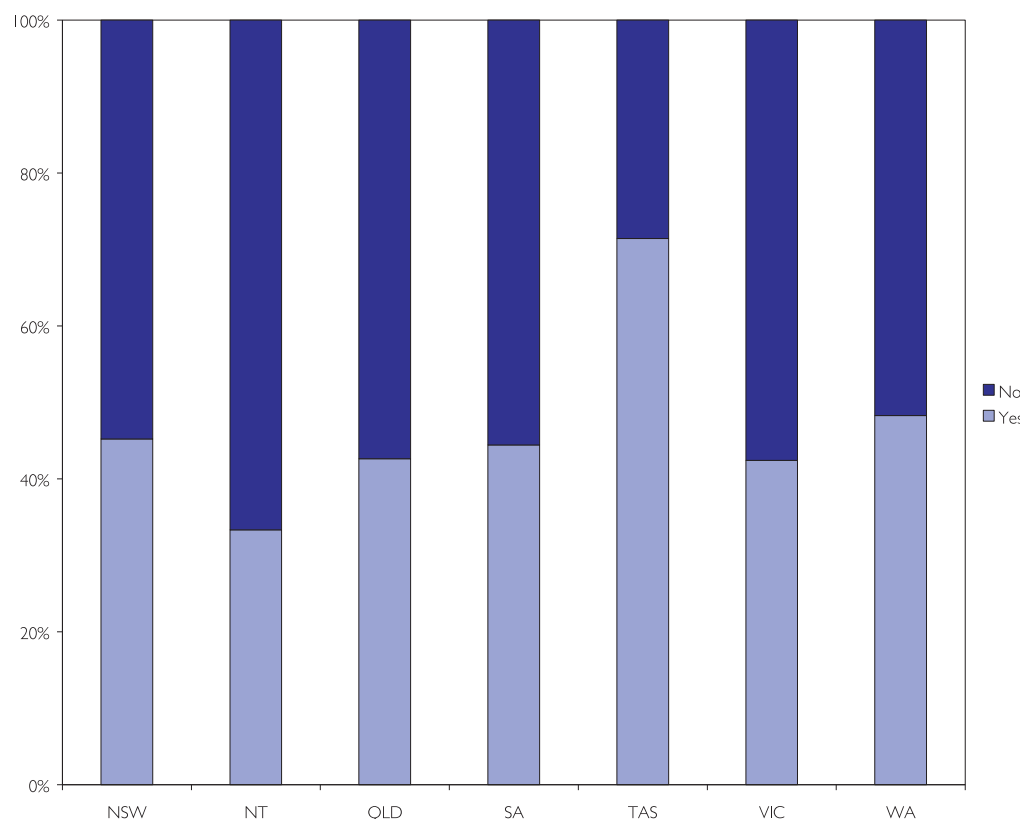


Figure 07: Managers' involvement in continuing education by state/territory

The majority of managers (n=120, 69.4%) spend less than 5% of their work time organising and/or conducting continuing education for coders, 41 (23.7%) spend 5–10% of their work time on such activities. Less than 10% of managers (n=12, 6.9%) spend greater than 10% of their work time on education for coders.

4.8 Managers' comments

Managers were invited to provide free text responses in two parts of the survey in response to the following:

1. What do you see as the role of the clinical coder in the future, and do you feel the profession is prepared for any changes you envisage?
2. What do you see as the impact of electronic health records on coding practices in the future?

They were also invited to make any additional comments about coding or the clinical coder profession. The general themes that emerged from these questions are discussed below.

4.8.1 Role of clinical coders in the future

There were six major themes to emerge from the managers' comments in relation to the role of clinical coders in the future, with 218 managers (51.4% response rate) providing comments. In order of importance, these themes were categorised as:

- more involvement in financial issues/funding/casemix
- greater involvement in quality assurance activities
- increased use of electronic health records
- increased involvement in computing/IT
- more interaction with clinicians/medical staff
- increasing specialisation of coders.

Approximately 30% of managers who commented on the role of clinical coders in the future stated that the role of the clinical coder would be more important as more hospitals are funded through casemix. These managers stated that clinical coders would be vitally important in revenue allocation and increasingly involved in the financial and/or management sections of the hospital. It was suggested that clinical coders would become casemix experts/advisors and would be involved in the interpretation of data and the ramifications of coded data for hospital funding.

Twenty-two percent of managers who commented on the future role of clinical coders stated that the analysis and assurance of data quality would become an increasingly important task. Managers believed that clinical coders would become data managers and data auditors and that this would comprise more of their time than would actual clinical coding in the future. These managers suggested that clinical coders would also have a more prominent role in the education of clinicians regarding documentation requirements to ensure data accuracy.

Closely related to the previous point was the discussion of electronic health records (EHR), with 13.8% of managers who responded to this question stating the EHRs would change the role of clinical coders from a coding function to a data managing/auditing responsibility.

The influence of technology on the role of the clinical coder was raised by 12.4% of managers in response to this question. These managers stated that it would become increasingly important for clinical coders to possess information technology skills and to be computer literate, with a move towards greater automation in the coding process.

Over one in ten managers believed that there would be a stronger liaison between clinical coders and clinicians/medical staff in the future. Given the emphasis on outputs and casemix-based funding, these managers stated that clinicians would become increasingly aware of the importance of coding and the role of the clinical coder. As a result, there will be a move toward a greater involvement of coders in the education of clinicians/medical staff regarding coding issues.

Finally, a small number of managers (6.4%) believed that the role of the clinical coder would become more specialised in the future. With a need for greater specificity in coding, there will be a growing need for clinical coders to become specialists and continually update their education in particular areas.

4.8.2 Impact of electronic health records

Seven distinct themes were identified in the managers' responses to the question about the impact of electronic health records, with 278 managers (65.5% response rate) providing comments. In order of importance, these themes were categorised as:

- easier and faster access to data/greater availability of information
- data quality issues
- increased need for computing/IT skills
- improved legibility of records
- need for training/education in EHR
- greater involvement of clinicians in medical record documentation
- greater flexibility in the location of coding (that is, off-site/work from home/centralised coding office).

A large number of manager responses regarding the impact of electronic health records referred to easier access to information and a greater availability of information, with 38.1% of managers raising these as benefits of EHRs. These managers believed that easier access to off-site information and greater accessibility of information not traditionally available in paper-based records would result in EHRs being less time consuming to code than paper-based records.

Nearly 18% of managers raised data quality issues in their comments about EHRs, with the majority of these comments (82%) stating the EHRs will improve data quality. Reasons for improved data quality included more readily available information and improved legibility of records. Reasons given for perceived poorer data quality related to the increased involvement of clinicians in the coding process and the automation of coding.

For 14.7% of managers commenting on the impact of EHRs, technology concerns were an issue. These managers stated that there would be a need for coders and clinicians to possess greater information technology skills and to be more computer literate. They also suggested that computing and IT infrastructure and support would be necessary to ensure the efficiency of EHRs in relation to the coding process.

On a positive note, 12.9% of managers believed EHRs would be beneficial in improving the issues associated with the legibility of medical records.

The increased need for training and education regarding the use of EHRs was raised by 12.9% of managers who commented on this question. These managers stated that training and education would be a twofold process, with both clinicians and coders requiring training with EHR systems, and with clinicians needing education on the process of coding. 12.2% of managers stated that there would be increased involvement of clinicians in the coding process.

Finally, a small number of managers (5.7%) stated that EHRs would enable greater flexibility in the locality of coding, with coders able to complete their work off-site either in centralised coding locations or working from home.

4.8.3 Other comments

When asked for other comments about clinical coding as a profession five general areas of concern were identified by 135 (31.8% response rate) managers:

- education of coders
- lack of value of coders by other staff
- complexity of coding
- award structure and salary
- promotion of coding as a career option.

Nearly one third of managers who responded to this question discussed the education of coders. These managers suggested that there is a need for further education for coders, especially in specialised facilities such as day surgeries, and for specific clinical areas such as diabetes, anaesthetics and casemix. These managers also stated that it was difficult for part-time staff to participate in ongoing education. Also of concern was the current education of university students, with managers stating that the quality of the current graduate is generally inadequate, as students have insufficient clinical knowledge and a lack of practical experience reading and understanding medical documentation.

Approximately 13% of managers who responded to this question stated that clinical coders are not valued by other staff. They suggest that clinicians and other staff do not understand the importance of the role of the clinical coder and that clinical coders do not receive adequate recognition for their work.

One in ten managers stated that clinical coding is growing increasingly complex and the growing number of standards and guidelines are making the task of clinical coding more difficult.

Salary concerns were raised by approximately 10% of managers, with these respondents stating that a recognised award structure for clinical coders and improved salaries are needed to recognise the importance of the clinical coder.

Finally, 9.6% of managers who responded to this question raised concerns about the promotion of clinical coding as a career. These managers reported that it was difficult to recruit trained staff, and suggested that more work is needed in the promotion of clinical coding as a career option for school leavers, university students and newly graduated HIMs.

Section 5

Part 2 – Coders' results

5.1 Coder positions

5.1.1 Job title of coders

Coders stated their position/job title and these responses were categorised into a total of 8 titles with an 'other' category for uncommon titles. Figure 08 shows the percentage of coders with each position/job title and Table 20 shows the breakdown of job titles by state/territory.

Over half of the respondents were clinical coders, followed by 31%, who identified their positions as HIMs. Western Australia and South Australia had the highest percentage of coders who reported the title clinical coder with 87% and 86% respectively; while only 20% of Victorian respondents were called clinical coders. In contrast, three quarters of Victorian respondents were HIMs, compared to only 5% of South Australian respondents and 7% of Western Australian respondents.

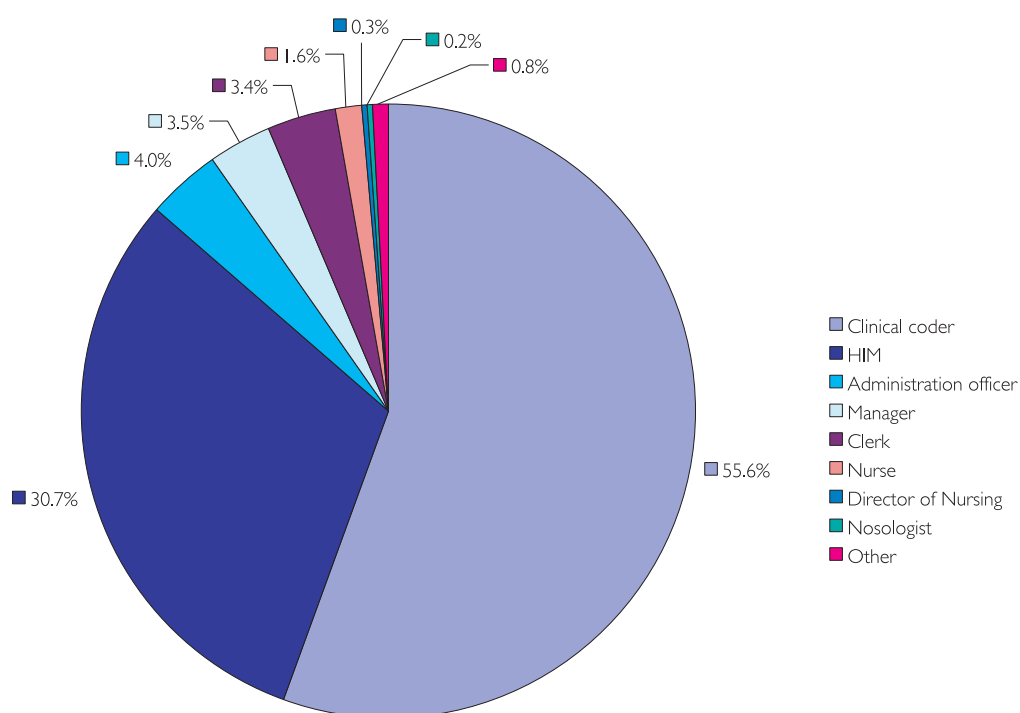


Figure 08: Position/job titles of coders

Table 20: Position/job titles of coders by state/territory

Title	NSW	NT	QLD	SA	TAS	VIC	WA
Clinical coder	129	1	67	71	9	43	48
HIM	49	0	26	4	1	151	4
Administration officer	20	0	5	2	1	2	0
Manager	12	1	5	0	1	8	0
Clerk	23	1	0	1	0	2	0
Nurse	0	0	4	2	0	1	1
Director of Nursing	2	0	0	0	0	1	0
Nosologist	0	0	0	0	0	1	0
Other	0	0	2	2	0	1	2
<i>Total</i>	<i>235</i>	<i>3</i>	<i>109</i>	<i>82</i>	<i>12</i>	<i>210</i>	<i>55</i>
(respondents=706 missing=325)							

5.1.2 Job titles of coders' supervisors

Coders also stated the position/job title of the person to whom they report. These position/job titles were then categorised into a total of 7 titles with an 'other' category for uncommon titles. Table 21 shows the number of coders who reported to each position/job title and Table 22 shows the breakdown of job titles by state/territory.

While 40% of coders overall report to an HIM in their hospital, only 19% of coders in South Australia report to an HIM, with 24% reporting to coding managers and 17% reporting to finance managers.

Table 21: Position/job titles of people to whom coders report

Title	n	%
HIM	380	40.0
Director/manager	194	20.4
Coding manager/co-ordinator	175	18.4
CEO	52	5.5
Finance/business manager	49	5.2
DON	42	4.4
Patient services manager	33	3.5
Other	26	2.7
(respondents=951 missing=80)		

Table 22: Position/job titles of people to whom coders report by state/territory

Title	NSW	NT	QLD	SA	TAS	VIC	WA
HIM	79	1	43	15	4	109	23
Director/manager	54	0	27	13	5	36	1
Coding manager/co-ordinator	55	0	13	19	0	25	15
CEO	14	0	3	1	2	19	0
Finance/business manager	8	1	6	14	0	6	0
DON	9	0	4	4	1	3	3
Patient services manager	4	1	5	7	0	2	6
Other	5	0	0	6	0	0	4
<i>Total</i>	<i>228</i>	<i>3</i>	<i>101</i>	<i>79</i>	<i>12</i>	<i>200</i>	<i>52</i>
(respondents=675 missing=356)							

5.2 Coding workforce

5.2.1 Single and multi-site coders

Of the 1,031 responses that were received from coders, 728 responded that they coded in a single facility, while 291 responses were from multi-site coders. A total of 891 individual coders responded to the survey, with 163 coders stating that they coded in multiple sites. Eighty-one of these coders completed the survey for only one of the sites where they coded, while the remaining 82 coders completed the survey for more than one of their sites of employment. Table 23 shows the number of facilities at which multi-site coders work, and Table 24 shows the number of individual multi-site coders employed in each state (Note: While 163 multi-site coders participated in the survey, the number of coders in Table 28 equals 164, as one coder stated that they worked in both Queensland and New South Wales).

Table 23: Multi-site coders by number of facilities

Number of sites	n	%
2	56	68.29
3	12	14.63
4	10	12.20
5	3	3.66
7	1	1.22

Table 24: Individual multi-site coders by state

State	n	%
NSW	33	24.81
NT	0	0.00
QLD	27	20.30
SA	17	12.78
TAS	2	1.50
VIC	40	30.08
WA	14	10.53
(respondents=164 missing=31)		

5.2.2 Employment status

Coders indicated whether they were employed full time as a clinical coder at the facility, part-time with fixed working hours, casual, or whether they had other work to do besides coding and were therefore not employed full time as coders. Table 25 shows the number of coders within each employment status category and Figure 09 shows the breakdown of employment status by state/territory. While half of Queensland and Western Australian coders worked full-time as clinical coders, only one quarter of Victorian coders worked as full-time coders, with most of these Victorian coders located in metropolitan areas.

Table 25: Employment status of coders

Employment status	n	%
Full-time	344	33.7
Part-time (fixed working hours)	293	28.7
Casual (variable hours)	89	8.7
Other work besides coding	295	28.9
(respondents=1,021 missing=10)		

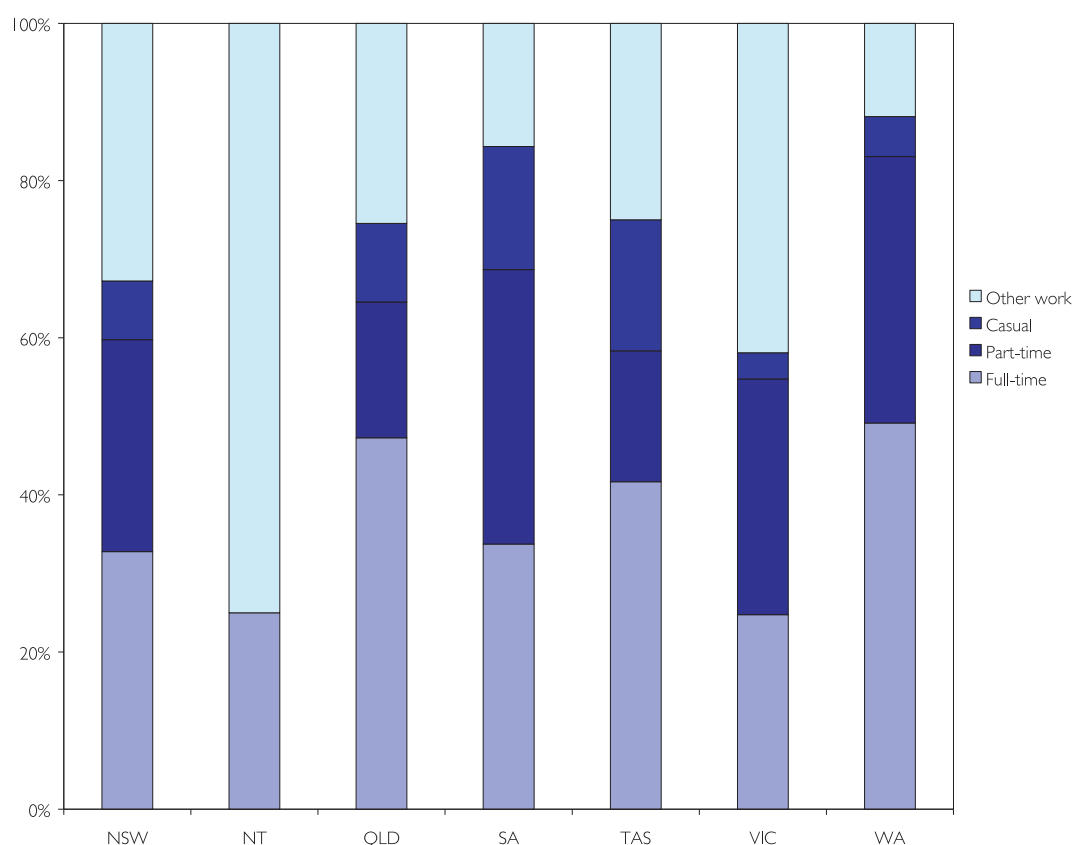


Figure 09: Employment status of coders by state/territory

Coders were then asked to state the number of hours they worked per week at each facility if they were not full-time. Figure 10 shows the percentage of non-full-time coders within hourly ranges, and Table 26 shows the number of hours per week by the employment status of the coder. Nearly 90% of casual employees worked less than 16 hours per week, while three quarters of part-time employees worked less than 24 hours per week.

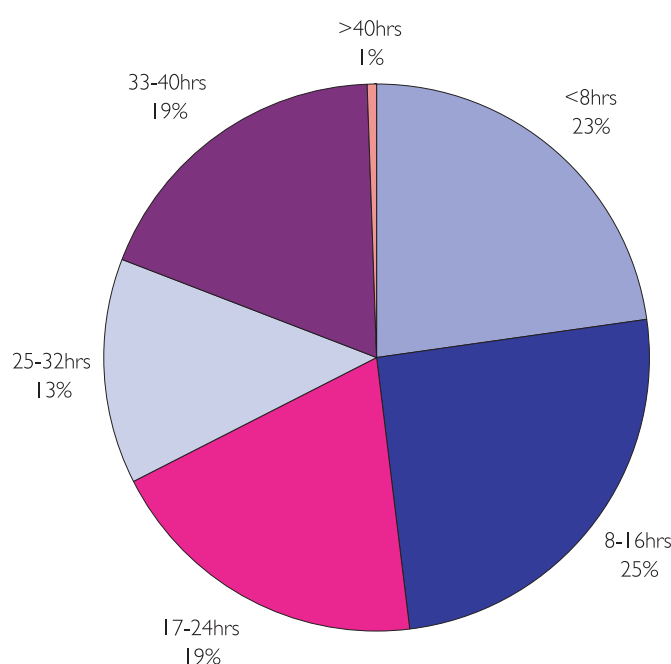


Figure 10: Hours per week for non full-time coders

Table 26: Hours per week for non full-time coders by employment status

Hours	Part-time	Casual	Other work
<8hrs	47	48	35
8-16hrs	77	22	45
17-24hrs	78	4	30
25-32hrs	46	4	27
33-40hrs	18	1	89
>40hrs	1	0	2
<i>Total</i>	267	79	228
(respondents=574 missing=103)			

5.2.3 Tasks coders perform in addition to coding

Coders specified any other tasks they performed besides abstracting information from records and allocating codes. Fourteen tick box categories were provided for other tasks that coders might perform. Table 27 lists the number of coders who stated that they performed each of the additional tasks. Table 28 shows the percentage of coders with each position title that performed additional tasks. Further analysis was conducted to identify how many coders perform duties beyond what was defined by the survey development team as the role of the coder ([see Glossary](#)). These activities included: general medical record/health information service functions, ward clerk, receptions/ admissions, nursing, accounts, software testing and upgrading, liaison with IT personnel, analysing Patient Administration System data,

casemix activities, working with SNOMED, and organising/ conducting continuing education. Figure 11 details the results of this analysis by the position titles of HIM, clinical coder, and a combined 'other' positions category. Coders also specified any other additional tasks they performed in addition to the tick box categories, and these 'other' tasks are listed in Table 29.

The most common task overall that coders performed besides abstracting information from records and allocating codes, was quality assessment (QA), with two-thirds of coders performing QA. Some differences were evident in the tasks performed by coders who held different positions. The major task HIMs performed besides abstracting information from records and allocating codes was related to quality assurance with 81% of HIMs performing this task; for clinical coders the most common task was data entry (70%); for administration officers and ward clerks the most common task was general medical record functions (77% and 88% respectively); for managers it was liaison with IT personnel (80%), and for nurses it was nursing (100%).

Inspection of the tasks coders performed that are considered beyond the defined role of a coder revealed interesting results. Two-thirds of clinical coders, nearly 90% of HIMs and 95% of other coders performed duties beyond the defined role of a coder. Over 17% of coders overall stated that they performed five or more other duties beyond the role of coding.

Table 27: Tasks coders perform in addition to coding

Task	n	%
Quality activities	681	66.05
Data entry (entering coded data into morbidity database)	675	65.47
General medical record/HIM functions	551	53.44
Indexing (manual or computerised)	417	40.45
Liaison with IT personnel	406	39.38
Casemix activities	365	35.40
Analysing patient administration system/PMI data	234	22.70
Organizing/conducting continuing education	234	22.70
Software testing and upgrading	221	21.44
Reception or admissions	99	9.60
Accounts	64	6.21
Nursing	44	4.27
Ward clerk	28	2.72
SNOMED	2	0.19
(respondents=1031 missing=0)		

Table 28: Percentage of coders within each position title who perform additional tasks

Task	Admin n=40	HIM n=309	Coder n=559	Manager n=40	Nurse n=16	Clerk n=34
Quality activities	47.5	81.2	59.9	77.1	43.8	58.8
Data entry	65.0	60.2	70.5	62.9	56.3	50.0
General MR/HIM functions	77.5	66.3	43.3	68.6	18.8	88.2
Indexing	30.0	57.9	34.2	14.3	12.5	47.1
Liaison with IT personnel	45.0	52.1	30.8	80.0	37.5	23.5
Casemix activities	5.0	56.6	27.7	42.9	31.3	14.7
Analysing PMI data	20.5	39.5	13.2	40.0	6.3	20.6
Organising/conducting education	7.5	31.7	19.7	34.3	12.5	5.9
Software testing/upgrading	17.5	33.3	14.8	51.4	0	14.7
Reception or admissions	65.0	4.5	5.0	37.1	18.8	32.4
Accounts	47.5	2.3	1.6	42.9	0	29.4
Nursing	5.0	1.3	2.5	5.7	100	5.9
Ward clerk	25.0	1.9	1.3	0	0	14.7
SNOMED	0	0.3	0.2	0	0	0

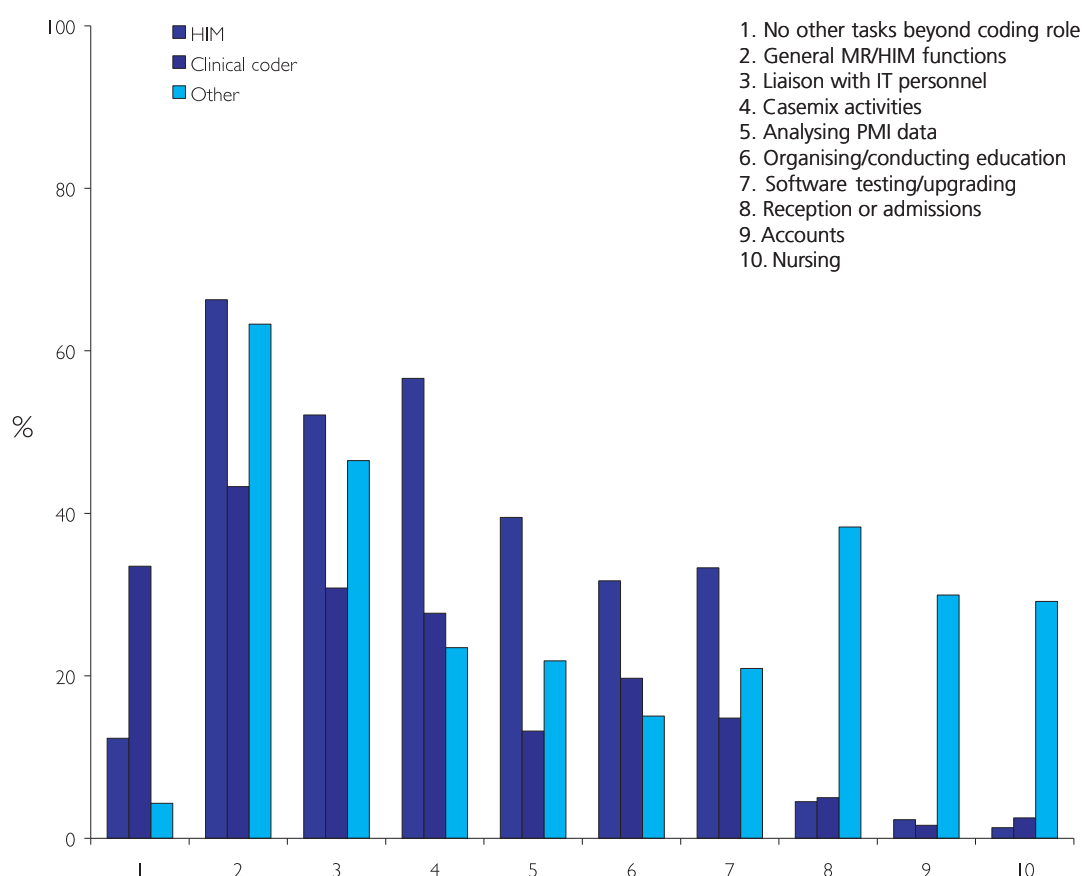


Figure 11: Percentage of coders who performed tasks beyond coding role

Table 29: Other tasks coders performed

Task	n	% of total (n=1,031)
Mandatory reporting activities	86	8.3
Managerial/supervisory duties	77	7.5
Administrative duties	57	5.5
Medico-legal duties/Privacy Officer	42	4.1
Audits	41	4.0
Clinical indicators	12	1.2
Information for health funds	10	1.0
Research	7	0.7
Other	20	2.0
(respondents=352)		

5.3 Salary and industrial conditions

5.3.1 Industrial awards

Coders indicated whether they were employed under an industrial award, and if so, whether this award was a state or federal award. They were then asked to specify the name of the award if known. Table 30 shows the number of coders who indicated that they were not employed under an industrial award, those who were employed under a state award and those under a federal award. Table 31 shows the breakdown of award conditions by state/territory.

The majority of coders were employed under a state award (76%). While between 80% and 90% of coders from most states were employed under a state award, only 60% of coders in Victoria indicated that they were employed under a state award, with 26% of the remainder indicating that they were employed under a federal award.

Table 30: Coders' award conditions

Award	n	%
No award	153	16.2
State award	723	76.4
Federal award	70	7.4
(respondents=946 missing=85)		

Table 31: Coders' award conditions by state/territory

Award	NSW	NT	QLD	SA	TAS	VIC	WA
No award	35	0	22	10	1	27	10
State award	194	2	80	70	8	113	44
Federal award	2	0	0	0	0	49	2
Total	231	2	102	80	9	189	56
(respondents=669 missing=362)							

Coders reported the name of the industrial award that they were employed under. Eight different awards were identified from the coders' responses. Table 32 shows the number of coders employed under each industrial award; Table 33 shows the breakdown of awards by state/territory.

Table 32: Coders' award types

Award type	n	%
Health Services Union award	174	42.5
Administration officer (level unspecified)	103	25.2
Medical record administrator/ librarian award	44	10.8
Administration officer level 3	23	5.6
State award (not otherwise specified)	19	4.6
Administration officer level 4	17	4.2
Private hospital award (not otherwise specified)	16	3.9
Nurses award	13	3.2
(respondents=409 missing=384)		

Table 33: Coders' award types by state/territory

Award type	NSW	NT	QLD	SA	TAS	VIC	WA
Health Services Union award	2	0	8	1	2	82	31
Administration officer (unspec)	31	0	18	21	2	2	0
MRA/ librarian award	35	0	0	0	0	3	0
Administration officer level 3	7	0	4	7	0	0	0
State award (NOS*)	1	0	5	0	0	0	1
Administration officer level 4	14	0	0	1	0	0	0
Private hospital award (NOS*)	12	0	1	0	0	0	0
Nurses award	2	0	5	0	0	0	2
<i>Total</i>	<i>104</i>	<i>0</i>	<i>41</i>	<i>30</i>	<i>4</i>	<i>87</i>	<i>34</i>
(respondents=300 missing=493) *NOS = not otherwise specified							

5.3.2 Contract coders

One hundred and fifty coders (14.5%) indicated that they were employed under a contractual arrangement. The two major categories of contractual arrangements were self-employed coders (22.7%) and coders employed by an external company contracted to the hospital or day care facility (29.3%). Table 34 shows the types of contracts under which coders are employed, and Table 35 shows the breakdown of contract types by state/territory.

Table 34: Coders' contract types

Contract	n	%
Employed by company	44	29.3
Self-employed	34	22.7
Workplace agreement	32	21.3
Salaried employee	25	16.7
Employed by hospital	8	5.3
Private hospital award	7	4.7
(respondents=150 missing=3)		

Table 35: Coders' contract types by state/territory

Contract	NSW	NT	QLD	SA	TAS	VIC	WA
Self-employed	8	0	3	1	1	8	1
Employed by company	5	0	7	4	0	9	4
Employed by hospital	1	0	2	0	0	3	0
Workplace agreement	13	0	4	1	0	5	5
Salaried employee	5	0	5	2	0	3	0
Private hospital award	0	0	2	1	0	1	0
<i>Total</i>	32	0	23	9	1	29	10
(respondents=104 missing=49)							

5.3.3 Salary

Coders reported their annual salary within designated ranges. Figure 12 shows the percentage of coders within each salary range and Table 36 shows the breakdown of salary ranges by state/territory. Table 37 shows the average and mode salary ranges by position titles. Figure 13 shows full-time coders' salary range by state/territory. Figure 14 focuses on full-time HIMs' salary ranges by years of experience while Figure 15 depicts full-time clinical coders' salary ranges by years of experience. Figure 16 shows salary range by educational background for those coders who come from only one of the three major educational backgrounds exclusively. Figure 17 provides a comparison of maximum salary of coders who perform other duties to those who don't perform other duties in a cumulative percentage bar graph.

The average salary of FTE coders overall was in the range \$35,000–\$39,999 with the minimum salary being less than \$20,000 per annum and the maximum salary being in excess of \$65,000 per annum. Of the 990 coders who answered this question, 26.9% were paid between \$35,000–\$39,999 followed by 15.9% who reported salaries in the range \$30,000–\$34,999 and 15.1% who stated that they were paid \$40,000–\$45,999. The average salary range was consistent Australia-wide, except for Victoria, where coders' average gross salary was in the range \$40,000–\$44,999. Furthermore, the average gross annual salary of coders in public metropolitan facilities in Victoria was between \$45,000–\$49,999, approximately \$10,000 more than the average salary of coders in other states and localities in Australia.

HIMs' salaries increased with years of experience, with HIMs with one to four years' experience earning in the range of \$40,000 compared to HIMs with more than ten years experience who earned around \$50,000. In contrast, clinical coders' salaries were lower and showed less increase over time, with clinical coders with one to four years' experience earning approximately \$35,000, and clinical coders with five to nine years' experience earning similar amounts to clinical coders with greater than ten years experience, approximately \$40,000.

Furthermore, coders who reported that they held HIM/MRA degrees had annual salaries around \$40,000 to \$44,999, compared with coders who had completed HIMAA distance education or HIMAA accelerated education courses who generally earned in the range of \$30,000 to \$34,999. Coders who had completed OTEN coding courses generally earned around \$30,000.

Coders who performed duties other than coding were more likely to earn higher salaries than coders who stated that they did not perform other duties. For example, 95% of coders who did not perform other duties earned less than \$50,000. In comparison, 80% of coders who did perform other duties earned less than \$50,000. Nearly one quarter of coders who reported that their jobs entailed coding alone earned less than \$30,000 compared to fewer than 16% of coders who performed other duties.

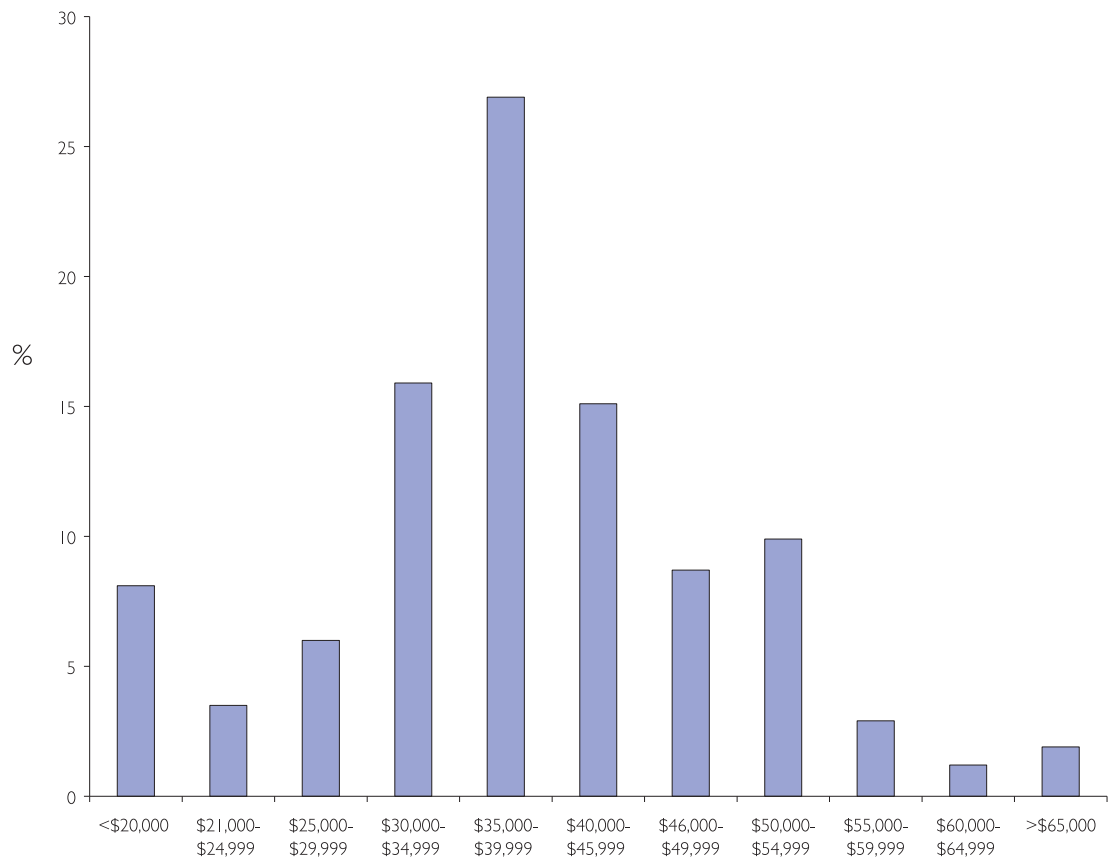


Figure 12: Coders' annual salary range

Table 36: Coders' salary range by state/territory

Salary range	NSW	NT	QLD	SA	TAS	VIC	WA
<\$20,000 per annum	19	0	14	2	1	14	4
\$21,000–\$24,999 per annum	10	0	1	4	0	7	1
\$25,000–\$29,999 per annum	19	0	7	3	1	13	0
\$30,000–\$34,999 per annum	61	1	8	16	1	17	8
\$35,000–\$39,999 per annum	60	0	35	48	5	17	15
\$40,000–\$45,999 per annum	14	1	30	2	3	26	22
\$46,000–\$49,999 per annum	23	2	4	2	0	33	6
\$50,000–\$54,999 per annum	17	0	4	2	1	41	2
\$55,000–\$59,999 per annum	2	0	1	0	0	18	1
\$60,000–\$64,999 per annum	4	0	2	0	0	5	0
>\$65,000 per annum	3	0	2	1	0	8	0
<i>Total</i>	232	4	108	80	12	199	59
(respondents=694 missing=337)							

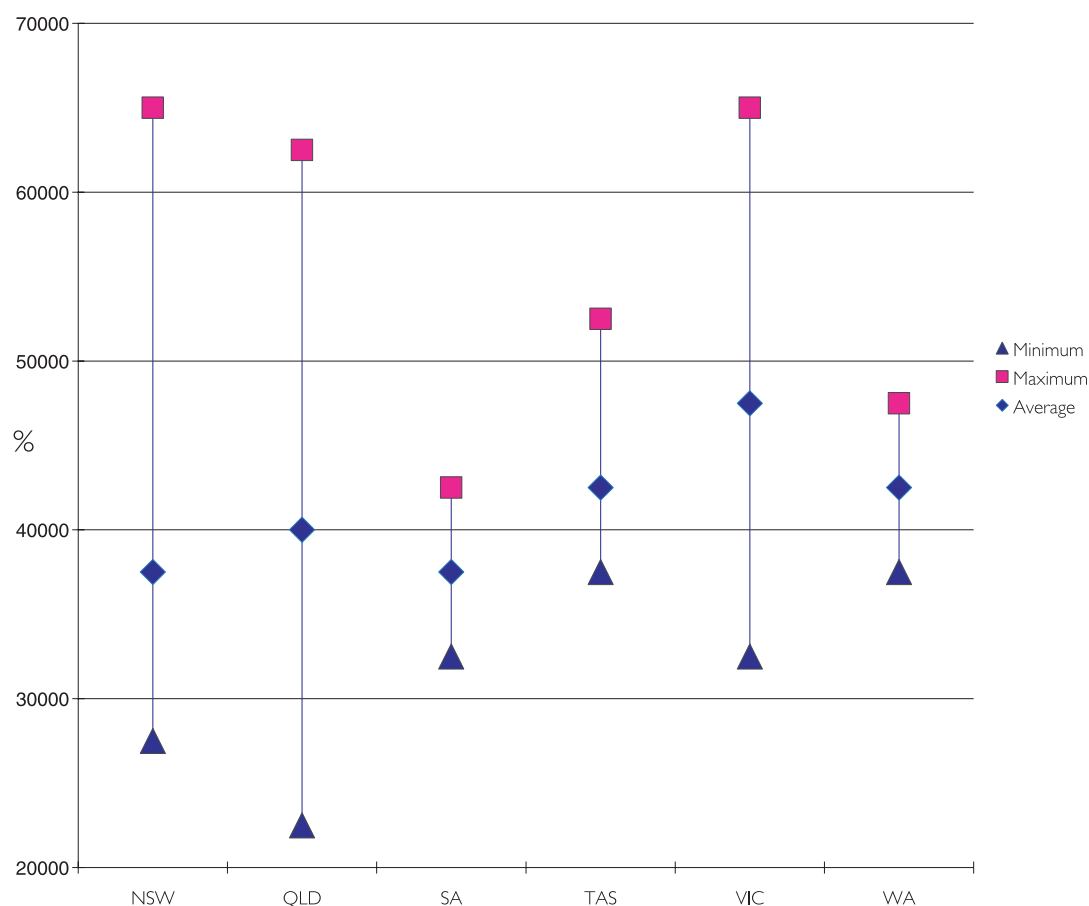


Figure 13: Full-time coders' salary range by state/territory

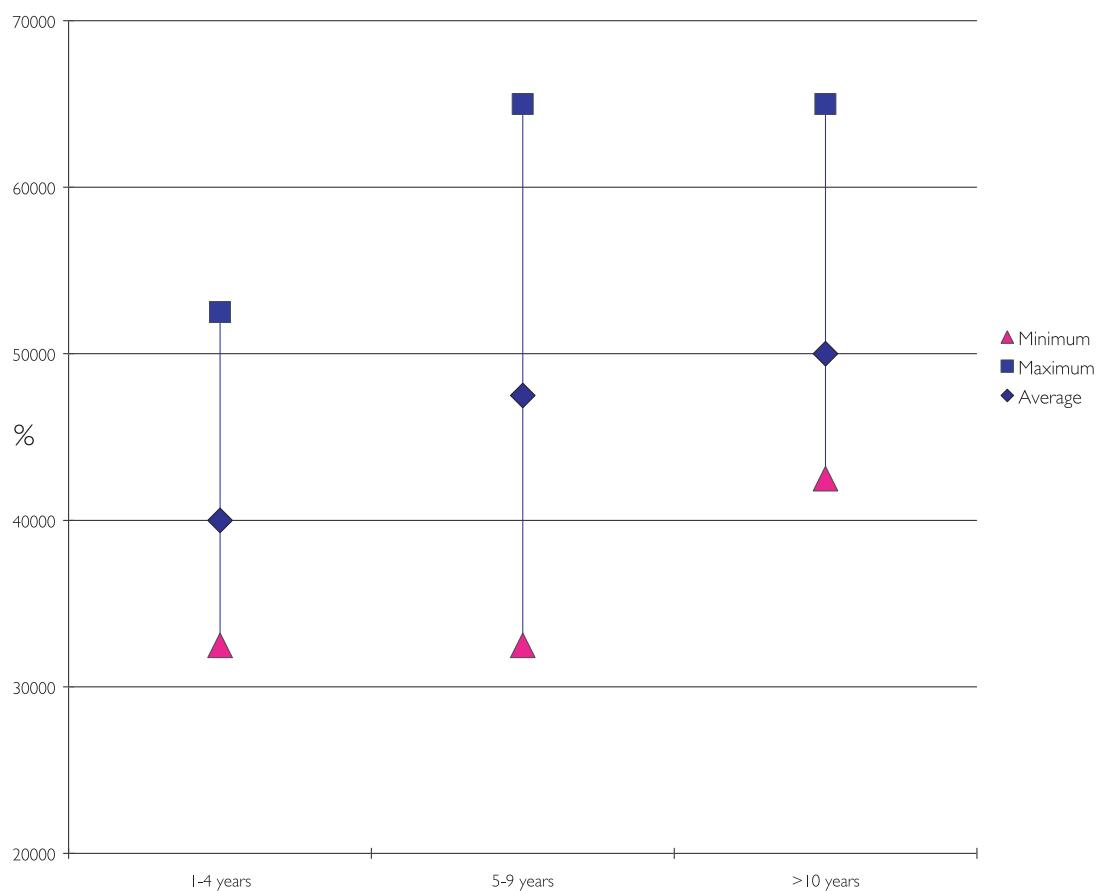


Figure 14: Full-time HIMs' salary range by years of experience

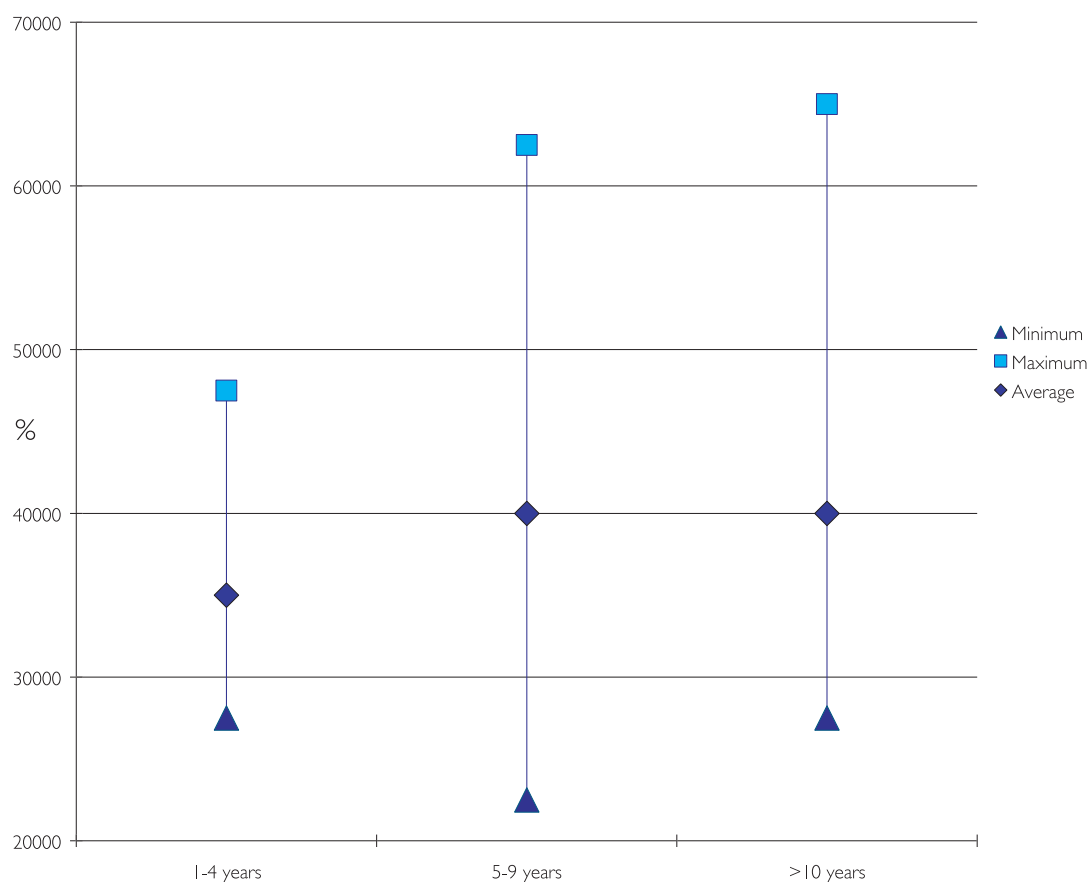


Figure 15: Full-time clinical coders' salary range by years of experience

Table 37: Coders' average and mode salary range by position titles

Position titles	Average salary range	Mode salary range	n	%
Administration officer (n=39 missing=1)	\$30,000–\$34,999	\$30,000–\$34,999	17	43.6
HIM (n=298 missing=11)	\$40,000–\$44,999	\$50,000–\$54,999	66	22.1
Clinical coder (n=542 missing=17)	\$35,000–\$39,999	\$35,000–\$39,999	204	37.6
Manager (n=33 missing=2)	\$45,000–\$49,999	\$45,000–\$49,999	6	18.2
Nurse (n=13 missing=3)	\$35,000–\$39,999	\$50,000–\$54,999	5	38.5
Clerk (n=33 missing=1)	\$30,000–\$34,999	\$30,000–\$34,999	15	45.5

Note: Data for DONs and Nosologists are not reported due to small number.

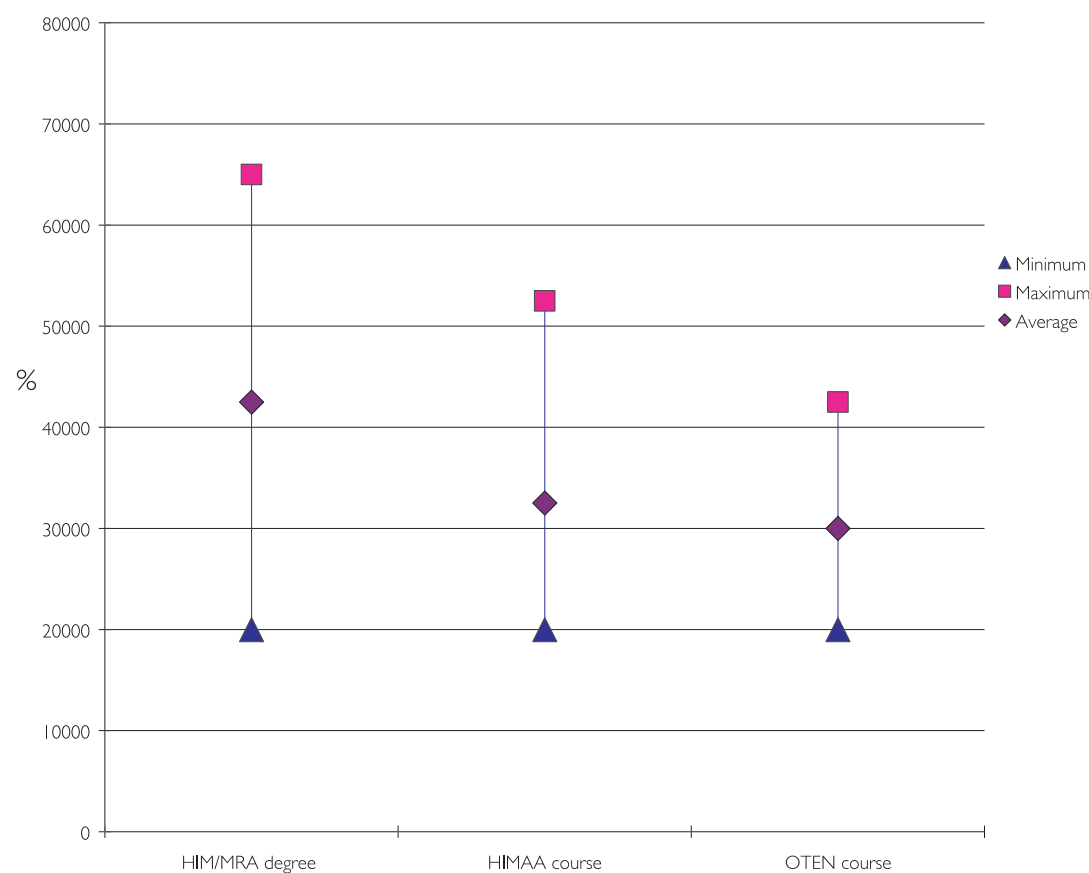


Figure 16: Salary range by educational background

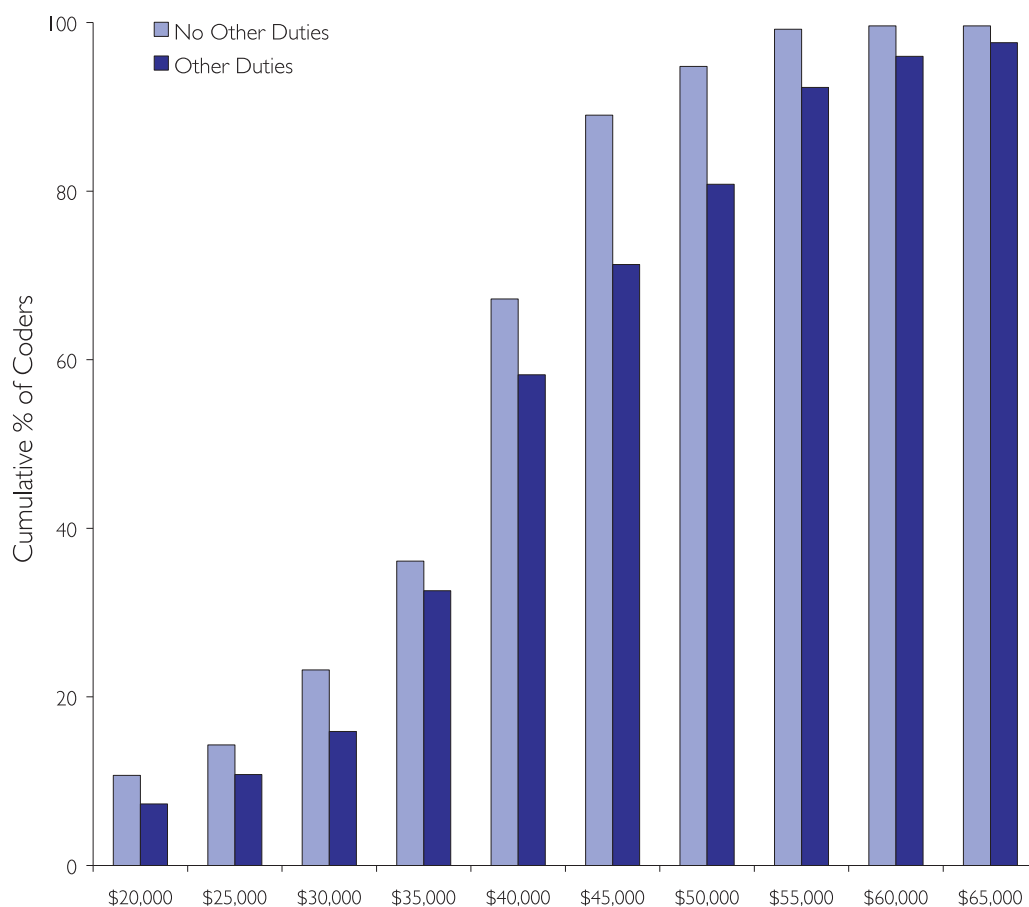


Figure 17: Comparison of maximum salary of coders who perform other duties in addition to coding to those who don't perform other duties

5.4 Coding service: Location and responsibility

5.4.1 Coders' departments

Coders stated the title of the department to which they reported. These department titles were categorised into a total of 8 department titles with an 'other' category for uncommon departments. Table 38 shows the number of coders within each department and Table 39 shows the breakdown of each department by state/territory. Three quarters of coders reported to the health information service or a clinical coding department, with most states showing similar representation in their reporting to these departments. While only 3% of coders in most states reported to the Finance/business departments in their facilities, 11% of coders in South Australia report to this department, with most of the facilities that report to this department located in rural locations.

Table 38: Coders' departments

Department	n	%
Health Information Service or Clinical coding department	715	75.7
Administration	93	9.9
Executive department	41	4.3
Finance/business department	25	2.6
Nursing department	18	1.9
State/district support services	17	1.8
Day surgery/private facility	13	1.4
Corporate services	11	1.2
Other	11	1.2
(respondents=944 missing=87)		

Table 39: Coders' departments by state/territory

Department	NSW	NT	QLD	SA	TAS	VIC	WA
Health Information Service or Clinical coding department	169	2	78	55	9	160	48
Administration	31	0	8	8	2	8	3
Executive department	12	0	1	0	1	16	0
Finance/business department	2	1	4	9	0	2	0
Nursing department	1	0	2	2	0	3	2
State/district support services	1	0	3	0	0	0	2
Day surgery/private facility	4	0	0	1	0	2	0
Corporate services	1	0	1	1	0	0	2
Other	4	0	0	3	0	2	0
<i>Total</i>	<i>225</i>	<i>3</i>	<i>97</i>	<i>79</i>	<i>12</i>	<i>193</i>	<i>57</i>
(respondents=666 missing=365)							

5.4.2 Work location

Respondents reported where they were physically located when they were coding at their facility, and whether this location was satisfactory from their point of view. The majority of coders were located in the Health Information Service/Medical Record Department (n=758, 74.7%), with 386 of these coders located in an open plan office and 372 located in an office specifically for coders. Eight other locations were identifiable from the coders' responses. Table 40 shows the number of coders per work location; Figure 18 shows coders' top five work locations; Table 41 shows the number of coders per work location by state/territory.

Table 40: Coders' work location

Work location	n	%
HIS/MRD–open plan	386	38.0
HIS/MRD–office for coders	372	36.7
Finance/admin office	46	4.5
Own office	44	4.3
Ward-office for coders	40	3.9
Reception area	26	2.6
Shared office with medical staff	26	2.6
Spare desk/office	18	1.8
Conference/training room	15	1.5
Ward-open plan	10	1.0
Other office-unspecified	32	3.2
(respondents=1,015 missing=16)		

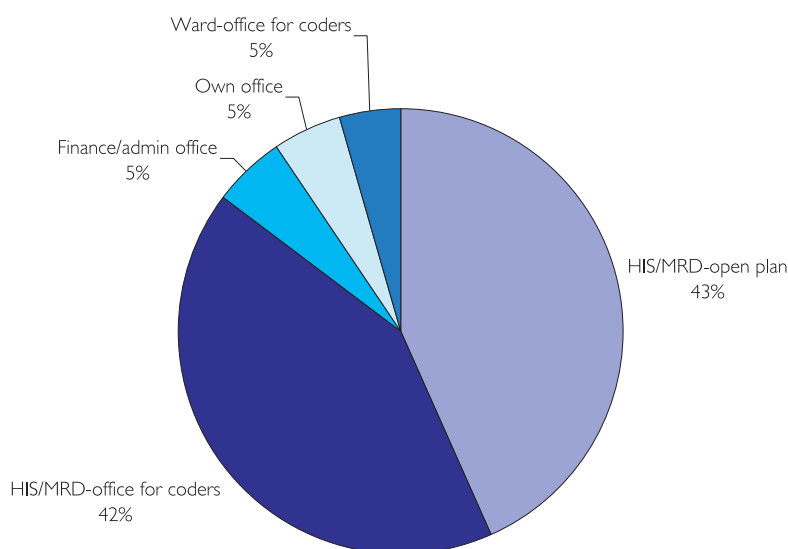


Figure 18: Coders' top five work locations

Table 41: Coders' work location by state/territory

Work location	NSW	NT	QLD	SA	TAS	VIC	WA
HIS/MRD—open plan	120	2	42	13	1	98	17
HIS/MRD—office for coders	71	1	50	31	9	78	36
Finance/admin office	15	0	4	6	1	2	0
Own office	7	0	3	3	1	13	3
Ward-office for coders	1	1	8	9	0	3	2
Reception area	7	0	2	2	0	3	2
Shared office with medical staff	5	0	1	2	0	1	1
Spare desk/office	1	0	0	1	0	1	0
Conference/training room	0	0	0	2	0	3	1
Ward-open plan	1	0	0	3	0	3	0
Other office-unspecified	13	0	0	7	0	5	1
<i>Total</i>	<i>241</i>	<i>4</i>	<i>110</i>	<i>79</i>	<i>12</i>	<i>210</i>	<i>63</i>
(respondents=719 missing=312)							

Seven hundred and thirty two (73.1%) coders responded that their work location was satisfactory, while 270 (26.9%) believed their work location was unsatisfactory. Figure 19 shows the work location of coders and the percentage of coders who stated whether the location was satisfactory or unsatisfactory.

The coders who were most satisfied with their work location coded on the ward in an office specifically for coders (n=37, 97.5% satisfied) or in their own office (n=39, 88.64% satisfied). The coders who were most dissatisfied with their work location coded on the ward in an office shared with medical staff (n=13, 50% satisfied) or in another office that was not specifically identified (n=15, 46.88% satisfied).

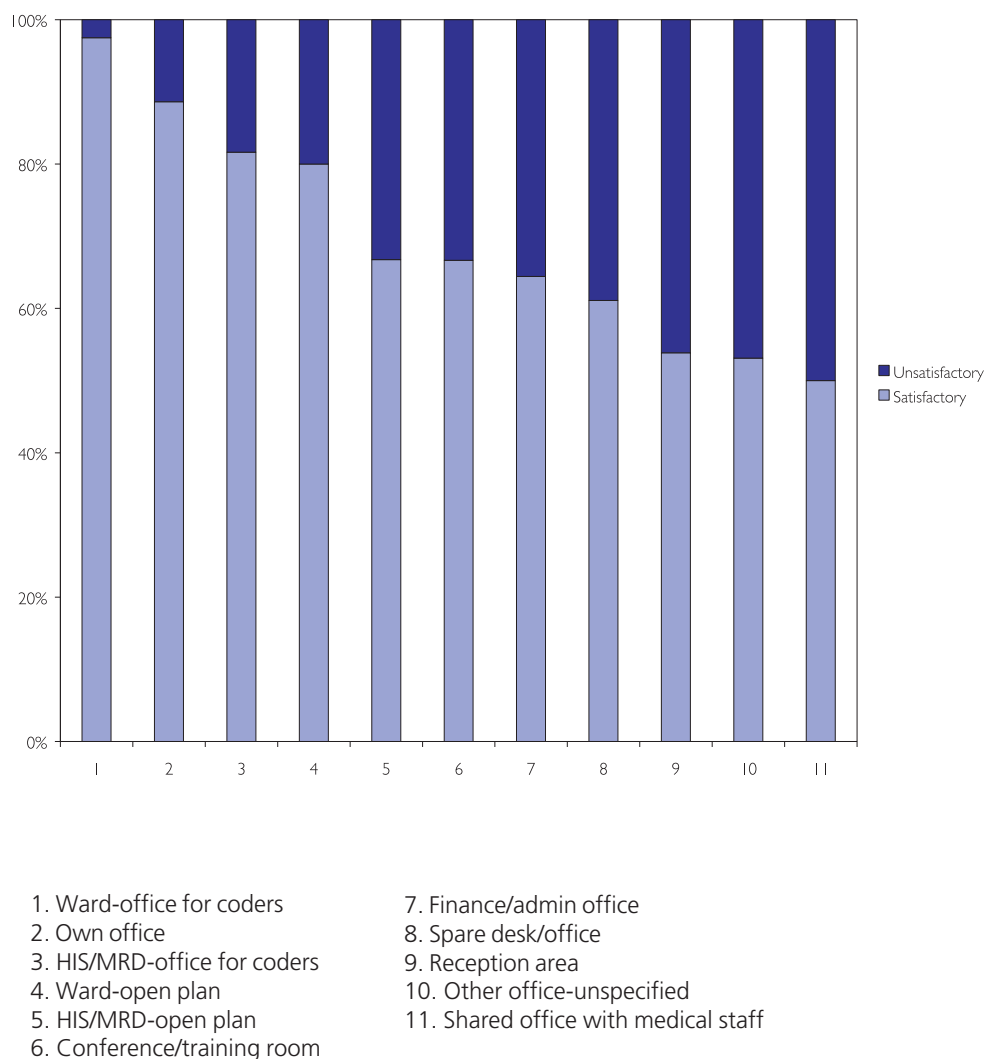


Figure 19: Coders' work location satisfaction

Coders commented on their responses to the question of whether their work location was satisfactory. Of the 270 coders that responded that their work location was unsatisfactory, over 90% of coders (n=251) provided comments, while 26% (n=190) of the 732 coders that were satisfied with their work location provided comments.

The major reasons coders provided for being dissatisfied with their work location were that the area was too small and cramped, too noisy, too crowded, that there were too many distractions and interruptions, that there were no windows or natural light and that there problems with air conditioning. For those coders who were satisfied with their work location, having a quiet spacious area to code, with access to medical staff, were cited as positive aspects.

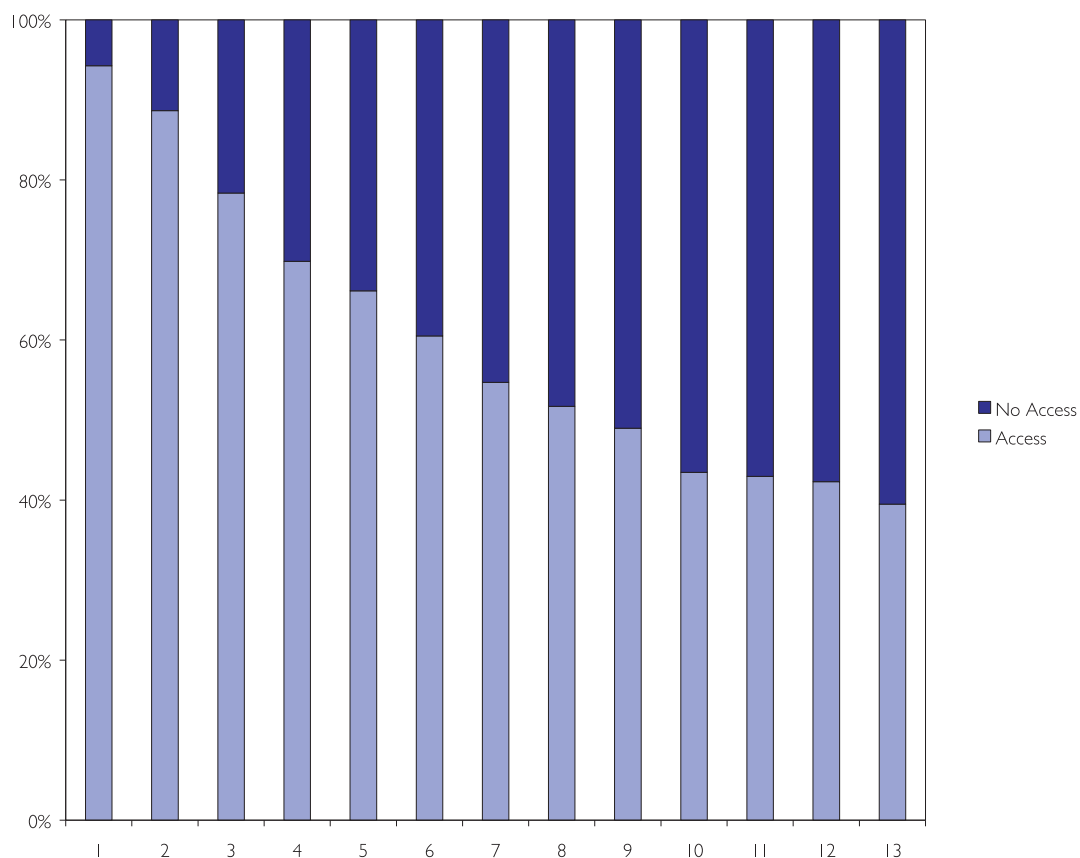
5.5 Access to resources

5.5.1 Resources to help coding activities

Coders identified all of the resources to which they have access in order to help them code. Figure 20 shows the percentage of coders who have access and don't have access to each resource, and Table 42 shows the same breakdown by state/territory.

Most coders had access to a full set of current edition coding books (94%) and to the NCCH publication *Coding Matters* (89%), while less than half of the coders had access to the Code-L list server (40%) or an encoder (42%). There were some differences evident by state in relation to access to resources. For most resources listed, Victorian coders reported the highest percentage access of all states, while coders in New South Wales showed some limitations in terms of access to resources in comparison to other states. Some interesting results were:

- 61% of coders in New South Wales had access to e-mail compared to 84% of coders in other states
- 41% of coders in New South Wales had access to health department coding newsletters compared to nearly 70% of coders in other states.
- 37% of coders in New South Wales had access to the NCCH query database compared to 61% of coders in other states
- 33% of coders in New South Wales had access to the Internet compared to 62% of coders in other states
- 14% of Western Australian coders had access to an encoder compared to approximately half of the coders in other states
- 24% of Western Australian coders had access to the Code-L list server compared to approximately half of the coders in other states.



- | | |
|--|--|
| 1. Full set of current edition coding books | 8. Internet |
| 2. <i>Coding Matters</i> | 9. In house coding guidelines |
| 3. Previous editions of coding books | 10. ICD-10-AM browser |
| 4. E-mail | 11. Local coder networks in coder's area or region |
| 5. Library/medical textbooks/reference books | 12. Encoder |
| 6. Health department coding newsletters | 13. Code-L list server |
| 7. NCCH query database | |

Figure 20: Resources to help coders code

Table 42: Percentage of coders in each state/territory with access to each resource

Resource	NSW n=242	NT n=4	QLD n=110	SA n=84	TAS n=12	VIC n=211	WA n=63
Full set of current edition coding books	95.0	100	90.9	90.5	100	94.8	96.8
<i>Coding Matters</i>	91.3	100	95.5	85.7	100	94.8	92.1
Previous editions of coding books	78.5	100	79.1	78.6	83.3	87.2	81.0
E-mail	61.2	100	82.7	69.0	83.3	82.5	84.1
Library/medical texts/reference books	67.8	100	71.8	59.5	66.7	72.5	68.3
Health department coding newsletters	41.3	0	53.6	63.1	50.0	92.9	85.7
NCCH query database	36.8	25.0	60.0	47.6	75.0	74.9	82.5
Internet	33.1	75.0	55.5	41.7	66.7	78.2	57.1
In house coding guidelines	53.3	25.0	54.5	50.0	50.0	61.6	42.9
ICD-10-AM browser	46.3	100	45.5	40.5	25.0	45.0	38.1
Local coder networks in coder's area	52.9	100	33.6	57.1	75.0	30.3	42.9
Encoder	53.3	0	50.9	40.5	50.0	46.4	14.3
Code-L list server	38.4	50.0	43.6	47.6	66.7	45.0	23.8

5.5.2 Computing resources

Coders reported whether they had access to a computer, the Internet, e-mail and Code-L either on their desktop at work, on a shared computer, in the hospital library or other department, and/or at home. Coders were also asked to specify any other locations where they had access to computing resources. Two other locations were identified: other staff's computers (manager, for example), or at other coding sites. However, as this other access occurred less than 2% of the time, these results will not be elaborated on further. Table 43 shows a summary of the location of coders' computing resources, and Table 44 shows the percentage of coders with access to computing resources in each location by state/territory.

Interestingly, over half of all coders (n=528, 51.2%) had access to a computer and the Internet, e-mail, and Code-L, with less than 5% of coders (n=49) not having access to any of these resources. Nearly 80% of coders (n=805) had access to one or more of these computing/technology resources at work, and 42% of coders (n=433) had access to one or more of these computing/technology resources at home.

In general, metropolitan public facilities had better access to the Code-L list server than metropolitan private facilities (77% access compared to 65%); whereas metropolitan private facilities had better access to the Internet than metropolitan public facilities (92% access compared to 83%).

Table 43: Access and location of computing resources

Computing resource and location	Access	
	n	%
<i>Access to a computer</i>	878	85.16
On desktop at work	604	58.58
On shared computer	136	13.19
In hospital library/other department	49	4.75
At home	348	33.75
<i>Access to the Internet</i>	861	83.51
On desktop at work	563	54.61
On shared computer	119	11.54
In hospital library/other department	57	5.53
At home	378	36.66
<i>Access to e-mail</i>	946	91.76*
On desktop at work	732	71.00
On shared computer	110	10.67
In hospital library/other department	29	2.81
At home	360	34.92
<i>Access to Code-L</i>	638	61.88
On desktop at work	445	43.16
On shared computer	77	7.47
In hospital library/other department	12	1.16
At home	77	7.47
(respondents=1,031 missing=0)		

* While approximately 85% of coders stated that they had access to a computer, a larger percentage of coders stated that they had access to e-mail. This discrepancy may be explained by the fact that some coders have access to a group e-mail address in their department, but may not have their own computer from which to send and receive individual e-mails.

Table 44: Percentage of coders by state/territory with access to computing resources in each location

Computing resource and location	NSW n=242	NT n=4	QLD n=110	SA n=84	TAS n=12	VIC n=211	WA n=63
<i>Access to a computer</i>	84.3	100	90.0	90.5	83.3	86.7	76.2
On desktop at work	62.4	100	71.8	47.6	66.7	59.2	50.8
On shared computer	16.1	0	7.3	20.2	16.7	13.7	3.2
In hospital library/other department	3.7	0	5.5	8.3	8.3	3.3	4.8
At home	27.3	75	40.9	41.7	50.0	36.5	34.9
<i>Access to the Internet</i>	69.4	100	93.6	86.9	100	97.6	87.3
On desktop at work	38.0	50.0	70.9	28.6	83.3	77.7	68.3
On shared computer	13.2	0	8.2	27.4	16.7	11.8	1.6
In hospital library/other department	3.3	0	7.3	10.7	0	4.7	3.2
At home	32.6	75	45.5	48.8	58.3	36.0	34.9
<i>Access to e-mail</i>	86.8	100	97.3	91.7	100	97.6	95.2
On desktop at work	64.9	100	87.3	46.4	83.3	80.6	85.7
On shared computer	12.0	0	4.5	27.4	16.7	10.4	1.6
In hospital library/other department	2.9	0	2.7	2.4	0	3.3	1.6
At home	32.6	25	43.6	42.9	50.0	33.2	34.9
<i>Access to Code-L</i>	61.2	75	65.5	75.0	66.7	67.8	58.7
On desktop at work	39.3	50	54.5	28.6	58.3	53.6	49.2
On shared computer	9.5	0	2.7	29.8	0	4.3	1.6
In hospital library/other department	1.2	0	1.8	2.4	0	0.5	0
At home	7.4	25	9.1	4.8	8.3	8.1	0
(respondents=1,031 missing=0)							

5.5.3 Use of classifications other than ICD-10-AM

Coders signified whether they used classifications other than ICD-10-AM. Less than 5% of coders (n=49) responded positively to this question. The classifications other than ICD-10-AM used were:

- International Classification of Diseases, Clinical Modification, Ninth Edition (ICD-9-CM) (n=27)
- The Abbreviated Injury Scale (AIS) (n=8)
- Australian National Sub-Acute and Non-Acute Patient Classification System (AN-SNAP) (n=5)
- The Diagnostic and Statistical Manual of Mental Disorders (DSM) (n=3)
- Medicare Benefits Schedule (MBS) (n=2)
- International Classification of Primary Care (ICPC) (n=1)

5.6 Coding quality

5.6.1 Access to clinical staff

Coders specified whether they had any contact with clinical staff to discuss coding issues, and if they did, identified how this occurred from four options: regular clinician/coder meetings, designated clinical contacts for queries, attendance at ward rounds, coding done at ward level. Table 45 shows the numbers of coders reporting access to clinical staff; Table 46 shows the percentage of coders with access to clinical staff by state/territory. Three quarters of coders had access to clinical staff, with similar levels of access evident across states.

Table 45: Access to clinical staff

Access	Yes	
	n	%
Access to clinical staff	771	74.8
Regular clinician/coder meetings	137	13.3
Designated clinical contacts for queries	148	14.4
Attendance at ward rounds	30	2.9
Coding done at ward level	73	7.1
(respondents=1,031 missing=0)		

Table 46: Percentage of coders by state/territory with access to clinical staff

Access	NSW n=242	NT n=4	QLD n=110	SA n=84	TAS n=12	VIC n=211	WA n=63
Access to clinical staff	73.1	75.0	80.9	76.2	75	79.2	80.9
Regular clinician/coder meetings	15.3	0	10.0	16.7	16.6	20.4	6.35
Designated clinical contacts for queries	10.7	0	21.8	14.3	0	22.3	4.76
Attendance at ward rounds	2.07	0	2.73	2.38	8.33	3.32	3.17
Coding done at ward level	3.31	0	11.8	9.52	8.33	8.53	1.59
(respondents=1,031 missing=0)							

While the majority of coders (74.8%) stated that they had access to clinical staff to discuss coding issues, 457 (59.3%) of coders who stated that they had access to clinical staff did not identify any of the four options for how this clinical contact occurred. Four hundred and eighty two coders (62.5%) identified other ways in which contact with clinical staff occurred, and these responses were categorised into four types of contact: adhoc meetings with clinical staff, via phone/fax/e-mail, via a standardised coding query form, and via coder discussions. Table 47 shows the number of coders who contacted clinical staff via these other methods.

Table 47: Other ways coders contact clinical staff

Work location	n	% of total (n=1,031)
Adhoc meetings with clinical staff	252	24.4
Phone/fax/e-mail	123	11.9
Via query form	77	7.5
Coder discussions	30	2.9
(respondents=482)		

5.6.2 Coding throughput

Coders identified whether they were required to meet a coding throughput target and if so, specified the number of records they were required to code per day or per week. These were subsequently combined into a single variable indicating daily coding throughput. Figure 21 shows the percentage of coders who are required to meet a coding throughput by state/territory.

Forty-four percent of coders indicated that they were required to meet a coding throughput target. Of these, 333 reported the actual targets. The average daily throughput requirement was specified as 28 records per standard working day (3–4 records per hour). However, the coding throughput mode (most frequently reported) was slightly higher at 30–39 records per day (4–5 records per hour). The coding throughput requirements for freestanding day-care facilities and for hospitals were as follows:

- Free-standing day-care facilities:
 - Average 28 records per day
 - Minimum 3 records per day
 - Maximum 100 records per day (this was an outlier, and the second highest coding throughput was 42 records per day)
- Hospitals:
 - Average 36 records per day
 - Minimum 6 records per day
 - Maximum 80 records per day (11 hospitals stated that their coding throughput requirements were greater than 60 records per day).

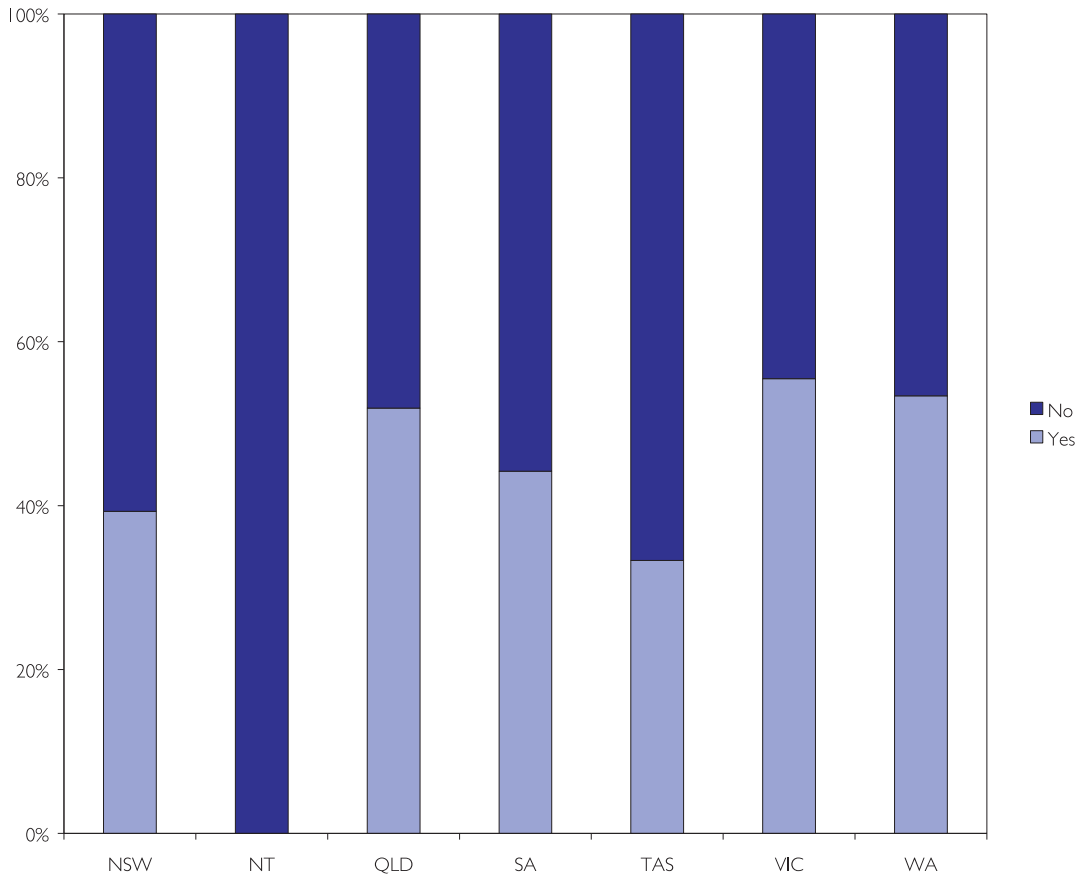


Figure 21: Coding throughput requirement by state/territory

Coding throughputs were categorised into 6 groups: 1–19 records per day, 20–29 records per day, 30–39 records per day, 40–49 records per day, 50–59 records per day, and more than 60 records per day. Table 48 shows the number of coders within each coding throughput category; Table 49 shows the number of coders within each coding throughput category by state/territory.

Table 48: Number of coders within each coding throughput category

Records per day	n	%
1–19 records	28	8.4
20–29 records	45	13.5
30–39 records	101	30.3
40–49 records	87	26.1
50–59 records	48	14.4
60+ records	24	7.2
(respondents=333 missing=124)		

Table 49: Number of coders within each coding throughput category by state/territory

Records per day	NSW	NT	QLD	SA	TAS	VIC	WA
1–19 records	6	0	3	4	0	12	0
20–29 records	1	0	3	11	0	22	2
30–39 records	23	0	9	7	1	16	11
40–49 records	29	0	20	1	0	9	11
50–59 records	14	0	10	2	0	5	0
60+ records	4	0	3	0	0	4	1
<i>Total</i>	77	0	48	25	1	68	25
(respondents=244 missing=213)							

5.6.3 Factors affecting quality

Coders considered a list of factors that may have an impact on the accuracy, completeness, and timeliness of coding, and indicated the severity of each factor on a scale from no impact to an enormous impact (4 point scale). For ease of interpretation, the categories of 'no impact' and 'slight impact' were combined into a 'no impact' category, and the categories of 'moderate impact' and 'enormous impact' were combined into an 'impact' category. Table 50 lists the responses of coders for each factor in order of impact.

Table 51 lists the responses of coders for each factor by public/private status of their facility (in order of impact for public facilities). Figure 22 depicts public facility coders' top five factors reported to affect coding quality, and displays the factors showing differences between public facility coders and private facility coders. Table 52 lists the responses of coders for each factor by metropolitan/rural/remote status of their facility (in order of impact for metropolitan facilities). Figure 23 shows top five factors reported by metropolitan coders as affecting coding quality and the factors that differed between metropolitan, rural and remote coders. Table 53 shows coders' views of factors affecting coding quality by position title. Figure 24 illustrates both the top five factors for HIMs and the factors that differed between HIMs and clinical coders. As each factor was a separate item in the survey, there are differences in the number of respondents and corresponding missing values. Therefore, the minimum number of respondents and maximum number of missing values are reported below each table.

The factor considered most likely to affect coding quality according to coders was incomplete medical record content, with 77% of coders stating that this factor had an impact. This was closely followed by principal diagnosis not being identified (74%), complications/co-morbidities not being identified (71%), illegible medical record entries (69%), and pressure to maintain coding throughput (45%).

Coders from public and private facilities differed in their views of factors affecting coding quality. Major differences were evident between these two groups in regards to the lack of availability of medical records, with 43% of coders in public hospitals stating that this factor had an impact on coding quality compared to 26% of coders from private facilities. Submission deadlines were also viewed as having an impact on coding quality in more public facilities than private facilities (49% impact compared to 35%). Similarly, not having enough coders employed in the facility impacted more significantly on coding quality in public facilities (32% impact) than private facilities (18% impact).

Some differences were evident in the importance of factors by locality, with 44% of coders in metropolitan facilities indicating that medical records being unavailable at the time of coding had an impact on coding quality, compared to 22% of coders from rural facilities and 26% of coders from remote facilities. In contrast, the necessity for coders to perform multiple tasks in addition to coding was viewed as impacting on coding quality by 47% of coders in rural facilities and 42% of coders in remote facilities compared to 35% of coders in metropolitan facilities. Furthermore, a lack of continuing education to update skills was viewed as impacting on coding quality by half of the coders in remote facilities and 39% of coders from rural facilities, compared to 28% of coders from metropolitan facilities.

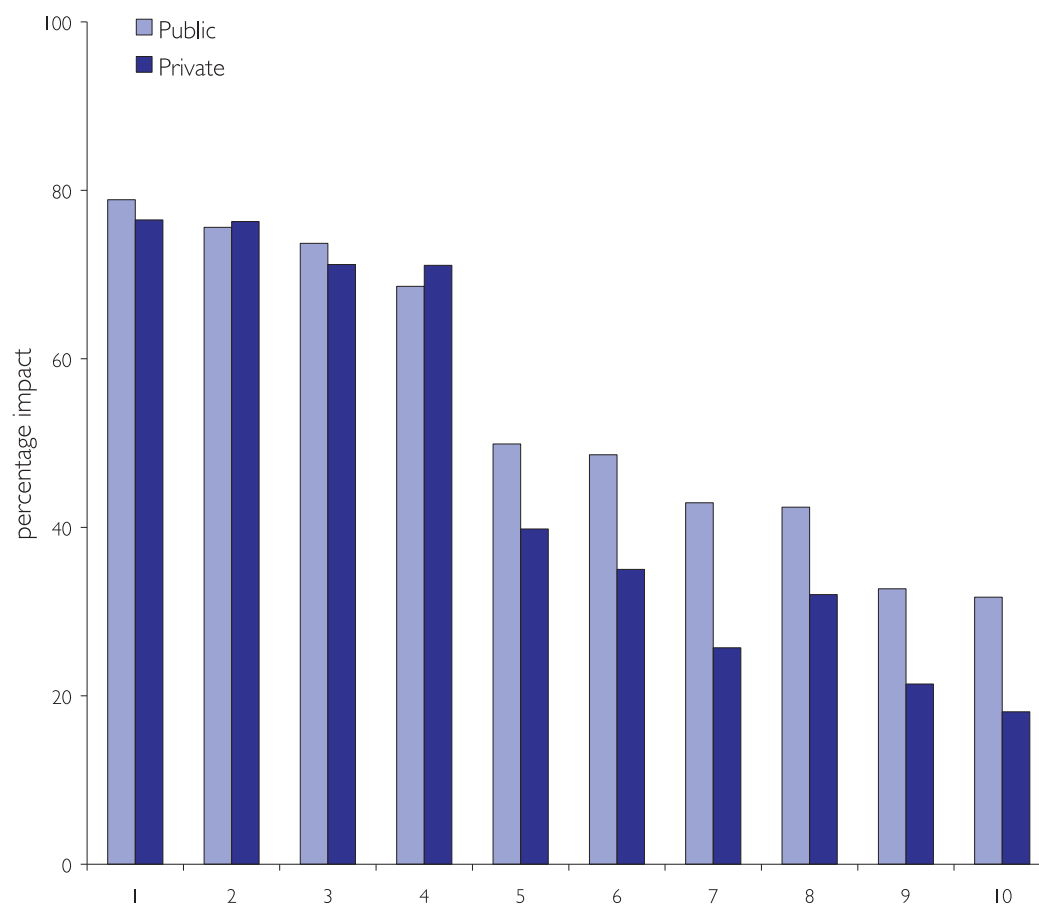
Differences were evident in the impact of some factors by position title of the respondent, with more HIMs (54%) than clinical coders (43%) indicating that the pressure to maintain coding throughput had an impact on coding quality. HIMs were also more likely to state that performing a number of tasks in addition to coding impacted on coding quality, with 44% of HIMs indicating this factor had an impact compared to just 30% of clinical coders. Further analysis comparing HIMs who stated that they perform other duties to clinical coders who stated that they performed other duties, showed that while half of the HIMs who performed other duties stated that the multiple tasks affected coding quality, just over one-third of clinical coders who performed other duties stated that these tasks affected quality.

Table 50: Coders' views of factors affecting coding quality

Factor	Impact	
	n	%
Incomplete medical record content	780	77.0
Principal diagnosis not identified	740	73.7
Complications/co-morbidities not identified	710	71.1
Illegible medical record entries	692	69.3
Pressure to maintain coding throughput	437	44.5
Submission deadlines	409	42.6
Medical records unavailable	365	37.0
Having to perform a number of tasks in addition to coding	362	36.8
Lack of contact with clinical staff	341	34.6
Lack of continuing education to update skills	307	31.8
Work environment is too distracting	280	28.2
Not enough coders employed in facility	247	25.6
Lack of coding training available	241	24.9
Lack of management support	215	22.5
Limitations of ICD-10-AM as coding system	198	21.2
My inexperience as a coder	195	20.2
No other coders close enough to discuss problems with	167	17.2
Lack of linkages between computers for admin use	132	14.3
Lack of access to electronic resources	120	13.3
Lack of access to print resources	116	11.9
Difficulties with data entry of codes	113	11.9
Difficulty obtaining current coding books	76	8.0
(n=>899 missing values <=132 for any one factor)		

Table 51: Coders' views of factors affecting coding quality by public/private status

Factor	Public impact		Private impact	
	n	%	n	%
Incomplete medical record content	366	78.9	195	76.5
Principal diagnosis not identified	351	75.6	190	76.3
Complications/co-morbidities not identified	339	73.7	178	71.2
Illegible medical record entries	314	68.6	177	71.1
Pressure to maintain coding throughput	224	49.9	99	39.8
Submission deadlines	216	48.6	84	35.0
Medical records unavailable	193	42.9	63	25.7
Having to perform a number of tasks in addition to coding	193	42.4	79	32.0
Lack of contact with clinical staff	161	35.7	86	34.7
Lack of continuing education to update skills	154	34.9	66	26.7
Work environment is too distracting	148	32.7	54	21.4
Not enough coders employed in facility	140	31.7	45	18.1
Lack of coding training available	124	28.1	49	19.8
Limitations of ICD-10-AM as coding system	105	25.0	45	19.1
My inexperience as a coder	97	22.0	45	18.6
Lack of management support	96	21.9	50	20.8
No other coders close enough to discuss problems with	83	18.7	33	13.3
Lack of access to print resources	61	13.6	23	9.3
Lack of access to electronic resources	59	14.0	25	11.3
Lack of linkages between computers for admin use	54	12.6	27	11.7
Difficulties with data entry of codes	47	10.8	28	11.5
Difficulty obtaining current coding books	42	9.7	14	5.8
(n=>641 missing values <=390 for any one factor)				

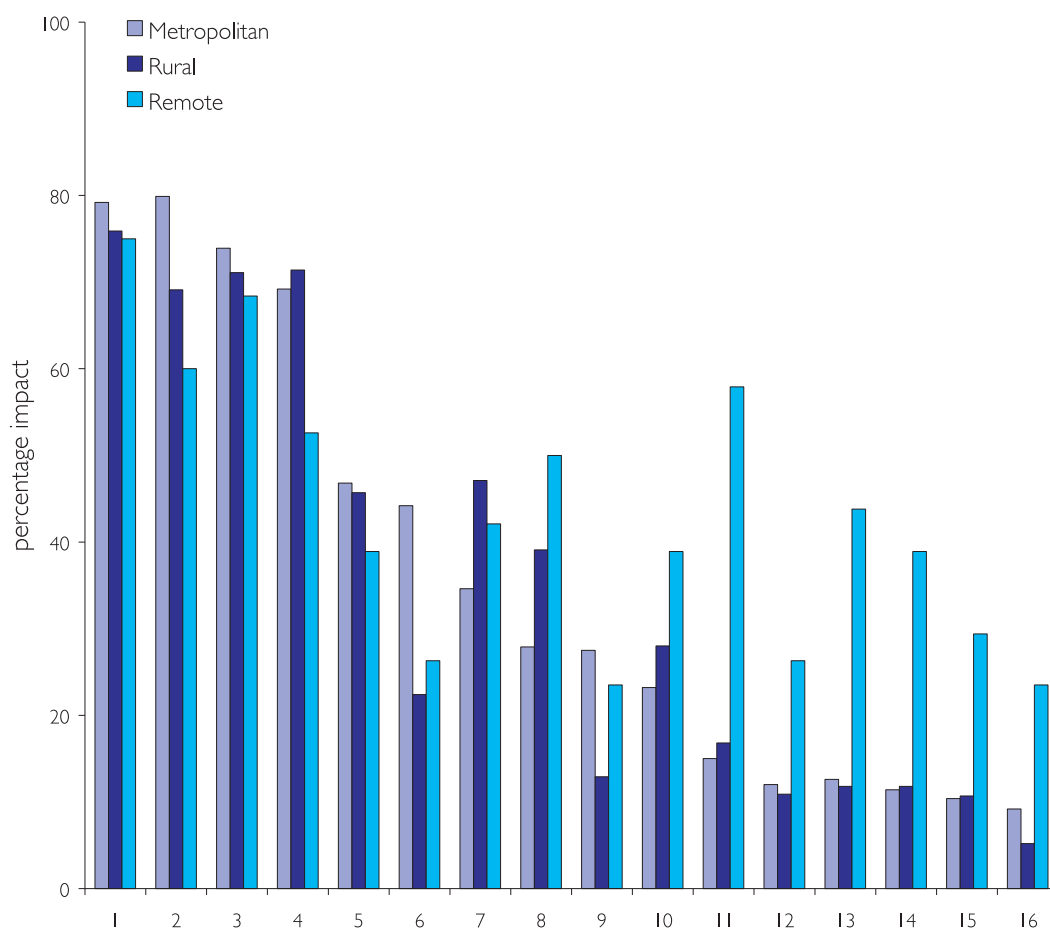


1. Incomplete medical record content
2. Principal diagnosis not identified
3. Complications/co-morbidities not identified
4. Illegible medical record entries
5. Pressure to maintain coding throughput
6. Submission deadlines
7. Medical records unavailable
8. Performing a number of tasks in addition to coding
9. Work environment is too distracting
10. Not enough coders employed in facility

Figure 22: Coders' views of factors affecting coding quality by public/private status

Table 52: Coders' views of factors affecting coding quality by metropolitan/rural/remote status

Factor	Metro impact		Rural impact		Remote impact	
	n	%	n	%	n	%
Incomplete medical record content	373	79.2	173	75.9	15	75
Principal diagnosis not identified	370	79.9	159	69.1	12	60
Complications/co-morbidities not identified	342	73.9	162	71.1	13	68.4
Illegible medical record entries	321	69.2	160	71.4	10	52.6
Pressure to maintain coding throughput	214	46.8	102	45.7	7	38.9
Submission deadlines	206	46	86	39.6	8	42.1
Medical records unavailable	202	44.2	49	22.4	5	26.3
Lack of contact with clinical staff	163	35.5	78	35.3	6	31.6
Having to perform number of tasks in addition to coding	159	34.6	105	47.1	8	42.1
Not enough coders employed in facility	129	28.2	52	24.1	4	25
Work environment is too distracting	128	27.6	69	31.1	5	26.3
Lack of continuing education to update skills	127	27.9	84	39.1	9	50
Limitations of ICD-10-AM as coding system	120	27.5	26	12.9	4	23.5
Lack of coding training available	105	23.2	61	28	7	38.9
Lack of management support	96	21.8	45	20.5	5	26.3
My inexperience as a coder	89	20	47	21.5	6	30
No other coders close enough to discuss problems with	68	15	37	16.8	11	57.9
Lack of access to print resources	55	12	24	10.9	5	26.3
Lack of access to electronic resources	54	12.6	23	11.8	7	43.8
Lack of linkages between computers for admin use	49	11.4	25	11.8	7	38.9
Difficulties with data entry of codes	47	10.4	23	10.7	5	29.4
Difficulty obtaining current coding books	41	9.2	11	5.2	4	23.5
(n=>641 missing values <=390 for any one factor)						



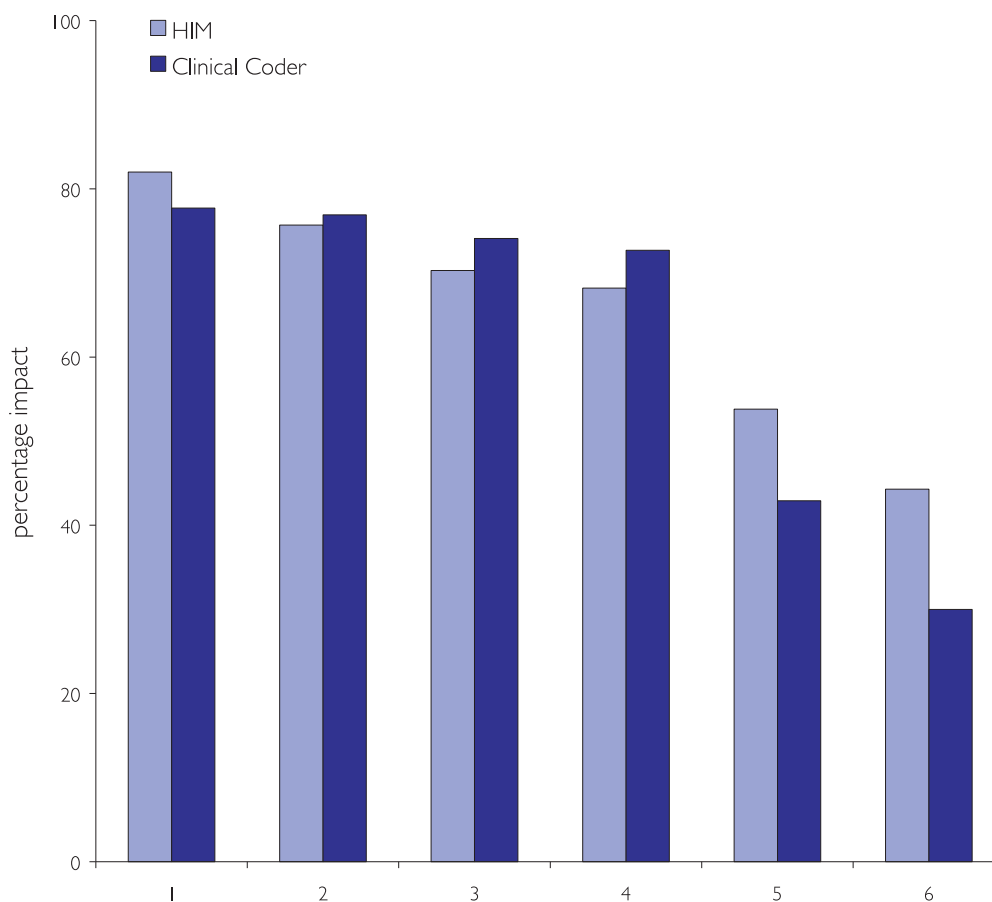
1. Incomplete medical record content
2. Principal diagnosis not identified
3. Complications/co-morbidities not identified
4. Illegible medical record entries
5. Pressure to maintain coding throughput
6. Medical records unavailable
7. Performing a number of tasks in addition to coding
8. Lack of continuing education to update skills
9. Limitations of ICD-10-AM as coding system
10. Lack of coding training available
11. No coders close enough to discuss problems with
12. Lack of access to print resources
13. Lack of access to electronic resources
14. Lack of linkages between computers for admin use
15. Difficulties with data entry of codes
16. Difficulty obtaining current coding books

Figure 23: Coders' views of factors affecting coding quality by locality

Table 53: Coders' views of factors affecting coding quality by position title

Factor	HIM impact		Coder impact	
	n	%	n	%
Incomplete medical record content	250	82	429	77.7
Principal diagnosis not identified	228	75.7	422	76.9
Complications and co morbidities not identified	211	70.3	404	74.1
Illegible medical record entries	204	68.2	397	72.7
Pressure to maintain coding throughput	163	53.8	230	42.9
Submission deadlines	147	49.5	218	41.8
Performing a number of tasks in addition to coding	133	44.3	160	30.0
Medical records unavailable	111	36.9	216	40.1
Lack of contact with clinical staff	111	37.2	194	35.9
Lack of continuing education to update coding skills	90	30.2	175	33.3
Work environment is too distracting	89	29.3	140	25.9
Not enough coders employed in facility	84	28.1	132	25.1
Lack of management support	75	25.9	114	22.0
Lack of coding training available	72	24.2	132	25.1
Limitations of ICD-10-AM as a coding system	59	20.2	112	22.3
No other coders close enough to discuss problems with	56	19.2	92	17.4
My inexperience as a coder	56	19.1	92	17.8
Lack of access to electronic resources	42	14.6	62	12.6
Lack of linkage between computers for admin use	36	12.8	74	14.5
Lack of access to print resources	32	10.7	66	12.4
Difficulties with data entry of codes	23	8	74	14.3
Difficulty obtaining current versions of coding books	20	6.8	41	7.9

(n=>779 missing values <=89 for any one factor)



1. Incomplete medical record content
2. Principal diagnosis not identified
3. Complications and co morbidities not identified
4. Illegible medical record entries
5. Pressure to maintain coding throughput
6. Performing a number of tasks in addition to coding

Figure 24: Coders' views of factors affecting coding quality by position title

5.6.4 Quality activities

Coders reported whether they regularly undertake quality assurance (QA) activities related to their coding role. Six hundred and eighty seven coders (66.6%) stated that they regularly undertook quality assurance activities. Figure 25 shows the presence of QA activities by state. Figure 26 represents the presence of QA activities by hours worked at the facility, while Figure 27 shows the presence of QA activities by position title of coders.

The highest percentage of respondents undertaking QA activities was in Tasmania (92%) and the lowest percentage was in New South Wales (57%). Coders were more likely to perform QA activities if they worked longer hours, with only 44% of coders performing QA if they worked less than eight hours, compared to three-quarters of coders who worked greater than 33 hours per week. While 71% of HIMs and 67% of clinical coders performed QA activities, only 45% of administration officers undertook QA related to coding.

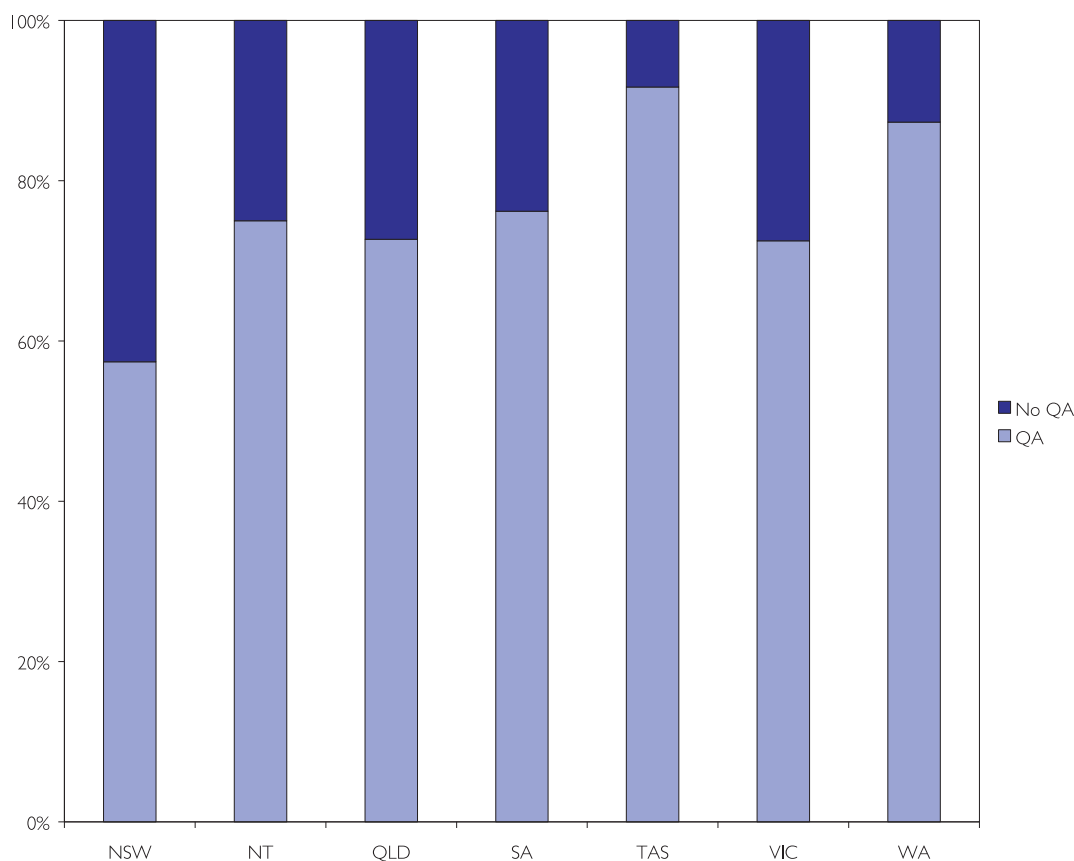


Figure 25: Presence of QA activities by state/territory

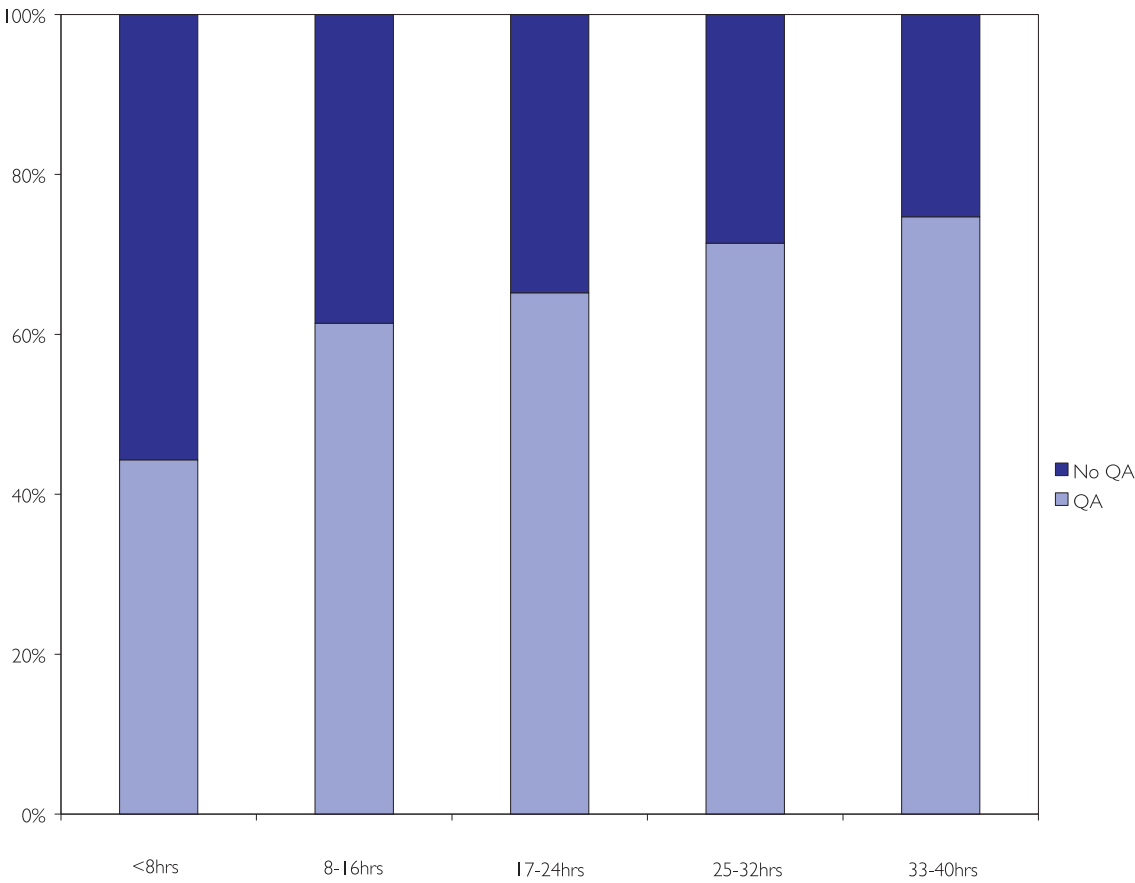


Figure 26: Presence of QA activities by hours worked at facility

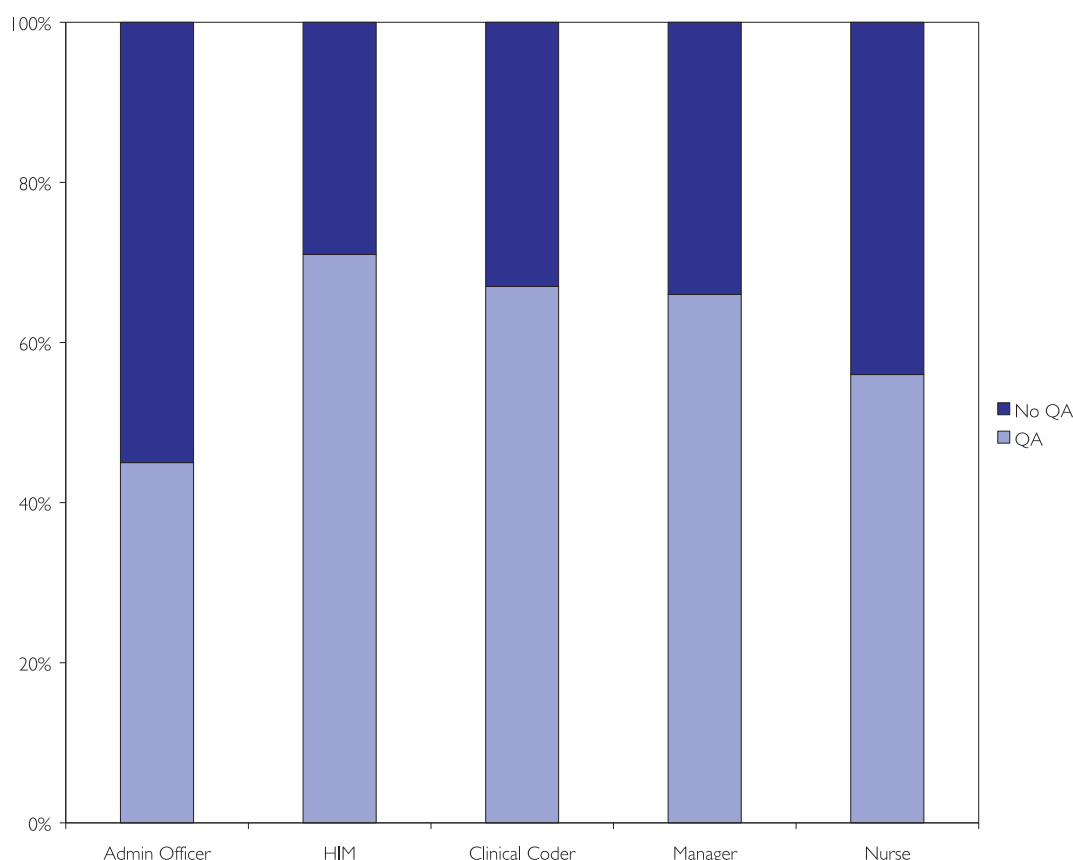


Figure 27: Presence of QA activities by position title

One hundred and eighty one of the 344 coders who did not undertake regular quality assurance, specified the reasons for this, and these reasons were grouped into seven categories:

- QA is performed by the manager or health department (23.8%)
- No time is available for QA (21%)
- There is only one coder at the facility or the coder is a contract coder (15.5%)
- There are plans to begin QA in the future (14.4%)
- The coder is a new employee (9.9%)
- Ad hoc QA is performed (8.3%)
- QA is not required at the facility (7.2%).

Coders specified the type of quality assurance activity they undertake from the following categories: internal and/or external analysis using Performance Indicators for Coding Quality (PICQ), internal and/or external analysis using Australian Coding Benchmark Audit (ACBA), other audits, and/or other QA activities. Table 54 shows the percentage of coders performing each type of QA by state/territory.

The most common type of quality activities was auditing (using neither ACBA nor PICQ) (30%), followed by internal analysis using PICQ (16%).

Table 54: Percentage of coders performing each type of QA by state/territory

Type of QA	NSW n=242	NT n=4	QLD n=110	SA n=84	TAS n=12	VIC n=211	WA n=63
Internal analysis using PICQ	6.2	25.0	5.5	21.4	8.3	17.5	28.6
External analysis using PICQ	1.7	0	1.8	6.0	41.7	11.8	28.6
Internal analysis using ACBA	13.6	0	1.8	9.5	8.3	5.2	3.2
External analysis using ACBA	6.2	0	2.7	10.7	50.0	6.6	7.9
Other audits	21.1	25.0	33.6	30.9	33.3	35.1	33.3
Other QA	7.85	0	22.7	11.9	33.3	7.11	11.1

(respondents=1,031 missing=0)

The major types of other audits that coders highlighted were:

- internal audits (n=133, 12.9%)
- DRG audits (n=47, 4.5%)
- external audits (n=46, 4.4%)
- Department of Health audits (n=34, 3.3%)

The major types of other QA activities that coders highlighted were:

- coding meetings (n=39, 3.8%)
- DRG audits (n=34, 3.3%)
- internal audits (n=31, 3.0%)

5.7 Attitude to coding

Coders reported whether they liked coding as a job. Over 90% (n=938) of coders stated that they liked coding. Table 55 shows coders' attitudes to coding by state/territory.

Nearly all South Australian coders indicated that they liked coding as a job, while Queensland coders appeared to be the least satisfied with coding as a job compared to other states, with nearly one in ten coders stating that they did not like coding.

While nearly all of the HIMs whose roles only involved coding stated that they liked coding as a job, one in ten HIMs who performed duties other than coding stated that they did not like the coding aspect of their job. In comparison, for other position titles, the performance of duties other than coding did not appear to affect whether respondents indicated that they liked coding as a job.

Coders' salaries did not appear to have a major impact on whether they liked coding as a job or not, with coders at the lower end of the salary range equally likely to enjoy coding as coders at the higher end.

Coding throughput appeared to have a slight impact on whether coders enjoyed coding, with higher coding throughput demands associated with more discontent with coding for hospital-based coders. While 94% of hospital coders whose coding throughput requirements were less than 39 records per day stated that they liked coding as a job, 86% of coders whose coding throughput requirement was greater than 40 records per day stated that they liked coding.

Table 55: Coders' attitudes to coding by state/territory

Attitude	NSW	NT	QLD	SA	TAS	VIC	WA
Like coding as a job	94.5%	100%	90.9%	98.7%	100%	92.8%	98.3%
Do not like coding as a job	5.5%	0%	9.1%	1.3%	0%	7.2%	1.7%
(respondents=707 missing=324)							

Of the 63 coders who responded that they did not like coding as a job, 70% (n=44) provided comments about why they disliked it. The major reasons centred on coding being boring and tedious and/or too complicated. Four hundred and eight comments were provided from the 938 coders who stated that they liked the job of coding. The positive aspects of coding identified were that coding was interesting, challenging and rewarding. However many of these coders acknowledged that they would not like to code all of the time, but enjoyed coding as one aspect of their work.

5.8 Backgrounds and experience

5.8.1 Coders' educational backgrounds

Coders indicated the ways in which they learned to code. Table 56 shows the percentage of coders who learned to code through each method; Table 57 shows the percentage of coders who learned to code through each method by state/territory. Figure 28 illustrates the findings from Table 57 in a more concise form; Figure 29 shows the percentage of coders who learned to code through an undergraduate HIM/MRA degree by locality characteristics and Figure 30 shows these percentages for HIMAA distance education courses.

Approximately 36% of coders indicated that an undergraduate health information management/medical record administration (HIM/MRA) degree contributed to them learning to code. Of these, 78% learned solely through their HIM/MRA degree and an additional 5.5% learned to code both during undergraduate education and from on-the-job training. A significant number of coders (10%) said they had no formal coding education beyond what they learned on-the-job. The Health Information Management Association of Australia Ltd (HIMAA) distance education course was the third most common (28.7%) way that respondents learned to code, with half of these HIMAA-educated coders learning to code exclusively through the HIMAA distance education course. In Victoria, approximately three-quarters of coders are university educated to code, compared to Tasmania, Northern Territory and South Australia where no coders were university educated to code. For approximately three-quarters of coders from these latter three states, HIMAA and OTEN coding courses formed the basis for their learning to code.

Nearly 90% of coders in public metropolitan hospitals in Victoria learned to code as part of an undergraduate HIM/MRA degree, compared to approximately half of Queensland coders and one third of New South Wales and Western Australian coders. None of the coders in public rural facilities in Queensland or Western Australia learned to code through a HIM/MRA degree, compared to one quarter of coders in New South Wales and 63% of Victorian coders. None of the respondents from South Australia learned to code as part of an undergraduate HIM/MRA degree, however over 95% of coders in public rural facilities in that state learned to code through the HIMAA distance education course.

Table 56: How coders learned to code

Learn to code	Yes	
	n	%
As part of undergraduate HIM/MRA degree	368	35.7
As part of HIM postgraduate degree	30	2.9
Through HIMAA distance education course	296	28.7
Through HIMAA accelerated education course	43	4.2
Through OTEN coding course	136	13.2
Health department training	114	11.1
On the job	345	33.5

Table 57: Percentage of coders who learned to code through each method by state/territory

Learn to code	NSW n=4	NT n=110	QLD n=84	SA n=12	TAS n=211	VIC n=63	WA n=242
As part of undergraduate HIM/MRA degree	28.5	0	29.1	0	0	74.9	23.8
As part of HIM postgraduate degree	5.0	0	2.7	0	0	1.9	0
Through HIMAA distance ed course	18.2	50.0	36.4	83.3	41.7	14.7	12.7
Through HIMAA accelerated course	5.8	25.0	10.0	0	16.7	.5	4.8
Through OTEN coding course	32.6	25.0	16.4	6.0	16.7	1.4	4.8
Health department training	9.9	50.0	9.1	10.7	0	2.4	44.4
On the job	40.9	25.0	22.7	46.4	25.0	24.6	36.5
(respondents=1,031 missing=0)							

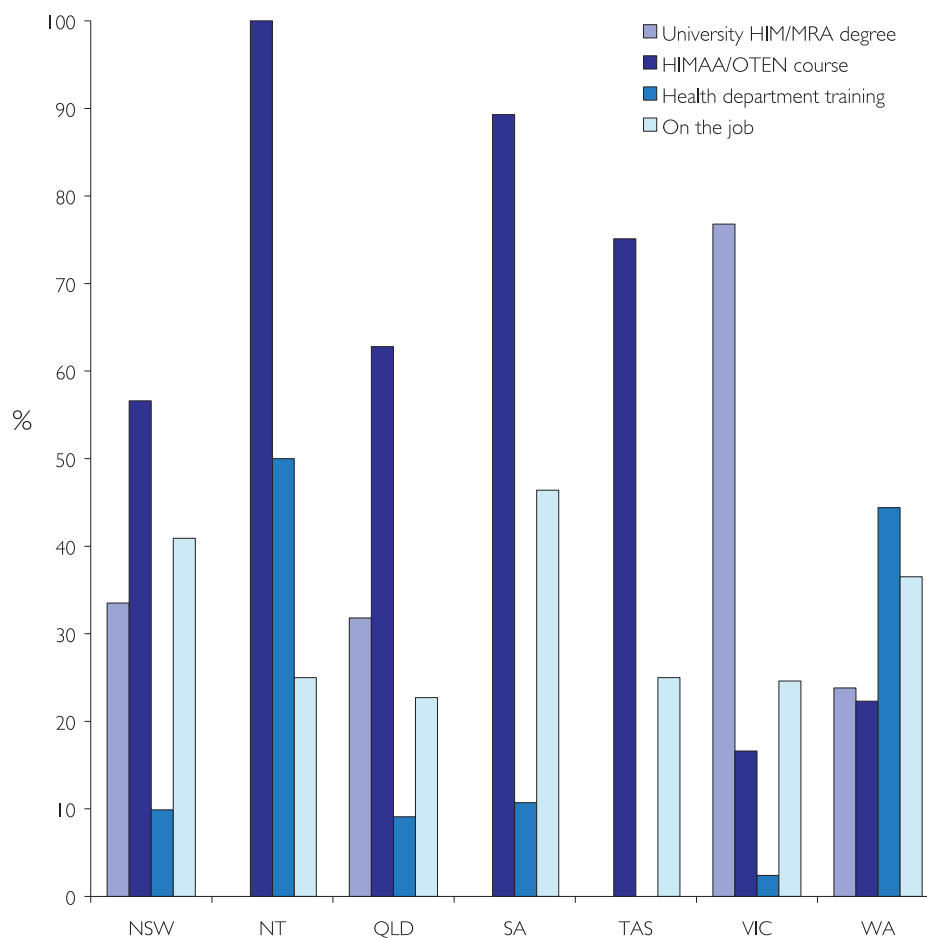


Figure 28: Percentage of coders who learned to code through each method by state/territory

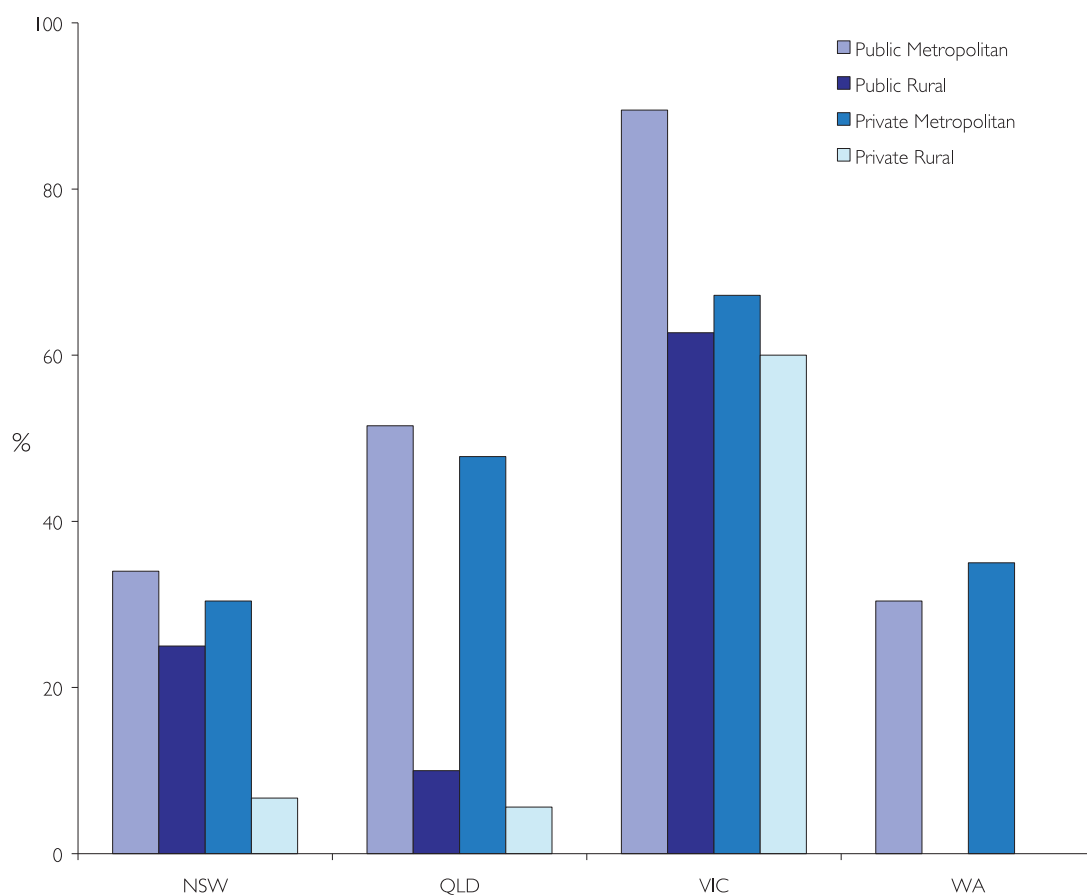


Figure 29: Percentage of coders who learned to code through undergraduate HIM/MRA degree by locality characteristics

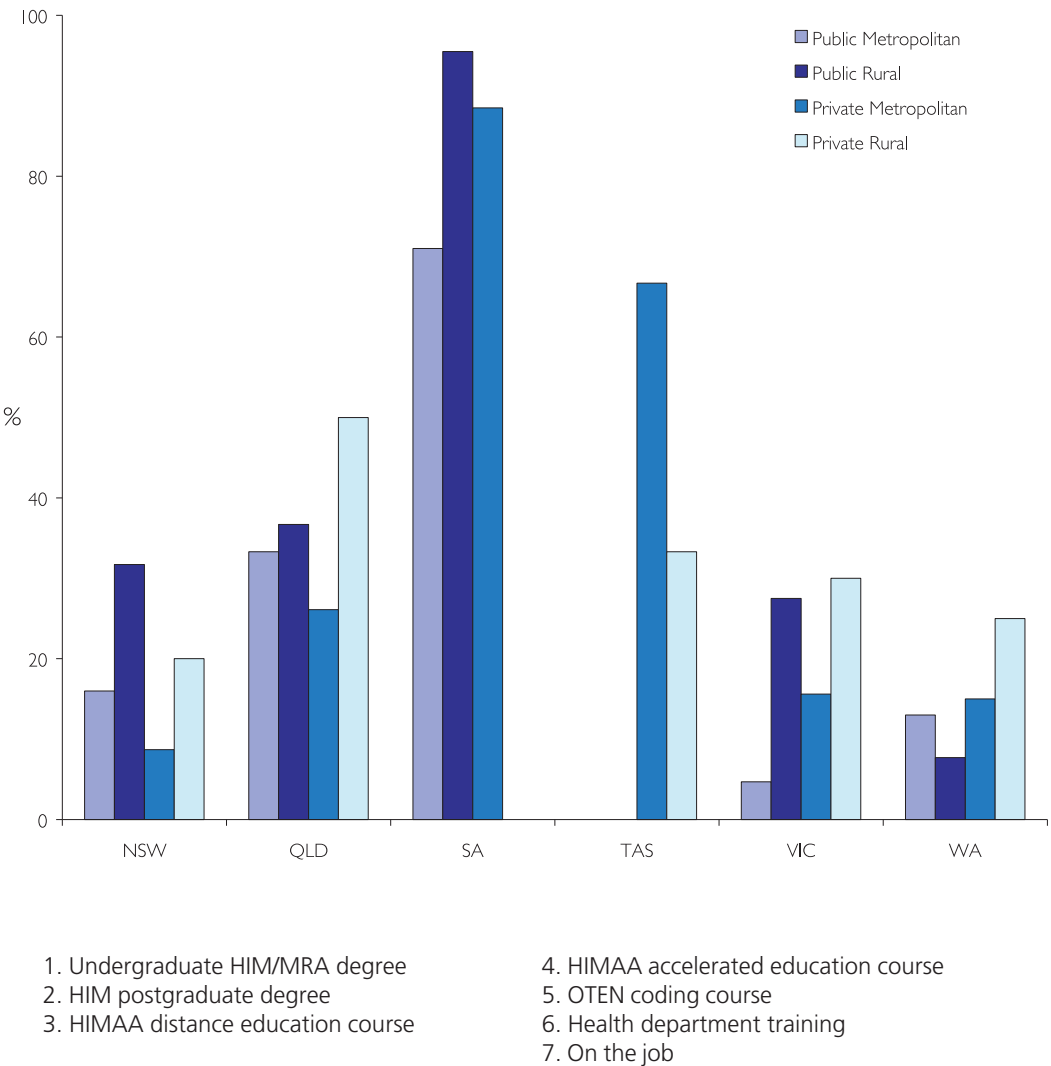


Figure 30: Percentage of coders who learned to code through HMAA distance education course by locality characteristics

Coders indicated whether they felt that the education they had received adequately prepared them to code in the working environment. Over 60% of respondents (n=610, 62%) believed that their education gave them adequate preparation, while 38% of coders (n=374) believed that their education was inadequate in preparing them to code in a work environment. Obtaining HIM postgraduate education was deemed to provide adequate preparation to code in the work environment by three quarters of respondents who had acquired this level of education (n=22). Completion of an undergraduate HIM degree was deemed to be the least adequate education mode for coders. Half of all coders who had completed undergraduate degrees said they felt inadequately prepared to code in a work environment (n=176). Figure 29 shows the distribution of coders who believe their education was adequate by the type of education they received. Coders' views of the adequacy of HIMAA distance/accelerated education courses as preparation for coding was relatively similar across states, while there was more variation in the adequacy of HIM/MRA degrees across states from a high of 63% of coders stating that the education was adequate in New South Wales to a low of 38% in Western Australia.

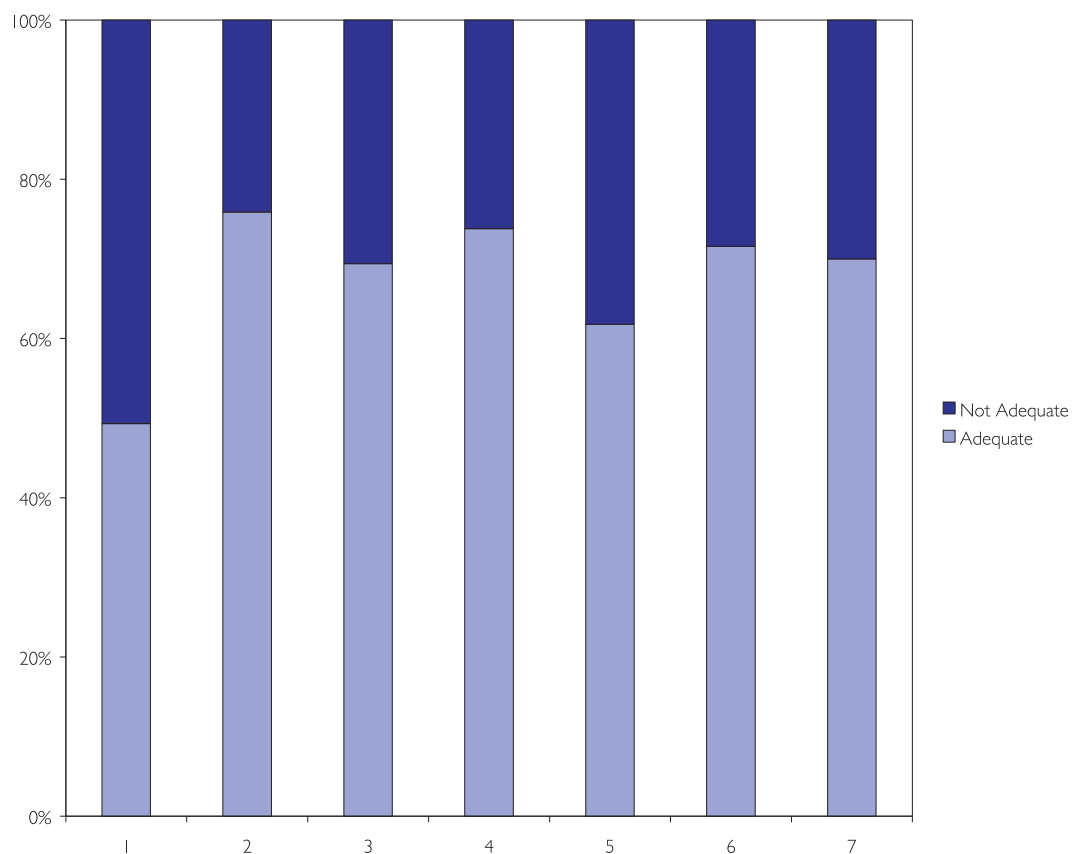


Figure 31: Adequacy of education as preparation to code in work environment by type of education

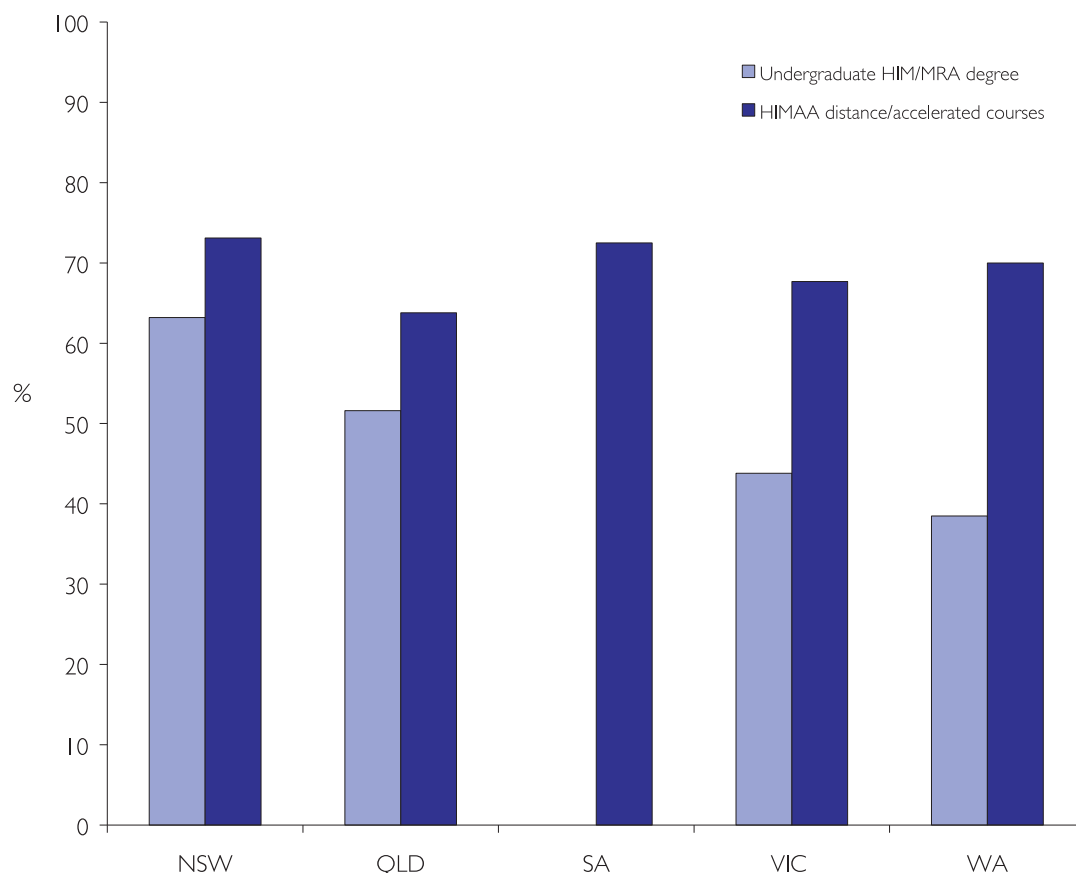


Figure 32: Percentage of coders stating that education was adequate to code by state

Two hundred and ninety-three coders out of the 374 coders who believed that their education was inadequate preparation for work provided comments about their responses, while 230 of the 610 coders who felt that their education was adequate provided comments about their reasons for responding positively to this question. The reasons coders provided as to why their education was inadequate preparation for coding in a work environment were as follows:

- Coding scenarios provided in educational environment different from actual cases seen in work environment, with one coder stating "I learned how to find codes in the coding books, not how to find the problems in a medical record"
- More practical, hands-on coding experience needed as part of the course
- Inadequate preparation for illegible and incomplete medical records and how to deal with these issues
- Course was too basic for the complex situations encountered in working environment
- Limited training in anatomy and physiology.

For those coders who felt that their education was adequate preparation for coding in the work environment, some respondents stated that the course they undertook was comprehensive and provided a good basis for coding in the work environment. However, other coders acknowledged that they learned the basics needed to begin to code in the work environment but that they also learned on on-the-job and through continued education.

Coders specified whether they held any tertiary qualifications. Table 58 shows the percentage of coders who held tertiary qualifications; Table 59 shows the percentage of coders who held tertiary qualifications by state/territory and Figure 33 provides a graphic illustration of these findings.

While four out of five coders in Victoria held a tertiary qualification, only 10% of coders in Tasmania and 13% of coders in South Australia held a tertiary qualification.

Table 58: Coders' tertiary qualifications

Tertiary qualification	n	%
HIM/MRA undergraduate degree	286	27.7
HIM/MRA associate diploma	80	7.8
Other university degree	124	12.0
No tertiary qualifications	541	52.5

Table 59: Coders' tertiary qualifications by state/territory

Tertiary qualifications	NSW n=242	NT n=4	QLD n=110	SA n=84	TAS n=12	VIC n=211	WA n=63
HIM/MRA undergraduate degree	21.1	0.0	22.7	1.2	0.0	60.7	19.0
HIM/MRA associate diploma	10.7	0.0	3.6	0.0	0.0	12.8	3.2
Other university degree	14.0	0.0	12.7	11.9	8.3	6.6	19.0
No tertiary qualifications	54.1	100.0	60.9	86.9	91.7	19.9	58.7
(respondents=1,031 missing=0)							

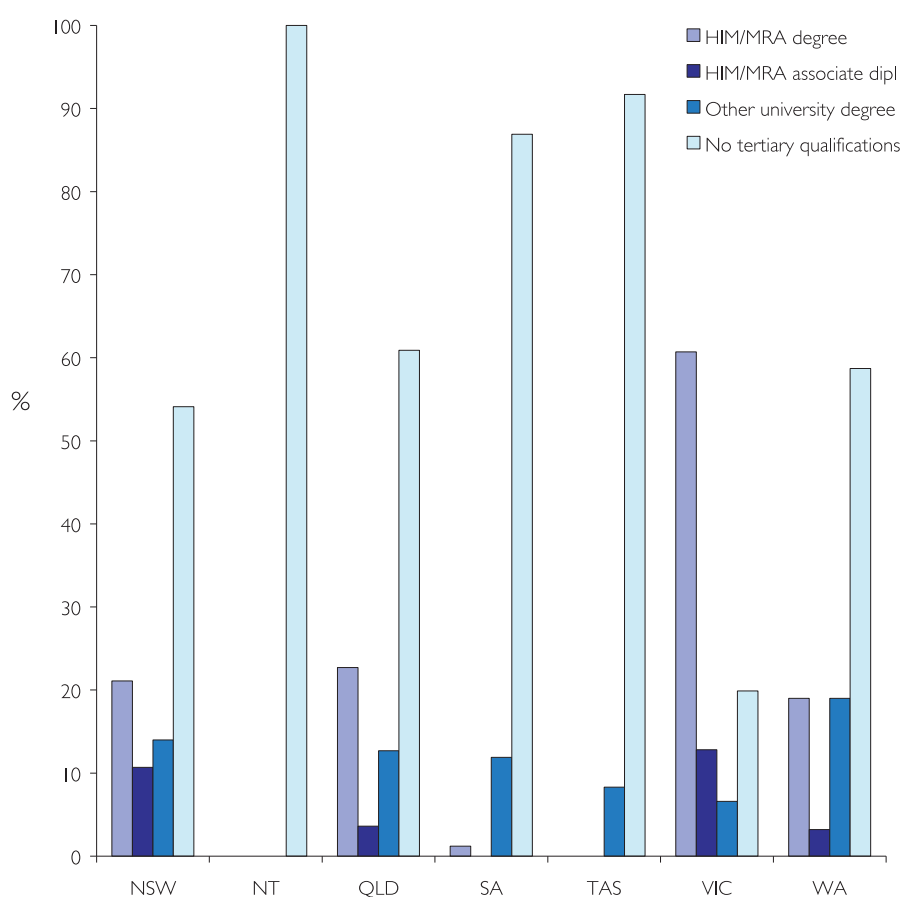


Figure 33: Coders' tertiary qualifications by state/territory

If coders specified that they had an 'other' university degree, they provided details of this degree. Table 60 shows the percentage of coders with other university degrees.

Table 60: Coders' other university degrees

Other degrees	n	% of total (n=1,031)
Business/administration	39	3.8
Nursing	37	3.6
Science	23	2.2
Arts	16	1.6
Education	13	1.3
Nosology	5	0.5
HIM/MRA certificate	5	0.5
HIM/MRA postgraduate	4	0.4
Other	9	0.9

5.8.2 Coders' professional backgrounds

Coders indicated their professional background. Table 61 shows the percentage of coders with each professional background; Table 62 shows the percentage of coders with each professional background by state/territory and Figure 34 highlights four professional backgrounds by state and territory.

In the 2002 survey, coders most commonly described their professional backgrounds as clinical coding or health information management/medical record administration. Approximately half of the coders in the Northern Territory and Western Australia and one-third of coders in Queensland and South Australia had a nursing background.

Table 61: Coders' professional backgrounds

Professional background	Yes	
	n	%
Clinical coder	390	37.8
HIM/MRA	359	34.8
Clerical/administration officer	322	31.2
Medical practitioner–Australian qualifications	5	0.5
Medical practitioner–Overseas qualifications	16	1.6
Registered nurse	123	11.9
Other nurse	108	10.5
HIM university student	59	5.7

Table 62: Percentage of coders with each type of professional background by state/territory

Professional background	NSW n=242	NT n=4	QLD n=110	SA n=84	TAS n=12	VIC n=211	WA n=63
Clinical coder	38.4	75.0	49.1	64.3	75.0	11.8	38.1
HIM/MRA	31.4	0	23.6	0	0	74.4	17.5
Clerical/administration officer	42.6	75.0	39.1	42.9	33.3	11.4	22.2
Medical practitioner–Australian qualifications	1.2	0	0.9	1.2	0	0	0
Medical practitioner–Overseas qualifications	3.3	0	0	0	0	1.4	0
Registered nurse	9.1	25.0	12.7	20.2	16.7	7.1	27.0
Other nurse	5.8	25.0	14.5	14.3	0	3.8	19.0
HIM university student	3.7	0	10.0	2.4	0	4.3	7.9
(respondents=1,031 missing=0)							

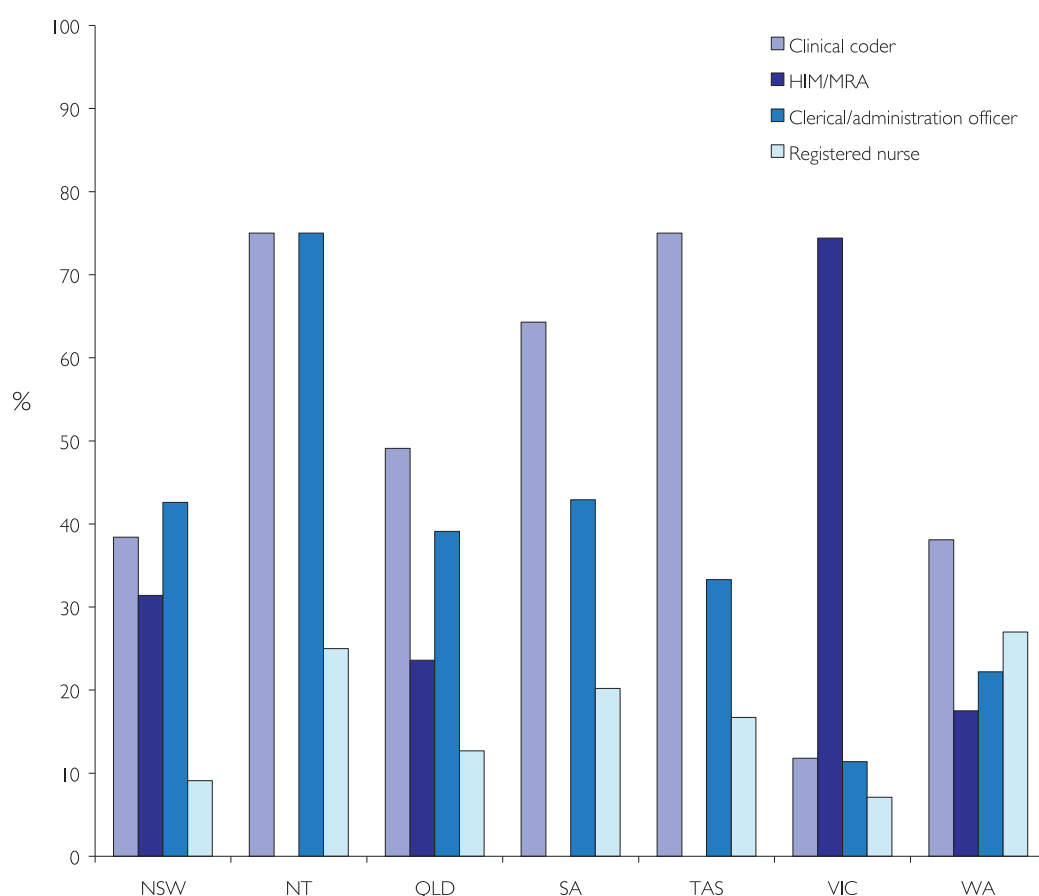


Figure 34: Percentage of coders with each type of professional background by state and territory

5.8.3 Coders' experience

Coders nominated the number of years since they first learned to code. Table 63 shows the number and percentage of coders with less than one year of experience, one to four years experience, five to nine years experience, and greater than ten years experience. Table 64 shows years of experience by state/territory.

Overall, two-thirds of coders had in excess of five years experience, with over 40% of coders in New South Wales and Victoria having more than ten years experience.

Table 63: Coders' years of experience

Years	n	%
<1 year	46	4.6
1–4 years	283	28.3
5–9 years	346	34.6
10+ years	326	32.6
(respondents=1,001 missing=30)		

Table 64: Coders' years of experience by state/territory

Years	NSW	NT	QLD	SA	TAS	VIC	WA
<1 year	11	0	7	3	0	9	1
1–4 years	66	2	35	18	4	55	20
5–9 years	68	1	44	39	4	52	27
10+ years	92	1	24	18	4	86	12
<i>Total</i>	<i>237</i>	<i>4</i>	<i>110</i>	<i>78</i>	<i>12</i>	<i>202</i>	<i>60</i>
(respondents=703 missing=328)							

Coders were also asked how many years they had worked at their current facility and how many different clinical coder positions they had held since they first learned to code. Table 65 shows the number and percentage of coders who had worked less than one year, one to four years, five to nine years, and more than ten years in their current facility. Table 66 shows the number of different clinical coder positions respondents reported having held since they first learned to code, and Table 67 shows this breakdown by locality characteristics.

While on average coders had held between two and three previous clinical coder positions, coders in private facilities in Victoria held between four and five previous clinical coder positions.

Table 65: Years at facility

Years	n	%
<1 year	145	14.4
1–4 years	352	35.1
5–9 years	246	24.5
10+ years	261	26.0
(respondents=1,004 missing=27)		

Table 66: Number of coder positions

Positions	n	%
1	393	43.3
2	185	20.4
3	137	15.1
4	64	7.1
5	42	4.6
6	30	3.3
7	24	2.6
8	10	1.1
9	6	0.7
10	8	0.9
>10	8	0.9
(respondents=1,004 missing=27)		

Table 67: Average number of coder positions by locality characteristics

Facility	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
Metropolitan	2	na	3	2	na	3	2
Rural	2	na	3	2	2	3	1
Remote	1	3	1	1	na	na	2
Private							
Metropolitan	3	na	3	3	2	4	2
Rural	2	na	2	na	1	5	2

5.9 Continuing education

5.9.1 Time spent by coders on continuing education activities

Coders indicated the percentage of their coding time that they spent on coder education and updates. Table 68 shows the percentage of time spent by coders on continuing education; Table 69 shows the percentage of time coders spent on continuing education by state and territory, and Figure 35 illustrates this finding graphically. Figure 36 depicts the percentage of time spent by coders on continuing education by reported position title depending on whether they perform quality activities or not.

Over three-quarters of coders spent less than five percent of their time on continuing education. Interestingly, coders in remote locations appear to spend more time on continuing education than other coders, with nearly half of these coders spending more than five percent of their time on continuing education compared to only 20% of coders in rural facilities and 30% of coders in metropolitan facilities who reported that they spent this much time on continuing education.

The amount of time spent on continuing education activities appears related to whether the coder also performs QA, with those coders who performed QA spending more time on continuing education. While around 16% of coders who did not perform QA spent more than 5% of their time on continuing education activities, approximately 25% who do perform QA devote a similar amount of time to continuing education. Furthermore, differences are evident between reported position titles for those coders who performed QA, with over one third of administration officers and nearly one third of clinical coders spending more than 5% of their time on continuing education, compared to one quarter of HIMs.

Table 68: Percentage of time spent by coders on continuing education

Time	n	%
<5%	662	75.6
5–10%	162	18.5
11–25%	30	3.4
>25%	22	2.5
(respondents=876 missing=155)		

Table 69: Percentage of time spent by coders on continuing education by state/territory

Time	NSW	NT	QLD	SA	TAS	VIC	WA
<5%	156	4	70	55	8	136	38
5–10%	40	0	15	10	3	31	15
11–25%	7	0	6	2	0	8	3
>25%	6	0	1	2	0	6	1
Total	209	4	92	69	11	181	57
(respondents=623 missing=408)							

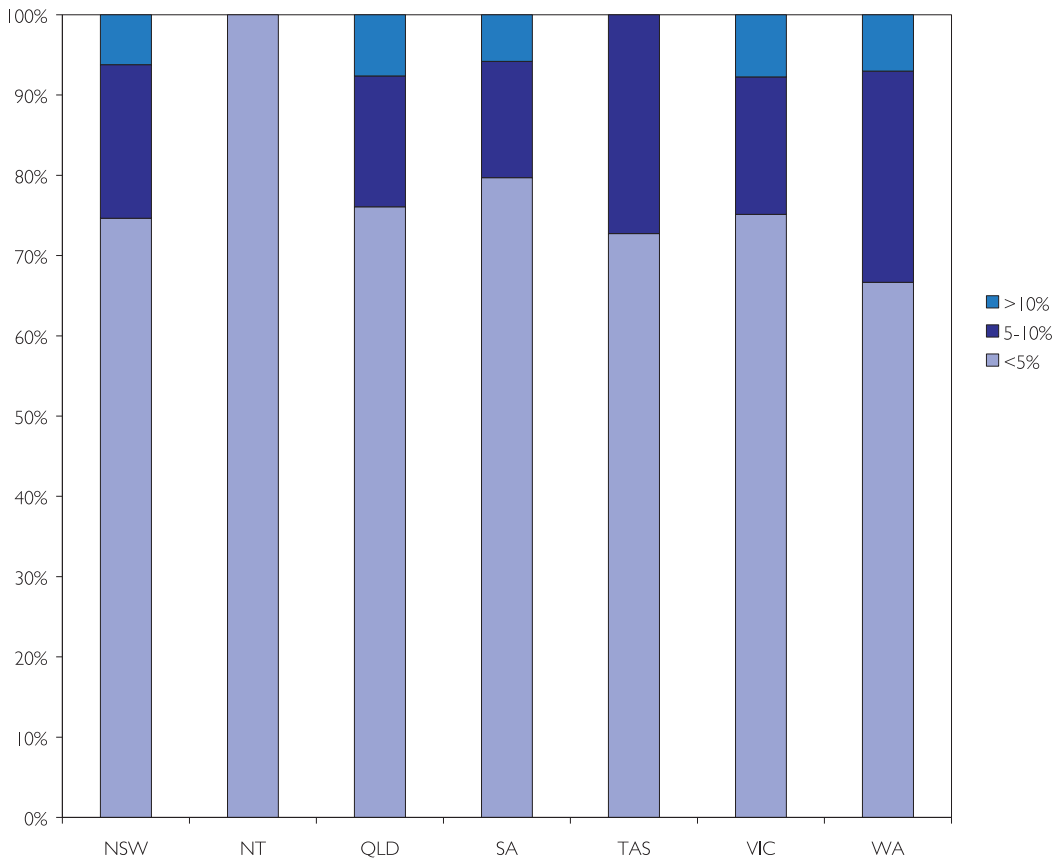


Figure 35: Percentage of time spent by coders on continuing education by state/territory

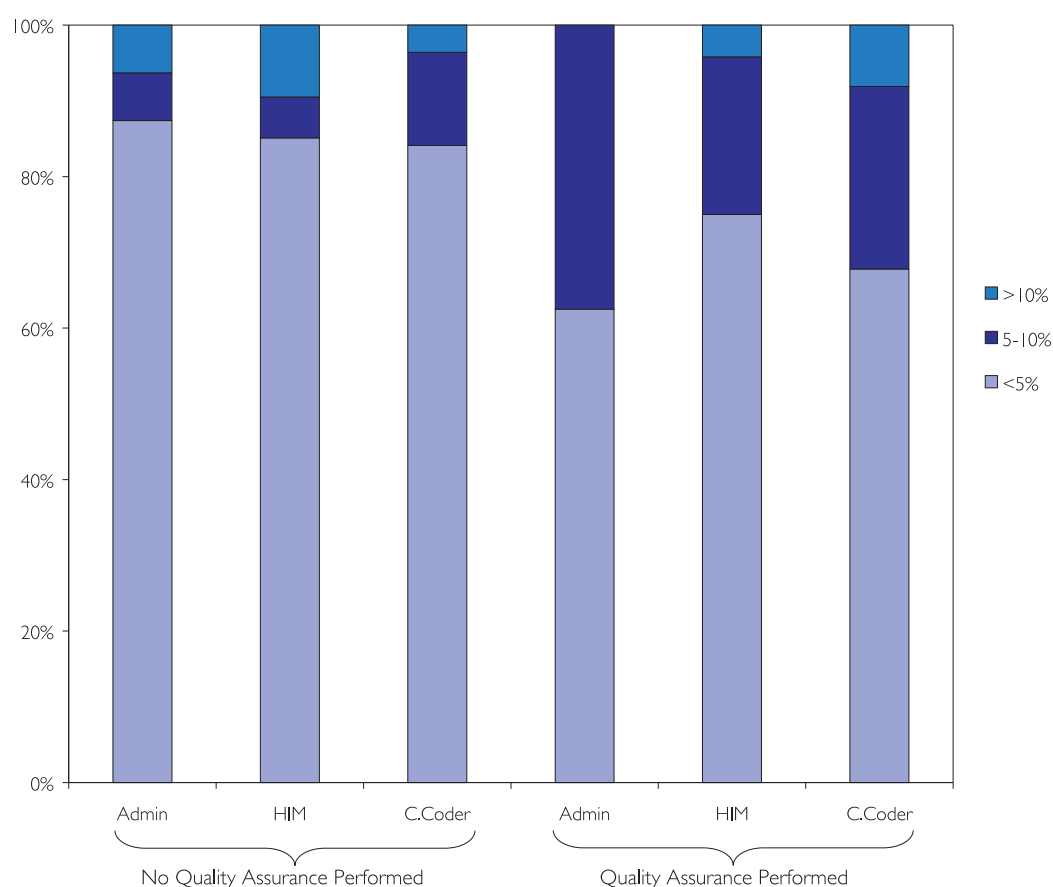


Figure 36: Percentage of time spent by coders on continuing education by position title and QA activities

5.9.2 Support received from facility for continuing education

Coders reported whether the facility they worked for supported their participation in continuing education events and activities. Over 90% of coders (n=892) stated that their facilities supported their participation in continuing education events, while 9.6% (n=95) did not have facility support.

Coders indicated the type of support they received from their facility for continuing education, ticking all that applied from a list. Table 70 shows the percentage of coders that received each type of support; Table 71 shows the percentage of coders that received each type of support from their facility by state/territory.

The most common support received was time off work without the need to make up time (59%) and payment of registration/enrolment fees (55%). Differences were evident between states, with a higher level of fee payment in the Northern Territory, Queensland and Tasmania compared with other states. Some disparities were

identified between localities and public/private status. Payment of fees was more common in public rural facilities than public metropolitan facilities, especially in Queensland and Victoria. In terms of time off work without the need to make up time, public rural facilities had a slightly lower percentage of support than public metropolitan facilities in most states, except for Victoria and Western Australia where over 10% more facilities provided this type of support in rural facilities. The reverse was found in private facilities where rural facilities were better supported in terms of time off work in most states, except for Victoria and Western Australia.

Table 70: Type of facility support for continuing education

Facility Support	Yes	
	n	%
Payment of registration/enrolment fees	564	54.7
Time off work without need to make up time	604	58.6
Time off work but requirement to make up time	43	4.2

Table 71: Type of facility support for continuing education by state/territory

Facility support	NSW n=242	NT n=4	QLD n=110	SA n=84	TAS n=12	VIC n=211	WA n=63
Payment of registration/enrol fees	54.5	75.0	62.7	54.8	75.0	54.5	54.0
Time off work without make up time	59.1	50.0	60.0	58.3	58.3	59.7	65.1
Time off work but req to make up time	3.7	0	5.5	4.8	0	4.7	1.6
(respondents=1,031 missing=0)							

5.9.3 Coders' continuing education events

Coders outlined the sort of continuing education activities they had accessed over the past three years, ticking all that applied from a list provided. Table 72 shows the percentage of coders that attended each type of continuing education activity; Table 73 shows the percentage of coders that attended each type of continuing education activity by state/territory. Table 74 reports the percentage of coders that attended each type of continuing education activity by reported position title and Figure 37 illustrates the top five continuing education activities by position title.

The NCCH update workshops were the most commonly-attended continuing education events with 65% of coders indicating that they had attended a workshop in the past three years. Only 15% of coders had the opportunity to attend the NCCH/CCSA conferences and 10% of coders had the opportunity to attend the HIMAA/HISA conferences over the past three years.

Discrepancies were evident between localities and public/private status of facilities, with variations both between and within groups in their access to continuing education activities. No clear patterns were discernable in access to continuing education activities.

Differences in access to continuing education activities between position titles were found, with HIMs in general having the best access to continuing education activities,

followed by clinical coders, while other positions had the poorest access to continuing education opportunities relating to coding.

Table 72: Percentage of coders that attended each type of continuing education activity

Activities	Yes	
	n	%
NCCH update workshop	669	64.9
NCCH print based materials	481	46.7
Department coding meetings	380	36.9
Materials or activities from the NCCH website	346	33.6
Health department coding workshop	289	28.0
Health area/region coding meetings	262	25.4
On-site coding updates	236	22.9
Personal study	169	16.4
NCCH/CCSA conference	154	14.9
HIMAA/HISA conference	108	10.5
CCSA workshop	108	10.5
HIMAA intermediate coding course	107	10.4
HIMAA introductory coding course	67	6.5
HIMAA medical terminology course	51	4.9
HIMAA advanced coding course	31	3.0
OTEN training course	29	2.8
University programs	17	1.6

Table 73: Percentage of coders that participated in each type of continuing education activity by state/territory

Activities	NSW n=242	NT n=4	QLD n=110	SA n=84	TAS n=12	VIC n=211	WA n=63
NCCH update workshop	62.0	75.0	76.4	64.3	91.7	61.6	81.0
NCCH print based materials	46.7	50.0	39.1	46.4	66.7	52.6	55.6
Department coding meetings	37.6	0	34.5	48.8	58.3	46.9	39.7
Materials/events from NCCH website	24.0	75.0	43.6	22.6	66.7	47.9	44.4
Health department coding workshop	16.5	25.0	21.8	35.7	25.0	30.8	71.4
Health area/region coding meetings	38.4	50.0	15.5	38.1	58.3	8.5	36.5
On-site coding updates	23.1	0	18.2	28.6	16.7	29.4	23.8
Personal study	17.8	0	10.0	26.2	8.3	16.6	20.6
NCCH/CCSA conference	14.0	75.0	17.3	22.6	16.7	18.0	11.1
HIMAA/HISA conference	4.5	50.0	6.4	6.0	0	28.0	1.6
CCSA workshop	5.8	50.0	7.3	26.2	16.7	5.2	28.6
HIMAA intermediate coding course	11.6	0	9.1	28.6	33.3	4.7	6.3
HIMAA introductory coding course	4.1	0	3.6	19.0	41.7	3.3	3.2
HIMAA medical terminology course	2.9	0	1.8	13.1	25.0	2.8	3.2
HIMAA advanced coding course	2.5	0	4.5	4.8	16.7	1.4	1.6
OTEN training course	7.9	0	0.9	0	0	0	0
University programs	1.6	0	0.9	2.4	0	0.5	6.3

(respondents=1,031 missing=0)

Table 74: Percentage of coders that attended each type of continuing education activity by position title

Activities	HIMs N=309	Coders N=559	Other N=138
NCCH update workshop	62.1	70.3	50.7
NCCH print based materials	59.5	43.6	31.2
Department coding meetings	41.7	39.0	18.1
Materials/events from NCCH website	45.0	29.9	25.4
Health department coding workshop	25.6	30.9	21.0
Health area/region coding meetings	20.1	28.3	28.3
On-site coding updates	25.2	21.3	22.5
Personal study	12.3	18.6	14.5
NCCH/CCSA conference	19.1	13.4	11.6
HIMAA/HISA conference	24.3	4.1	6.5
CCSA workshop	5.2	13.4	11.6
HIMAA intermediate coding course	2.9	14.7	8.0
HIMAA introductory coding course	1.6	9.1	5.8
HIMAA medical terminology course	1.0	7.0	5.1
HIMAA advanced coding course	0	5.0	1.4
OTEN training course	1.6	2.7	6.5
University programs	2.2	1.4	0.7

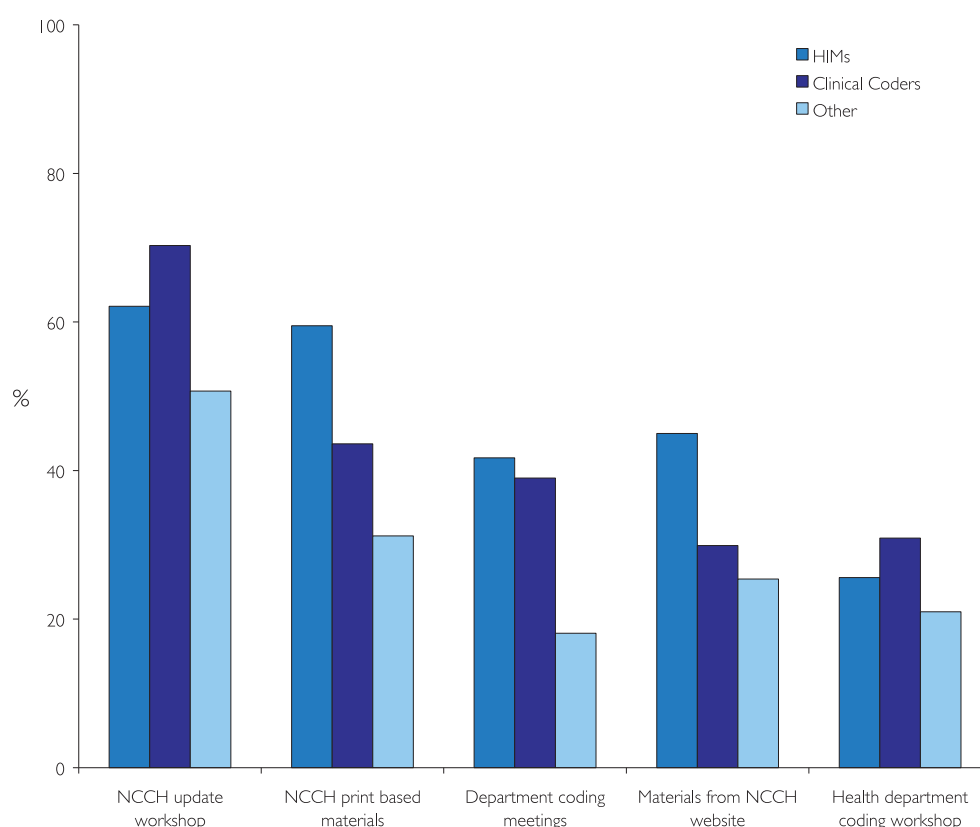


Figure 37: Percentage of coders that attended top five types of continuing education activity by position title

5.9.4 Preference for accessing continuing education

Coders ranked six modes of access to continuing education in order of their preference. The most preferred mode for accessing continuing education was face-to-face conferences or workshops with 73.1% of coders (n=694) ranking this as their most preferred mode. Access to print-based courses or material was the second most preferred method, followed by CD-ROM-based courses or materials, Internet-based courses or materials, and videos. The least preferred way of accessing continuing education was through teleconferences.

All coders showed similar preferences for methods of accessing continuing education, regardless of state, locality, and position title. The most preferred method was face-to-face conferences or workshops. The second and third most preferred methods varied between print-based courses or materials and CD-ROM courses for the different groups. The fourth, fifth and sixth most preferred methods to access continuing education showed similarities across most groups.

5.9.5 Specific areas of coding practice to target for continuing education

Coders specified the continuing education topics that they would find useful, and over 50% of coders (n=556) provided a response to this question. The most common topic requested by coders related to the coding of diabetes, with 26% of coders (n=144) who responded to this question stating that further education was required in this area. The second most common subject according to 13% of responding coders (n=73) related to the coding of procedures. A further 12% of respondents (n=65) stated that they required more clinical updates/medical science education. The coding of obstetrics (6.3%, n=35) and orthopaedics (6.1%, n=34) were ranked equally necessary amongst all respondents. Coders also expressed a desire for continuing education regarding the Australian Coding Standards, with 4.7% of responding coders (n=26) highlighting this area as important. The coding of neoplasms/cancer was considered an important topic for further education by 4.5% of coders (n=25) who responded to this question. Finally, approximately 3-4% of coders believed further education was necessary in the areas of anatomy and physiology and the coding of anaesthetics, cardiovascular disease, and mental health.

5.10 Coding Matters

The NCCH was interested in assessing coders' opinions about *Coding Matters*, the Centre's quarterly newsletter. A series of questions relating to the following areas were provided: what sections of *Coding Matters* coders found useful, whether they would like to see any additional information included, how often they think *Coding Matters* should be published, and how they access and maintain *Coding Matters* editions.

It was reported that 95% of coders read *Coding Matters*. While this percentage was similar in most states and locations, 10% of coders in New South Wales do not read *Coding Matters*, with 15% of coders in rural facilities in that state reporting that they did not read the publication.

Approximately 55% of coders were happy with the regularity of production of *Coding Matters*, although 27% would like to see *Coding Matters* produced monthly, and an additional 17% indicated that they would like to see it produced every two months.

The most common way for coders to receive *Coding Matters* was to receive a personal hard copy, with 44.9% of coders (n=463) receiving it in this way. Unit/department/facility copies of *Coding Matters* were available to 42.5% of coders (n=438), and 14.7% of coders (n=152) chose to access *Coding Matters* via e-mail (though less than half of these coders (n=63) used e-mail alone to access the publication).

Approximately 21% of coders (n=219) use the *Coding Matters* archive on the NCCH website, while 57% of coders (n=584) use the *Coding Matters* cumulative indices. Over 90% of coders (n=866, missing=77) stated that they maintain a *Coding Matters* library or file of past editions.

Coders indicated which sections of *Coding Matters* they found most useful and these results are presented in Table 75. Two hundred and thirty four coders (22.7%) stated that all sections of *Coding Matters* were useful.

Table 75: Coders' preferred sections of *Coding Matters*

	Yes	
	n	%
10-AM Commandments	832	80.7
Clinical updates	820	79.5
Education reports and bulletins	614	59.6
Quality issues	569	55.2
Reports about particular health classifications	490	47.5
Quizzes	395	38.3
Conference/events calendar	360	34.9
Cover story	344	33.4
NCCH events information	331	32.1
IT/technical reports and reviews	326	22.7
NCCH people–staff reports	301	29.2
Book/literature reports	298	28.9
International work reports	293	28.4
Reports about particular health sector committees	277	26.9

Coders indicated whether there was any additional information that they would like to see reported in *Coding Matters*. One hundred and twenty-two coders stated that they would like to see additional information reported, and of these, 114 provided comments. The major areas related to clinical updates, more information regarding difficult specialty areas/procedures/diseases, and articles about coding updates and changes. Coders also indicated that they would like more coding scenarios and examples of frequently asked questions. Respondents would like the *Coding Matters* index updated more regularly. Finally, there was some interest from coders in publication of occupational information such as positions vacant, recent graduate names, and profiles of individual coders working in different types of jobs.

Coders were also given the opportunity to provide other comments about *Coding Matters*, and 204 coders responded to this question. The majority of these comments were positive, with 36% of coders who responded to this question stating the *Coding Matters* was very informative, useful and a valuable resource for coders. A further 12% of coders suggested that there ought to be less focus on staff and social activities and more focus on clinical coding issues, as some coders indicated that they have little time to read *Coding Matters* and only focus on the information of relevance to their work. Approximately 13% of the responses to this question related to the method by which coders received *Coding Matters*, with more coders wanting to receive personal hard copies of *Coding Matters* rather than departmental/e-mail/photocopied versions. Finally, several coders (7%) raised the need for an updated index, with a desire expressed for an up-to-date index to be published in each edition of *Coding Matters*.

5.1.1 Coder certification

Coders indicated if they were HIMAA-accredited ICD-9-CM coders, with 14.5% of coders (n=142) identifying that they held this credential. Table 76 shows the number of HIMAA accredited ICD-9-CM coders by state/territory.

Table 76: HIMAA accredited ICD-9-CM coders by state/territory

HIMAA accredited?	NSW	NT	QLD	SA	TAS	VIC	WA
Yes	12.6%	25.0%	19.0%	19.0%	8.3%	12.7%	13.1%
(respondents=697 missing=334)							

Coders then indicated whether they would be interested in participating in a coder certification examination for ICD-10-AM when it is available. The majority of coders (n=561) indicated that they would be interested in such an examination. Table 77 shows the number of coders per state that responded positively to this question.

Table 77: Interest in coder certification examination by state/territory

Examination?	NSW	NT	QLD	SA	TAS	VIC	WA
Yes	53.5%	50.0%	70.3%	66.7%	63.6%	55.3%	61.1%
(respondents=671 missing=360)							

Comments were provided by 42% (n=158) of coders who indicated that they would not be interested in a coder certification exam, and by 42% (n=239) of coders who indicated that they would be interested. Reasons for a lack of interest included:

- dislike of examinations
- lack of coding experience in all areas of coding due to specialisation in particular area and/or nature of cases that present to facility
- uncertainty about the benefits or value of completing coder certification examination
- concerns about the expense of examination
- coders nearing retirement therefore credential not seen as relevant to them.

For the coders who were interested in completing a coder certification examination, the following points were identified:

- Interest expressed provided employer paid the fees and/or there was a financial incentive to do the examination
- Useful to gain insight into coding skills and to further personal career prospects
- Useful to enhance the coding profession as a whole and recognise coders as qualified professionals.

5.12 Coders' general comments

Coders were invited to provide free text responses in two parts of the survey for the following questions:

1. What do you see as the role of the clinical coder in the future, and do you feel the profession is prepared for any changes you envisage?
2. What do you see as the impact of electronic health records on coding practices in the future?

Respondents were also invited to make additional comments about coding or the clinical coder profession. The general themes that emerged from these questions are discussed below.

5.12.1 Role of clinical coders in the future

There were eight major themes to emerge from coders' comments in relation to the role of clinical coders in the future, with 564 respondents (55%) providing comments. In order of importance, these themes were categorised as:

1. increased need for continuing education to keep abreast of changes in clinical knowledge
2. greater involvement in financial issues/funding/casemix
3. use of electronic health records
4. increased importance of coders and recognition of clinical coding as a profession
5. more involvement in quality assurance activities and research
6. increased complexity of coding and greater pressures on coders
7. more interaction with clinicians/medical staff
8. increased involvement in computing/IT.

Approximately 22% of coders indicated that a requirement for increased clinical knowledge would be vital to their roles in the future. They stated that through continuing education and training, they felt confident of their ability to keep abreast of changes to their roles and responsibilities.

Around 20% of coders believe that clinical coding will play an integral role in the casemix-based funding of all hospitals in the future and that clinical coders will become casemix experts/advisors, involved in the interpretation of coded data and ramifications of that data for hospital funding.

One in five coders indicated that electronic health records will play a major part in the role of clinical coders in the future, and 14% of coders indicated that the role of coders would become more focused on data quality, data auditing and research, rather than pure coding.

Fifteen percent of coders reported their view that the role of clinical coders in the future will become increasingly important and that coding will receive more professional recognition. Related to this, 10% of coders indicated that coding will become progressively more complex. There will be increased responsibility for coders, and a concomitant greater pressure on coders to perform.

One in ten coders stated that there will be a stronger liaison between clinical coders and clinicians/medical staff in the future. These coders suggested that clinicians will become increasingly involved in the process of coding with the introduction of electronic health records, resulting in a greater need for interaction between clinicians and coders to ensure data quality.

Finally, 6% of coders raised the influence of technology on the role of the clinical coder, stating that clinical coders will need to possess greater information technology skills and to be more computer literate. This was seen as particularly important with a perceived move towards greater automation of the coding process.

Five percent of coders who responded to this question stated that they thought that there would be no change to the role of coders in the future, and 3.5% were unsure of whether there would be any changes to coding in the future.

5.12.2 Impact of electronic health records

Eight themes were identified in the coders' responses to the question of the impact of electronic health records, with 577 coders (56% response rate) providing comments on this issue. In order of importance, these themes were categorised as:

1. easier and faster access to data/greater availability of information
2. increased need for computing/IT skills
3. data quality issues
4. concerns about the coding profession becoming obsolete with the introduction of EHRs
5. improved legibility of records
6. greater involvement of clinicians in medical record documentation
7. greater flexibility in the location of coding (that is, off-site/work from home/centralised coding office)
8. concerns about the occupational health and safety risks associated with continued use of computers.

A large number of coders' responses (35%) referred to the foreseen benefits of EHRs in relation to the access and availability of information from which to code. Coders believed that the easier access to off-site information and greater availability of information in an electronic record would result in a faster coding turnaround time using EHRs than paper-based records.

For 15% of coders, EHRs raised technological concerns, with these coders stating that there would be an increased need for coders to be computer literate and have adequate technological skills. These coders also raised concerns about the adequacy of computer systems to cope with EHRs, with the suggestion that there may be more computer downtime that would considerably affect the timeliness of coders' work. They highlighted the need for improved IT infrastructure and support as important aspects for consideration in the introduction of EHRs.

Approximately 14% of coders highlighted data quality and accuracy issues in relation to EHRs. Of the 54 coders who specifically commented on the impact on data accuracy, 65% believed that using EHRs would considerably improve data accuracy, 30% believed that there would be a negative impact of EHRs on data accuracy, and 5% were neutral in their view, stating that much depended on the quality of the data provided. Reasons for improved data quality included more readily available information and improved legibility of records. Reasons given for poorer data quality related to the increased involvement of clinicians in the coding process and the automation of coding. Coders also stated that there would be a greater role for coders in the assessment of data quality with the introduction of EHRs, with coders more involved in checking data quality and less involved in the actual coding of health data.

Approximately 14% of coders suggested that the introduction of EHRs could result in coding being a more automated process, which they believed could potentially render the coding profession obsolete, or at the very least reduce the number of coding jobs available.

Nearly 7% of coders indicated that EHRs would enable greater flexibility in the location in which coding is performed, with coders believing they will be able to complete their coding off-site either at a centralised coding site or working from home.

Finally, a small percentage of coders (3%) raised various occupational health and safety concerns in relation to EHRs, stating a belief that a continual use of computers could result in more headaches, eye and neck strain.

5.12.3 Other comments

Four areas of concern were identified by 263 (25.5% response rate) coders when asked for any other comments about clinical coding as a profession:

1. changes to the education and training of clinical coders
2. award structure and salary
3. lack of value of coders by other medical staff
4. complexity of coding.

Over one third of those who responded to this question discussed the education of coders. It was suggested that there needs to be more opportunity for education and training for coders both at the beginning of their careers and as continuing education

during their careers.

Almost 25% of coders indicated that the salaries of coders are inadequate and that there needs to be an award structure specifically for clinical coders that recognises their qualifications and the importance of the role that they play in a hospital setting.

Approximately 18% of coders who responded to this question stated that clinical coders are not valued by medical and other clinical staff. Such staff do not understand the importance of the role of the clinical coder and clinical coders do not receive adequate recognition for their work.

Finally, one in ten coders stated that clinical coding is growing increasingly complex and the escalating number and frequency of changes to coding standards and guidelines are making the task of clinical coding more difficult.

Section 6

Discussion

6.1 Respondents' profile

6.1.1 Manager response rate

Of the 1,277 facilities that were deemed eligible to respond to the survey, a total of 424 managers responded, representing a response rate of 33.2%. The response rate was mainly affected by the low rate of reply from managers from public rural facilities (26.5%), public remote facilities (13.8%), and private metropolitan facilities (30%). Approximately half of the managers from public metropolitan facilities that were contacted chose to respond to the survey. Managers from Queensland and Tasmanian public facilities showed the lowest response rate of 19.1% and 12% respectively. A good response was received from managers from facilities in the Northern Territory with three out of the four remote facilities replying. A similar proportional breakdown of managers per state was evident between the 1994–1995 and the 2002 surveys; however the overall response rate for managers was considerably lower in 2002. The 1994–1995 survey attracted a response rate of 76.7%. Factors that may have affected the lower response rate for the 2002 survey were as follows:

- differences in the time of the survey distribution with the 1994–1995 survey distributed in November 1994 and due back in January 1995, while the 2002 survey was distributed in June and due back in August, with mid-year potentially a busier time for managers than the end of the year
- while reminders were posted on the NCCH web site, the Code-L list server, and the HIMAA E-Bulletin in 2002 which improved the response rate slightly, reminder telephone calls to managers in 1994–1995 were reported to have resulted in a higher response rate
- changes in the roles and responsibilities of managers and increased demands on managers' time since 1994–1995 with the introduction of casemix, may have affected the managers' inclination to respond
- the 2002 manager survey was slightly longer than the 1994–1995 version, which may have deterred some managers.

6.1.2 Coder response rate

A total of 891 individual coders responded to the survey (1,031 survey responses were received overall, including multiple responses from multi-site coders). The number of responses was only slightly lower than the coder responses from 1994–1995 (971 individual responses, with 1242 survey responses overall). A similar proportion of coders responded per state in 1994–1995 compared with the 2002 survey, though a higher percentage of coders responded from metropolitan facilities in 2002 compared to 1994–1995 (69% compared to 55% in 1994–1995). Also, a slightly higher proportion of coders in 2002 responded from private facilities compared to 1994–1995 (35% in 2002 compared to 28%).

6.1.3 Activity level of facilities

The total sum of the separations reported by managers in the survey was 3,152,178 representing just under half of the 6,400,000 separations in Australia in 2001–2002 (AIHW, 2003). While approximately one-third of all facilities responded, these facilities recorded just under half of all separations occurring in Australian facilities. This is likely due to the fact that a larger proportion of public metropolitan facilities responded to the questionnaire compared to private facilities or non-metropolitan facilities, with two-thirds of the responses from public metropolitan facilities having annual separations in excess of 10,000.

The breakdown of manager respondents by separation size of the facility was as follows:

- 17% of facilities had fewer than 1000 separations in the 2001–2002 financial year
- almost half of the facilities had between 1,000 and 10,000 separations
- over one-third of facilities had 10,000 or more separations in the 2001–2002 financial year.

Facilities that responded to the 2002 survey were proportionally larger than respondents to the 1994–1995 survey in relation to separation size with only one-quarter of the facilities in 1994–1995 having 10,000 or more annual separations.

In terms of bed numbers, 43.5% of managers' responses were from facilities with less than 50 beds. Facilities with between 50 and 100 beds contributed 20.5% of manager responses. Facilities with more than 100 beds represented 36% of managers' responses. Compared to the 1994–1995 survey, larger facilities comprised a greater proportion of responses, with three-quarters of the 1994–1995 facilities reported by managers as having fewer than 100 beds. Coders showed more similarity than managers with approximately two-fifths of the coders from both the 1994–1995 survey and 2002 survey coming from facilities with fewer than 100 beds.

6.1.4 Use of ICD-10-AM

Managers indicated whether ICD-10-AM was used to code patient episodes in their facility. Only two facilities indicated that they did not use ICD-10-AM. Both of these responses were from administration officers in public facilities with less than 50 beds, one facility was a hospital and the other a day-care facility. As facilities in all states and territories are required to use ICD-10-AM, these findings are to be investigated further.

6.1.5 Coding throughput requirements

Cases were selected where data was available on the coders' working hours and the separation size of the facility to enable calculations that would establish coder workload in terms of separations per coder. The sample was comprised of 310 facilities (73% of the total number of respondents). The sum of separations in this selected sample was 2,951,537 (94% of all reported separations in the survey), and the number of full-time equivalent (FTE) coders included in the selected sample was 395. Working on a 36.25 hour week and 48 week year for FTE coders, this resulted

in the equivalent of approximately 7467 separations coded per year per coder, being approximately 4.3 records per hour for the selected sample.

When focusing specifically on hospitals, rather than day-care facilities, the total sum of the separations reported in the survey was 2,872,258. The number of FTE coders available to code these separations in this sample was 370, which results in the equivalent of approximately 7790 separations coded per year per coder. This equates to approximately 4.5 records per hour (working on a 36.25 hour week and 48 week year for FTE coders). As there were fewer FTE coders in private hospitals than public hospitals, private hospitals showed a higher coding throughput per coder than public hospitals, with nearly 5 records per hour in private hospitals compared to 4.3 records per hour in public hospitals. Metropolitan hospitals had a higher coding throughput per coder than rural or remote facilities, with 5.1 records per hour in metropolitan facilities, compared to 3.27 records in rural facilities and 2.33 records per hour in remote facilities. As rural and remote facilities had a smaller number of total separations than metropolitan facilities, there were fewer separations to code per coder, resulting in the lower coding throughput. Having to perform duties other than coding also affected coding throughput, and this factor is discussed in section 6.4.

These results need to be interpreted with caution. There were some differences in the facilities where all of the information was available (the facilities selected in the sample) and where all the information was not available (the facilities not selected in the sample). In New South Wales and South Australia unselected facilities comprised a larger percentage of total facilities than those which were selected, while the reverse was true in Victoria. Metropolitan day care facilities and hospitals represented a larger proportion in the selected sample than the facilities which were not selected. Only 14 of the 60 facilities in the unselected sample provided separation numbers. It appears from the information available that a larger percentage of 'higher-activity' hospitals were represented in the selected sample, with 37% of selected hospitals having annual separations in excess of 10,000 compared to just 14% of unselected hospitals. From patterns identified in the selected sample, it is likely that the unselected respondents would have a lower coding throughput compared to the selected sample, because of a higher proportion of free-standing day care facilities in non-metropolitan areas.

Overall these results are in line with the findings reported by the New South Wales Clinical Coder Workforce Working Party in 1997. Results at that time showed that in public facilities, the average coding throughput was just over 8,000 records per year, with an hourly coding throughput of between 4 and 5 records per hour. Based on these findings, the NSW report recommends one FTE coder per 6,650 separations in Principal Referral Hospitals, and one FTE coder per 8,000 separations for all other facilities. These recommendations are supported by the findings from the current project.

6.2 Coding locality and resources

6.2.1 Coding service location and responsibility

Nearly all managers in 2002 responded that coding was conducted on-site rather than off-site, which differs from 1994–1995 results in which one-quarter of managers indicated that coding was performed off-site. At the time of the earlier survey, three of the state and territory health departments reported that they offered a coding service for hospitals without trained coding staff. This relied on the provision of a copy of the front sheet of the hospital record, completed by the clinician responsible for the care of the patient, being forwarded to the health department, where it was coded. Coding was performed this way for around 7% of facilities across Australia.

Off-site coding was also undertaken at local base hospitals, with 126 facilities reporting this arrangement in 1994–1995. Concerns were expressed at the time about the quality of coding performed without reference to the whole medical record to which the reported diagnoses and procedures related. Two of the three state health departments reported that this had an enormous effect on coding quality, whilst the third department reported that it had a moderate impact. The main quality issues related to a lack of specificity in the reported diagnoses and missing diagnoses, external causes or procedures. In the past eight years, there has been a strong push for devolvement of the coding function back to hospitals and regions so that the majority of coding is now done on-site. For cases coded at local or base hospitals, arrangements are in place in most facilities for the relevant medical records to be made available to coders contracted to undertake this work on behalf of other hospitals. Very few uncoded records are now reported to state health departments and arrangements with local base hospitals to provide coding services off site have become far less common. More frequently, facilities without coders on staff employ contract coding companies, individual contractors or travelling regional coders to perform this function on site, using the full hospital record.

At the facility level, coding is most commonly part of the Health Information Service/ Medical Record Department (HIS/MRD), with 87% of facilities in 2002 and 81% of facilities in 1994–1995 indicating that this department was responsible for coding hospital separation data. For both surveys, South Australia had the highest number of respondents who stated that coding was not the responsibility of the HIS/MRD, with one-quarter in 2002 and over one-half of respondents in 1994–1995 indicating that other departments were responsible. For South Australia, the 1994–1995 results showed the second most common response to this question was the state health department or a regional coder (33%). Compared with this result, in 2002 regional coders were responsible for 66% of the coding. This reflects an historical trend in South Australia, a state where few formally-trained HIMs are employed and where there is no university program relating to health information management. Being relatively small geographically, it is possible for regional coders or HIMs to be responsible for the on site coding of several district hospitals.

Three-quarters of coders stated that they reported to the Health Information Service/ Clinical coding department in their facilities and 10% reported to an administration division in 2002. In keeping with the results noted in the previous paragraph, while an average of 3% of coders across Australia reported to the finance/business department of their facilities, 11% of coders in South Australia reported to this department.

6.2.2 Physical location of coders

The majority of coders were physically located in the HIS/MRD in 2002, with half of these coders in open plan offices and half in offices specifically for coders. Three-quarters of coders were satisfied with their physical location at work, with differences depending on where they were located. The coders who were most satisfied with their work locations were located in offices specifically dedicated to coding, particularly if these offices were located on the ward, allowing them easy access to clinical staff with whom to clarify coding problems. The coders most dissatisfied with their work location were located in areas not specifically dedicated to coding or health information management work, such as shared offices with medical staff, reception or administration areas. Coders require plenty of space to lay out the tools of their trade – coding books, medical records and other reference materials. Because the majority of their time is spent reading, interpreting and decision-making, good lighting is required and a quiet area to facilitate concentration is advantageous. The requirement for coders to undertake other duties in addition to coding is likely to be one of the reasons why coding is performed in many different locations. Nearly 30% of coders reported that having to code in a distracting environment had an effect on the quality of coding at their facility. Interestingly, approximately the equivalent percentage of managers held the same view regarding the difficulties of working in distracting surroundings.

6.2.3 Resources available to coders

In 1994–1995, the resources available to coders to assist them with their coding roles were limited in the main to coding books and hard copy reference materials. Most of the state and territory health departments had coding committees or coding authorities, however these worked largely autonomously within each state. The National Coding Centre (NCC) (now the National Centre for Classification in Health [NCCCH]) was established in late 1993 and had not fully developed its education and support programs. The Health Information Management Association of Australia (HIMAA) Ltd had been offering distance education courses and accelerated face-to-face programs in medical terminology and introductory ICD-9-CM coding for two years. The Clinical Coders' Society of Australia (CCSA) did not yet exist.

In marked contrast, these three organisations offered significant support to the coding profession in 2002. With respect to the classification used in Australian hospitals, the NCCCH (the successor to the NCC, formed through a joint venture between the NCC and the National Reference Centre for Classification in Health (NRCCH)), now produces ICD-10-AM. This classification is available in both a hard copy, five volume set and electronically as a browser and e-Book. Importantly, the classification is now an Australian product that reflects Australian clinical practice and the needs of Australian coders and clinicians, rather than an American product with Australian additions (as was ICD-9-CM). A significant adjunct to the classification is the Australian Coding Standards which guide coders in their application of the coding system. This has made an impact in terms of improving quality and standardising morbidity coding practice across Australia (Alechna, Westbrook and Roberts, 1998–1999).

6.2.3.1 Education

In terms of education focussed on the needs of coders, a biennial conference is run by the NCCH; the HIMAA offers coding programs at introductory, intermediate and advanced levels as well as medical terminology courses. The CCSA was established by the HIMAA following recommendations arising from the National Coder Workforce Issues Project, and provides a peer support network for coders as well as offering some workshops for practicing coders. Coding quality products, such as the Australian Coding Benchmark Audit (ACBA) and Performance Indicators for Coding Quality (PICQ), have been developed by the NCCH. The Centre also produces a quarterly newsletter *Coding Matters* and hosts an e-mail discussion forum, Code-L. An archive of *Coding Matters*, including coding guidelines published in its 10-AM Commandments column, and copies of all coding queries and responses handled by the NCCH, are available via the NCCH's Internet home page (<http://www.fhs.usyd.edu.au/ncch>). Update workshops for coders are provided every two years, coinciding with release of new editions of the ICD-10-AM. Beginning with ICD-10-AM Third Edition, educational material has been made available on the Internet and on CD-ROM, in addition to face-to-face workshops.

6.2.3.2 Technology

However, despite the widespread availability of resources in 2002, disparities across states were evident in coders' ability to access them. In terms of computing/technological resources, half of all coders had access to a computer, the Internet, e-mail and Code-L, with 80% of coders having access to at least one of these resources at work and nearly half of all coders having access to one of these resources at home. Coders in Queensland reported having the highest level of access to computing and technological resources with over 90% of coders able to access a computer, the Internet and/or e-mail. However, for Queensland public sector coders, work access to the Internet is restricted to approved sites and this may affect coders' ability to search for relevant information to assist with coding.

Differences were also evident from the survey responses regarding access to other coding resources (such as coding books, browsers, list-servers, newsletters, and networks) across states. Victorian coders have the greatest access to the most coding resources, and coders in New South Wales have the most limited access to these resources. Significant time is devoted by the NCCH, HIMAA and CCSA in developing the products and programs to support the work of coders. Considerable resources are also expended by state and territory health departments in formal auditing of the output of coders' work. It would seem sensible for emphasis to be placed on facilitating the access of coders to existing support products to assist them with answering coding queries and standardising coding practice at the time coding is performed.

The ability of coders to access and use the various technologies and resources is particularly relevant to the three organisations providing support for clinical coders, in terms of decisions relating to future product development. In particular, the move by the NCCH to produce an e-Book and browser version of the ICD-10-AM and electronic products heralds the way that future editions of the classification and educational materials may be presented.

6.3 Workforce change

6.3.1 Coding workforce

Nearly 10% of facilities in both 2002 and 1994–1995 indicated that they had current coder vacancies. The majority of these vacancies at the time of each survey were in New South Wales, with one-third of the coder vacancies overall located in this state. It was calculated that 38.1 existing FTE coder positions were currently unfilled across Australia in the 422 facilities that replied to the survey, compared to 94 FTE coder positions in 1994–1995 overall 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 by the universities who offer HIM programs and the administrators of the coding programs offered by the HIMAA and OTEN, we have calculated that approximately 170 potential new coders graduate annually. Assuming that a percentage of HIM graduates will not become coders, we estimate that there are approximately 100 new coders entering the marketplace every year. Unfortunately we do not have any data regarding the number of coders who leave coding positions in a given year, so it is difficult to assess whether the supply and demand are in equilibrium. However, calculating from the total separations for 2001–2002 reported by the Australian Institute of Health and Welfare (AIHW) and our assessment of coding throughput requirements, we estimate that there is a need for at least 820 full-time equivalent coders in Australia. The number of part time and casual employees, as discussed in section 6.3.2, and the amount of time that coders spend in performing functions other than coding, as outlined in section 6.4, are also relevant to coder workforce requirements.

6.3.2 Employment status

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. Similar proportions of coders worked part-time or on a casual basis in 1994–1995. A comparison of full-time employees is more difficult, because in 1994–1995 respondents who reported that they worked full time were not provided the option of selecting that they had other work to do besides coding in the question relating to employment status. However, it is possible to infer these results as over 50% of respondents who reported that they worked full time indicated that they performed general medical record/HIM functions as well as coding. Further analysis of the employment hours of coders showed that it is likely that many of the respondents who reported that they were full-time coders in 2002 also had other work to do besides coding. This is further discussed in section 6.4. Adding the number of full time coders and coders who reported other work to do gives approximately the same percentage of full time employees as in 1994–1995. Thus there do not appear to be major overall differences in the distribution of coders by hours of coding employment between 1994 and 2002.

In terms of actual hours worked, over half of the coders in both surveys worked more than 35 hours per week, approximately 8% worked between 25 and 35 hours per week, one-quarter worked between 8 and 24 hours per week, and around 14% worked less than 8 hours per week.

In both the 1994–1995 and 2002 samples, Queensland had the lowest number of part-time employees (approximately 18%) and South Australia had the highest number of part-time employees (approximately 34%).

6.3.3 Salary and industrial conditions

At the time of the 1994–1995 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. The most common award in both 1994–1995 and 2002 was the Health Services Union award, with one-fifth of coders in 1994–1995 and two-fifths of coders in 2002 employed under this award. Administration officer awards were the next most common in 2002, with one-third of coders employed under this type of award, generally at a Level 3 or 4 in the award structure.

The most common salary range for coders in the 2002 survey was \$35,000–\$39,999, with 26.9% of coders earning salaries in this range, while the most common salary range of coders in the 1994–1995 survey was \$25,000–\$29,999, with 34.8% of coders earning salaries in this range. This rise in salary range between 1994–1995 and 2002 is in line with CPI increases and is similar to increases in the average earnings of employees across Australia (Australian Bureau of Statistics, 2003).

Coders who performed duties other than coding were more likely to earn higher salaries than coders who did not perform other duties. Twenty percent of coders who perform tasks in addition to coding earn more than \$50,000 per annum whereas only 5% of those who code exclusively earn a similar amount.

In 2002, the most common salary range for coders with less than one year of experience was \$30,000–\$34,999, rising to \$35,000–\$39,999 for coders with more than one year of coding experience. In 1994–1995, the most common salary range for coders with less than one year experience was \$25,000–\$29,999, and this mode salary range remained constant until coders gained more than 10 years' experience, rising to \$35,000–\$39,999. Compared with 1994–1995, a clearer incremental progression can be seen in coders' salaries as they gain more experience. However, coders' comments in the final section of the survey indicated a general feeling of dissatisfaction amongst members of the profession 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 provides recognition for their skills.

A report written as part of the National Coder Workforce Issues Project (HIMAA, 1995) regarding industrial conditions for clinical coders reported that, although a single Federal Award to set out uniform terms and conditions for coders was a desirable outcome, this would be difficult to achieve in practice. This was seen as due to:

- the large number of individual employers of coders
- inherent differences between public and private sector circumstances

- the number of different unions involved
- a reluctance to move away from state jurisdictions
- the requirement to separate out a relatively small number of employees from broad-banded state awards which cover a range of occupations, and
- a move towards enterprise-based arrangements.

The establishment of national benchmarks and terms of employment for coders was recommended, but it was noted that the success of this approach would rely on considerable backing from unions and employers. As far as is possible to tell from the results of the 2002 survey, it seems likely that little has changed industrially for coders since the earlier survey.

6.3.4 Coders' experience

There were a greater number of coders with more years of experience in 2002 than there were in 1994–1995. In the current survey, over 65% of coders reported having more than five years experience, compared to 45% in 1994–1995. A little over 32% of coders nationally reported having more than ten 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 reported that they had been coders for at least ten years. The states with coders least likely to report having worked in the role for this length of time were Western Australia and Queensland (20% and 22% respectively). At the other end of the spectrum, approximately 5% of respondents reported that they have less than one year of experience as clinical coders, with New South Wales (4.6%) and Victoria (4.4%) most highly represented in this group. This may be a function of the number of graduates of university HIM programs or HIMAA and OTEN courses which, whilst offered by distance education, are administered from New South Wales.

Coders also appear to be remaining in the same coding job in a facility for longer periods of time in 2002 than they reported in 1994–1995. Over half of the 2002 respondents stated that they had worked in the same facility for more than five years, compared to just 20% of coders in 1994–1995. While, as is to be expected, the number of positions held by coders rose with years of experience, those respondents reporting less than ten years of experience had most commonly held only one coding position. Respondents with more than ten years coding experience most commonly indicated that they had held three coding positions. HIMs were more likely than clinical coders to change positions as they gained more experience, with HIMs with 5–9 years experience reporting that they had held at least two positions, and those with more than ten years experience most commonly reporting three positions. In contrast, respondents who called themselves clinical coders reported a mode number of positions of one, regardless of years of experience. Therefore it appears that clinical coders are tending to remain in their coding roles for extended periods of time.

6.3.5 Coders' job titles

The most common job titles for coders who responded to the 2002 survey were clinical coder (52%) and health information manager/medical record administrator (HIM/MRA) (31%). This finding showed a change compared with 1994–1995 where nearly half of the coders were called HIM/MRA and less than one-third were called clinical coders. There has been increased recognition for the job title 'clinical coder' for this distinct group of professionals over the last eight years, as a result of recommendations made during the National Coder Workforce Issues Project. The title 'clinical coder' is now included in the ABS' Australian Standard Classification of Occupations (ASCO code 61992) (Australian Bureau of Statistics, 1998). Information relating to the job and career prospects is included in JobGuide 2003 by the Commonwealth Department of Education, Science and Training (DEST, 2003). Because of the difference in job titles between the previous survey and 2002, the duties of coders with differing job titles were examined to identify the similarities and differences in roles of coders.

6.4 Coders' duties

In 2002, coders appeared to perform many other functions in addition to abstracting information from records and allocating codes. Interestingly, two thirds of clinical coders and nearly all other respondents to the 2002 survey performed duties beyond what defines the role of a clinical coder. The duties performed by coders relating to their coding role include allocating ICD codes using books or an encoder, data entry or indexing of codes, checking of edit reports, updating coding books, quality assurance activities relating to coding, participating in meetings to discuss coding issues, and other activities related specifically to coding. 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 1994–1995 over 50% of respondents indicated that they performed general medical record/HIM functions but the scope of other duties reported was less broad. Nearly one in five coders in 2002 reported that they performed five or more other duties beyond their role as a clinical coder.

There appears to be less of a distinction between HIMs who do some coding in addition to their usual work, HIMs who focus their professional life on coding and respondents who called themselves clinical coders. Quality activities and data entry are reported as being functions for the majority of both clinical coders and HIMs, and general medical record/HIM functions being 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 clinical coders with the difference mainly in the amount of auditing that was performed. In 1994–1995, 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 performed this role.

The increasingly diverse duties and roles of coders have implications for their training and education, affecting both the skills required by coders to perform their jobs, and the ongoing education and up-skilling of coders to meet work demands.

6.5 Coder education

6.5.1 Coders' educational backgrounds

Over one-third of coders in 2002 indicated that they learned to code as part of a HIM/MRA degree compared to one-quarter of coders responding in 1994–1995. Postgraduate HIM degrees also appear to have gained popularity compared to 1994–1995, when only five coders indicated that they had completed a postgraduate HIM degree, compared to 30 coders in 2002. At the current time, there is only one postgraduate HIM program offered in Australia, at the University of Sydney. At the time of the previous survey, a postgraduate nosology program offered by La Trobe University had just been discontinued.

HIMAA distance education courses had been completed by nearly 30% of coders in 2002, compared to just 9% of coders in 1994–1995, 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 1994–1995, one in ten coders in 2002 reported no formal training beyond what they had received on-the-job. The highest percentage of coders with no formal training was employed in public remote facilities, with 14% of these coders reporting only on-the-job training. This was followed by coders in private metropolitan facilities (12%) and private rural facilities (10%). Seven per cent of coders in public metropolitan and rural facilities showed the lowest percentage of coders with on-the-job training only.

There was considerable variation in coders' views of the adequacy of their education as preparation for coding in the work environment. Less than half of the coders who learned to code through a university course believed that this provided adequate training to code, with coders indicating that the lack of training for real-world and complex coding scenarios affected the adequacy of the course. In contrast, over 70% of coders who had completed HIMAA courses, a health department course, or who had on-the-job training reported that their education adequately prepared them to code. These coders stated that the education they received was comprehensive and provided them with a good grounding for coding in the work environment.

In summary, while there has been an increase in the number of coders with formalised training from universities and HIMAA courses, there is also a growing proportion of the coder workforce with no formal training beyond what they receive on-the-job. These results appear to be somewhat contradictory. It is possible, however, that the on-the-job training that coders receive is more substantial than that provided eight years ago. There is certainly anecdotal evidence of major hospitals or hospital groups employing coding educators, whose role is to provide a comprehensive grounding in clinical coding for beginner coders, and ongoing education for longer serving employees. With the increased demand for highly-skilled coders after the introduction of casemix-based funding, it is possible that these hospitals have chosen to train their own coders, shifting some of the roles and responsibilities of coding to nursing and administration staff. The difficulties that are experienced by universities in providing experience for students in coding from 'real records' and increasing problems in getting supervisors from hospitals to accept students on clinical experience placements is ameliorated by using this training technique. This explanation is supported when examining changes to the professional background of coders, which is discussed in the next section.

6.5.2 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 has also been a rise in the percentage of coders with a clerical/administrative or a nursing background in 2002 compared to 1994–1995. In 1994–1995 approximately one-quarter of coders had a clerical/administrative background, compared to over 30% of coders in 2002. However, respondents were not provided with the option of specifying a clinical coding background in 1994–1995. Given the increasing use of the title 'clinical coder', we believe that the many of the clinical coders who reported a clerical background in 1994 would now be reporting that they had a clinical coding background.

Interestingly in 1994–1995 around 15% of coders had a nursing background compared to approximately 22% of coders in 2002. This is consistent with the view that nurses are increasingly moving out of their profession into roles that utilise their clinical skills and knowledge (Duffield and Franks, 2002). It also supports the previous suggestion that there has been some shift in the roles and responsibilities of other hospital staff towards performing the coding role, either exclusively or in conjunction with their regular jobs.

6.5.3 Coders' continuing education

Facilities overall seemed to be more supportive of continuing education events in the current survey, with 90% of coders indicating that their facilities provided some form of support to enable them to undertake continuing education. The most common type of continuing education activity attended by coders was the NCCH update workshops, with two-thirds of coders attending these programs. Given that the workshops focus on providing coders with information about new codes and coding standards introduced into successive editions of the ICD-10-AM, it is reassuring that the majority of coders are able to attend with the encouragement of their facilities. In regard to more formal training programs, calculations from the managers' responses showed that nearly 20% of facilities had staff members that were currently enrolled in an ICD-10-AM training course. This figure was similar to the number of staff enrolled in training courses in 1994–1995.

Few coders reported that they were able to attend NCCH, HIMAA or Health Informatics Society of Australia (HISA) conferences however, with less than 15% of coders attending these conferences. This may be because the focus of such conferences may not be seen as pertinent to the coders' daily work, or possibly because conferences are held in one central location over several days. This is in contrast to the NCCH workshops which are held in each state and territory, in metropolitan and rural locations, and for a general duration of one day. Given the reported workload of coders, being away from the office for a longer time period may be problematic. Differences were evident in access to continuing education activities across states and localities, though no clear patterns in access could be discerned. HIMs, in general, showed the best access to continuing education, followed by clinical coders, while other position titles in general had poorer levels of access to continuing education events.

Less than half of the managers who responded reported that they were involved in the continuing education activities of their staff, with metropolitan public facilities showing the highest involvements (60% of managers) and remote public facilities showing the lowest involvement (less than 20% of managers). Of those managers that are involved in continuing education, over two-thirds spend less than 5% of their time developing, providing or facilitating access to these activities.

Overall, coders also appear to be spending little time on continuing education with over three-quarters of coders stating that they spend less than 5% of their time on continuing education activities. Of interest was the greater percentage of time spent by coders in remote facilities on continuing education than coders in metropolitan areas. Half of the coders in remote facilities spend more than 5% of their time on continuing education, compared to 30% of coders in metropolitan facilities. This was of particular relevance considering that coders in remote facilities indicated that a lack of continuing education to update skills had more of an impact on coding quality than coders in metropolitan facilities. Thus, while coders in remote locations spend more time than their metropolitan counterparts on continuing education, an overall lack of available continuing education is believed to impact on their ability to code accurately. This needs to be considered in the development of future education activities by the NCCH, HIMAA and CCSA.

Given that coding reflects current medical practice, there is an obvious need for coders to ensure that they are familiar with contemporary clinical techniques, methods and procedures. However, the necessity for coders to perform multiple functions or to work towards a specific throughput target, will impact on the time that is available to undertake continuing education. A balance between these requirements needs to be found to ensure that coding quality is not detrimentally affected. The findings of the survey in relation to factors affecting coding quality are elaborated on in the next section.

6.6 Coding quality

6.6.1 Access to clinical staff

Three-quarters of coders reported that they had access to clinical staff to discuss coding issues, with the most common means of access being ad-hoc meetings with clinical staff (one-quarter of respondents), designated clinical contacts for queries (14%), and regular clinician-coder meetings (13%). Variations were evident across states, with around one-fifth of Victorian coders having regular clinician-coder meetings and designated clinical contacts for queries, compared to approximately 5% of coders in Western Australia. Given the imperative imposed by casemix management on the need to ensure that codes assigned accurately reflect the diagnoses and procedures experienced by patients, and the resultant funding implications in some facilities, there is greater interest amongst clinical staff in coding outputs. Whether coders have access to clinical staff to discuss coding issues, is one of several factors believed to impact on coding quality. Other important factors are discussed in the next two sections.

6.6.2 Factors affecting coding quality: Managers' views

The major factors identified by managers as affecting coding quality are the responsibility of clinical staff completing the record and relate to documentation practices.

Over two-thirds of managers indicated that incomplete medical record content and a lack of clearly identified principal diagnoses, complications and co-morbidities had an effect on coders' ability to code accurately, completely and in a timely manner. Over half of all managers also stated that illegible medical records affected coding quality, with this factor particularly problematic in rural areas. The impact of poor documentation on coding quality does not appear to have improved over the last eight years, with respondents to the 1994–1995 survey also identifying the same four factors as those with most effect on coding quality. The NCCH developed the *Good Clinical Documentation Guide* (2003) to help address these concerns.

The fact that coders had to perform multiple tasks was listed as the fifth most important factor affecting coding quality with 43% of managers indicating that the multiple demands on coders' time was problematic. The performance of multiple tasks was particularly challenging for coders in non-metropolitan areas, with a half of managers in these areas indicating that this factor had an impact, compared to 38% of managers in metropolitan areas. One-third of managers also indicated that a distracting work environment affected coders' ability to code accurately, with 10% more rural managers than metropolitan managers indicating this factor affected coding performance. This may also be linked to the necessity for some coders to work in areas not traditionally viewed as coding locations, such as reception areas, conferences rooms or finance offices. For these coders, having multiple roles and having to code in locations which offer little support to the coding process, is of concern.

Around 30% of managers highlighted a lack of continuing education and lack of training available for coders as impacting on coding quality, and this was especially problematic in remote areas with 44% of managers in remote areas compared to less than 30% of managers in metropolitan areas identifying this factor. One-fifth of managers suggested that the inexperience of coders in their facility affected the quality of the coding they performed.

Technical issues such as a lack of linkage between computers and data entry issues appeared to have little impact on a coder's ability to code accurately, with only one in ten managers considering these to be a problem for coders.

Issues pertaining to the coding system and coding guidelines also appeared to have some impact on coding quality according to managers, with 15% stating that the limitations of ICD-10-AM as a coding system had an impact. However, compared with the results of the 1994–1995 survey, in which 50% of managers were concerned about the classification used at the time (ICD-9-CM), this is somewhat reassuring. Only 5% of managers reported difficulty in obtaining current coding books as having an impact on coding quality. However, 11% identified a lack of reference books as a problem for coders.

Overall, documentation issues, competing demands on coders' time, workplace distractions and a lack of continuing education are viewed by managers as more challenging to coders in rural and/or remote areas compared to coders in metropolitan areas.

6.6.3 Factors affecting coding quality: Coders' views

In a similar vein to managers, coders identified documentation issues in the top four factors affecting coding quality, with approximately three-quarters of coders indicating that incomplete medical record content and lack of specificity in documented principal diagnoses, complications and co-morbidities affecting their coding quality. Over two-thirds of all coders stated that illegible medical record entries affected coding quality. While the top four factors were similar between coders and managers, a larger percentage of coders than managers believed these factors had an impact. As with the results reported by managers, the impact of poor documentation on coding quality has not appeared to change over the last eight years, with coders identifying the same four factors in 1994–1995 as in 2002.

Coding deadlines and demands were listed by coders as the fifth and sixth most important factors affecting coding quality, with over two-fifths of coders indicating that pressure to meet coding throughput requirements and submission deadlines impacted on coding quality. These factors were identified as more problematic in metropolitan areas than rural or remote areas. It is likely that the higher number of separations in large metropolitan facilities creates increased demand on coders to meet deadlines.

The multiple tasks performed by coders were reported to have an impact on coding quality for over one-third of coders, slightly less than the 43% of managers that indicated this factor was problematic. However a similar pattern to the managers' results showed that the performance of multiple tasks was more challenging for coders in non-metropolitan areas (around 45% impact) than metropolitan areas (35%). This may be due to the fact that a larger percentage of coders in non-metropolitan areas had duties other than coding, with 84% of coders in non-metropolitan areas performing duties other than coding, compared to 69% of coders in metropolitan areas. Furthermore, performing multiple tasks was an issue of concern for more administration officers and HIMs than clinical coders, with 58% of administration officers, 44% of HIMs, and 30% of clinical coders indicating this factor had an impact on coding quality.

A similar proportion of coders to managers (around 30%) suggested that a lack of continuing education for coders to update their skills impacted on coding quality. This factor was especially problematic in remote areas where half of the coders raised this factor as an issue, compared to 28% of coders in metropolitan areas. A lack of continuing education was seen as more of an issue eight years ago, with nearly half of the coders responding to the 1994–1995 survey indicating that this had an impact on coding quality. It appears that the NCCH's strategy to take coding workshops out of the major cities to more rural locations is having its desired effect in allowing non-metropolitan coders better access to the same materials as their city counterparts. The availability of more educational materials on line via the Internet or other electronic media is also a factor in improving access to these resources.

As with managers, another factor showing considerable variation between 1994–1995 and 2002 was the impact of the coding system on coding quality. In 1994–1995, 37% of coders stated that limitations of ICD-9-CM impacted on coding quality, compared to 21% of coders in 2002 that stated that limitations of ICD-10-AM impacted on coding quality. Interestingly, coders were more critical than managers in their views of the coding system, which may be a reflection of the fact that they are the hands-on users of the classification.

Overall, it appeared that managers and coders had relatively similar views of the factors affecting coding quality, and there were few major differences evident between 1994–1995 and 2002. Issues of documentation, competing demands and requirements, and educational issues are still pertinent factors affecting coding quality. With the multitude of factors impacting on the coder's ability to code accurately, completely and in a timely manner, the use of quality assurance techniques are integral aspects of the coding process.

6.6.4 Quality activities

The proportion of facilities who reported that they spent time assessing coding quality has not changed in the time between the two surveys, with around two-thirds of managers and coders in both 1994–1995 and 2002 indicating that they performed quality activities. Facilities where coding was the responsibility of the HIS/MRD were more likely to report coding quality activities than facilities where coding was not part of this department.

Coders were more likely to undertake quality assurance (QA) activities if they worked full-time than part-time, and HIMs and clinical coders were more likely to perform QA than administration officers. Different proportions of coders performed QA across states, with Tasmanian coders showing the highest percentage of QA, compared to just over half of the coders in New South Wales. Managers from 70% of facilities reported that coding quality is assessed, which is broadly consistent with the percentage of coders that reported these activities (66.6%). However, it is of concern that 21% of coders indicated that there is no time available for quality assessment and 7.2% stated that QA is unnecessary at their facility. The move by some state health departments to make quality assessment tools, such as the NCCH's *Performance Indicators for Coding Quality* (PICQ) and *Australian Coding Benchmark Audit* (ACBA), available to facilities is commendable and is to be encouraged.

6.7 Future of the coding profession

6.7.1 Impact of electronic health records

The most common theme identified in both the managers' and coders' responses to the perceived impact of electronic health records (EHRs) on the coding role, was the view that EHRs would result in a greater availability of, and easier access to, information from which to assign codes. Respondents believed that EHRs would also improve the legibility of records. As a result, both managers and coders stated that they believed that coding quality would be improved with the introduction of EHRs. Technological concerns were raised, with managers emphasising the need for coders to develop better computing skills and coders indicating a requirement for increased technical support and improvements in computing facilities. Both groups also indicated that there would be an increased involvement of clinicians in the coding process. A belief that there may be greater flexibility in the location that coding is performed was also highlighted.

The move towards EHRs heralds a significant transformation in the storage and retrieval of information in health-care settings, and as a result, the health information management and clinical coding professions are likely to experience shifts in their roles and responsibilities. This view was evident in both managers' and coders' responses regarding the impacts of EHRs and in their views of the roles of clinical coders in the future. This issue is discussed in the next section.

6.7.2 Role of clinical coders in the future

The most important changes to the roles for clinical coders in the future identified by managers and coders alike were an increasing involvement in hospital financial issues, funding and casemix; more involvement in quality assurance activities, and an increased use of EHRs. Both coders and managers recognised the increased need for coders to have technological skills. In addition, coders raised concerns about the growing complexity of coding and increased demands on coders. Nevertheless, coders believed that in the future clinical coding will gain more recognition as a profession with this increase in responsibility. Interestingly, very few coders appeared concerned about the possibility that their current task of assigning codes might disappear, although many believed that coders will broaden the scope of their responsibility, becoming more managers of the coded data.

6.8 Conclusion

The 2002 National Clinical Coder Survey has provided valuable data to the health industry regarding the current clinical coder workforce. Although hampered by a relatively low response rate, the survey has demonstrated some significant changes to the profession over the eight years since the original National Coder Workforce Issues project survey in 1994–1995. Coders are now well-supported in terms of beginner and continuing education, resource materials, electronic products and quality assessment techniques and tools. The majority of these aspects of current coding practice were non-existent or in their infancy in the mid-1990s and it is a credit to the NCCH, HIMAA and CCSA that they have had an appreciable impact on the workforce through the development of these products.

Given the relative importance of the profession, the degree of reported change in the circumstances of clinical coder employment and in light of the rapidly changing nature of the health information environment, we believe that there is a need to continue surveying the coder workforce. However, given the time and expense of the undertaking, and the difficulties in ensuring a high response rate to intermittent surveys, an alternative may be to develop a form of professional registration for coders. In line with other health labour force collections relating to mainstream professional groups (such as medical officers, nurses, podiatrists, pharmacists, physiotherapists, optometrists, dentists and others) this would allow the regular collection of information to assist with workforce planning. In turn this is critical to provide an adequate and suitably distributed workforce around Australia (AIHW, 2002). Changes to the roles and responsibilities of clinical coders could thus be monitored and requirements for continuing education regularly assessed.

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Appendix I

Questionnaires

10 July 2002

Clinical Coding Services Manager

Dear Manager

The National Centre for Classification in Health (NCCH), in collaboration with the Health Information Management Association of Australia (HIMAA) Ltd and the Clinical Coders' Society of Australia (CCSA) Ltd, has developed a survey relating to the work of clinical coders nationally. The survey is based on one conducted by the HIMAA as part of the National Coder Workforce Issues Project in 1994. The survey's aim is to determine the changes that have occurred in the clinical coder workforce since 1994. The NCCH, HIMAA and CCSA will use information obtained from the survey's results to plan future educational and support activities for clinical coders.

Please note that all personal identification details supplied will be kept separately from the survey results and will not be used for any purpose other than contacting the original respondent to query incomplete or conflicting details. No individual will be identifiable in the analysis or reporting of results.

The survey is in two parts:

Part I is to be completed by the Clinical Coding Services Manager in each hospital in Australia. The aim of this part of the survey is to determine strategic information about the coder workforce and aspects of coding practice from a management perspective.

Part II of the survey is to be completed by each clinical coder employed by public and private hospitals and day facilities in Australia. The aim of Part II is to gain an awareness of the number of coders in Australia, their educational and professional backgrounds and circumstances relating to their employment and work as coders. An important part of the survey asks coders about their perceived need for future education and their views regarding changes in the role of clinical coders in the future.

We invite you, as Manager of a clinical coding department, to complete Part I of the survey and to distribute copies of Part II to all coders at your facility. If you need more copies of the survey, please photocopy from the original or contact Sue Walker at the NCCH on 07 3864 5873 or s.walker@qut.edu.au to receive additional copies.

Completed surveys can be returned using the enclosed reply paid envelope **before 19 August 2002** to:

National Coder Workforce Survey
National Centre for Classification in Health
School of Public Health
Queensland University of Technology
Victoria Park Road
Kelvin Grove Q 4059.

Any questions about the survey can be directed to Sue Walker on the telephone number or e-mail address given above.

We look forward to receiving your response. Results from the survey will be reported at the next NCCH conference and through other appropriate symposia and journals. The information collected will assist us to meet the needs of the Australian clinical coder workforce in 2002 and beyond.

Yours sincerely

Sue Walker
Associate Director

Encl. 1 x Part I Manager survey
2 x Part II Clinical Coder survey



National Centre for Classification in Health
Australia



TO: THE MANAGER / SUPERVISOR RESPONSIBLE FOR CLINICAL CODING

A major aim of this survey is to provide a snapshot of the coder workforce in Australia. For this reason, we need your help to identify the individuals who comprise the clinical coder profession. The information is required to allow us to cross check that we have received surveys from all facilities and coders. The identifying details provided will NOT be used for any other purpose, nor will any individual be identified in the statistical analysis and reporting of results.

This survey is in two parts. Part 1 asks for information about the type of hospitals and day care facilities where coding is done. Part 2 asks for specific information about coders.

Part 1 is to be completed by the coding manager/supervisor
(ie the person responsible for making sure the coding is done).

Part 2 is to be completed by each coder in the facility

DEFINITIONS

Coder manager/supervisor:

The person in the hospital, day care facility or other health care organisation who is directly responsible for ensuring that information about a patient's episode(s) of care is coded using ICD-10-AM. In most cases this will be the person responsible for ensuring that coded data are submitted to the State or Territory morbidity statistics collection and to whom enquiries about these data are initially directed.

For example, this person may be the manager of the health information service or medical record department in a hospital, or the manager of a whole facility if there is no separate health information or medical record service. **The person need not be a clinical coder.**

Clinical coder:

Someone who allocates ICD-10-AM codes to diagnoses and procedures as part of their work.

Coding:

Where the term 'coding' is used in this survey, we include these activities:

Allocating ICD-10-AM codes using books or an encoder, data entry or indexing of codes, checking of edit reports, updating coding books, quality assurance activities relating to coding, participating in meetings to discuss coding issues, or any other activity related specifically to coding.

INSTRUCTIONS FOR MANAGER/SUPERVISOR

- ✓ Please answer Part 1 yourself
- ✓ Please give a copy of Part 2 to each person who codes in your facility and ask them to complete it.

If you have more coders than survey forms provided, please photocopy the required number or contact the National Centre for Classification in Health on 07 3864 5873 to request additional copies.
- ✓ If you are a coder as well as the manager/supervisor of the coding function, please complete both Part 1 and Part 2 of this survey.

Please return all completed surveys in the reply paid envelope provided by **19 August 2002** to:

National Coder Workforce Survey
National Centre for Classification in Health
School of Public Health
Queensland University of Technology
Victoria Park Road
Kelvin Grove Q 4059

- ✓ Clinical Coders have the option of returning their completed surveys to you to be included in the reply paid envelope, OR of sending their response directly to the address above.

NCCH / HIMAA / CCSA - 2002 CODING MANAGER SURVEY - PART 1

page 1 of 5 pages



**National Centre for Classification in Health
Australia**



The information you provide will remain confidential and secure. The published results will not identify any individual facility or coder. However, as a major aim of the survey is to provide a complete snapshot of the coder workforce in Australia, we need your name to cross-check that we have received surveys from all facilities and coders. Your name and address will not be kept with your answers or linked to them in the statistical analysis.

The results of the survey will be widely publicised in late 2002 through the publications, presentations and conferences of the National Centre for Classification in Health, the Health Information Management Association of Australia Ltd, and the Clinical Coders' Society of Australia. The results will also be used by these organisations to develop relevant and appropriate educational activities for clinical coders.

Your name:

Position/job title:

Address of facility:

City/town:

State:

Post code:

E-mail address:

Telephone:

Fax:

Date this survey was completed:

Thank you for your participation in this survey. If you have any questions or comments, please contact Sue Walker, Associate Director, National Centre for Classification in Health on 07 3864 5873 or <s.walker@qut.edu.au>.

NCCH / HIMAA / CCSA - 2002 CODING MANAGER SURVEY - PART 1

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<p>1. Are diagnoses and procedures relating to patients treated in your facility coded using the ICD-10-AM?</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes</p> <p>2. Please indicate in sections (a), (b) and (c), the categories which best describe your facility.</p> <p>(a) <input type="checkbox"/> Free standing day care facility</p> <p><input type="checkbox"/> Hospital</p> <p><input type="checkbox"/> Other - please specify _____</p> <p>(b) <input type="checkbox"/> Public</p> <p><input type="checkbox"/> Private</p> <p>(c) <input type="checkbox"/> Teaching (ie involved in undergraduate medical education)</p> <p><input type="checkbox"/> Non-teaching</p> <p>3. How many beds were available in your facility on 30 June 2002?</p> <p>_____ Beds or <input type="checkbox"/> Not applicable</p> <p>4. How many separations were there from your facility in the 2001/2002 financial year?</p> <p>_____ Separations</p> <p>5. Is anyone in your facility currently enrolled in an ICD-10-AM training course?</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes - how many people? _____</p> <p><input type="checkbox"/> Don't know</p> <p>6. Do you have any vacant positions for coders at present?</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes - how many FTE positions? _____</p> <p>If you answered NO to Question 1, please go to question 16. If you answered YES, please continue.</p> <p>7. Where is the coding done in your facility?</p> <p><input type="checkbox"/> On site</p> <p><input type="checkbox"/> Off site - please specify where the coding is done and by whom: _____</p>	<p>8. Is coding part of the health information service/medical record department in your facility?</p> <p><input type="checkbox"/> No - which section or person has this responsibility _____</p> <p><input type="checkbox"/> Yes</p> <p>9. What in-house educational opportunities are available to the coders in your facility?</p> <p><input type="checkbox"/> Area coding meetings</p> <p><input type="checkbox"/> Departmental coding meetings</p> <p><input type="checkbox"/> Clinician-coder meetings and updates</p> <p><input type="checkbox"/> Medical Science updates</p> <p><input type="checkbox"/> Library sessions</p> <p><input type="checkbox"/> Other - please specify _____</p> <p>10.1 Are you involved in organising and/or conducting continuing education for coders in your facility?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No - if no, skip the next question</p> <p>10.2 How much of your work time do you spend organising continuing education for coders in your facility?</p> <table border="0"> <tr> <td><input type="checkbox"/> <5%</td> <td><input type="checkbox"/> 5 - 10%</td> </tr> <tr> <td><input type="checkbox"/> 11 - 25%</td> <td><input type="checkbox"/> more than 25%</td> </tr> </table> <p>11. What do you see as the role of a clinical coder in the future? Do you feel the profession is prepared for any changes you envisage?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<input type="checkbox"/> <5%	<input type="checkbox"/> 5 - 10%	<input type="checkbox"/> 11 - 25%	<input type="checkbox"/> more than 25%
<input type="checkbox"/> <5%	<input type="checkbox"/> 5 - 10%				
<input type="checkbox"/> 11 - 25%	<input type="checkbox"/> more than 25%				

12. There are many reasons why coding is not always as accurate, complete and timely as we would like. Some of these are listed below. Please indicate (✓) how much impact you think each of these has on the quality of coding at your facility.

		Enormous impact	Moderate impact	Slight impact	No impact	Don't know
1.	Illegible medical record entries					
2.	Incomplete medical record content (eg lack of detail, missing reports)					
3.	Principal diagnosis not identified in records					
4.	Complications and co morbidities not identified in records					
5.	Medical records unavailable (ie in constant use)					
6.	Limitations of ICD-10-AM as a coding system					
7.	Difficulty obtaining current versions of coding books					
8.	Not enough coders employed in facility					
9.	Not enough coders available for employment					
10.	Inexperience of coders in this facility					
11.	Lack of training available for coders					
12.	Lack of continuing education to update skills of coders					
13.	Coders performing a number of tasks in addition to coding					
14.	Coders' work environment is too distracting					
15.	Difficulties with data entry of codes					
16.	Lack of linkage between computers for administrative use and coding					
17.	Lack of reference books or published guidelines					
18.	Other (please specify)					
19.	Other (please specify)					
20.	Other (please specify)					

Please indicate the hours or FTE for the person's **total employment**, not just the time spent coding. For casual staff working variable hours each week, please estimate the average hours or average weekly FTE based on the number of hours worked over the past four weeks, divided by 4.

- ☐ No
- ☐ Yes – please give details

☐ No

☐ Not sure

☐ Yes – *please specify*

☐ No

☐ Yes – *how many positions?* _____
– *how many hours per week in total?* _____

☐ Not sure

[illegible][illegible]

NCCH / HIMAA / CCSA - 2002 CODING MANAGER SURVEY - PART 1

National Centre for Classification in Health
Australia**TO: THE CLINICAL CODER**

*This project will provide data about the number of coders in Australia, their employment patterns and their needs for continuing education. For this reason, we are keen for you to complete a survey **for each place you work as a clinical coder**.*

This survey is in two parts. Part 1 asks for information about the type of hospitals and day care facilities where coding is done. Part 2 asks for specific information about coders.

Part 1 is to be completed by the coding manager/supervisor.
(ie the person responsible for making sure the coding is done).

Part 2 is to be completed by each coder in the facility.

DEFINITIONS**Coder manager/supervisor:**

The person in the hospital, day care facility or other health care organisation who is directly responsible for ensuring that information about a patient's episode(s) of care is coded using ICD-10-AM. In most cases this will be the person responsible for ensuring that coded data are submitted to the State or Territory morbidity statistics collection and to whom enquiries about these data are initially directed.

For example, this person may be the manager of the health information service or medical record department in a hospital, or the manager of a whole facility if there is no separate health information or medical record service. **The person need not be a clinical coder.**

Clinical coder:

Someone who allocates ICD-10-AM codes to diagnoses and procedures as part of their work.

Coding:

Where the term 'coding' is used in this survey, we include these activities:

Allocating ICD-10-AM codes using books or an encoder, data entry or indexing of codes, checking of edit reports, updating coding books, quality assurance activities relating to coding, participating in meetings to discuss coding issues, or any other activity related specifically to coding.

INSTRUCTIONS FOR MANAGER / SUPERVISOR

- ✓ Please answer Part 1 yourself

- ✓ Please give a copy of Part 2 to each person who codes in your facility and ask him or her to complete it.

If you have more coders than survey forms provided, please photocopy the required number or contact the National Centre for Classification in Health on 07 3864 5873 to request additional copies.

- ✓ If you are a coder as well as the manager/supervisor of the coding function, please complete both Part 1 and Part 2 of this survey.

Please return all completed surveys in the reply paid envelope provided by **19 August 2002** to:

National Coder Workforce Survey
National Centre for Classification in Health
School of Public Health
Queensland University of Technology
Victoria Park Road
Kelvin Grove Q 4059

- ✓ Clinical Coders have the option of returning their completed surveys to you to be included in the reply paid envelope, OR by sending their response directly to the address above.

NCCH / HIMAA / CCSA - 2002 CODER SURVEY - PART 2

page 1 of 8 pages



National Centre for Classification in Health
Australia



The information you provide will remain confidential and secure. The published results will not identify any individual facility or coder. However, as a major aim of the survey is to provide a complete snapshot of the coder workforce in Australia, we need your name to crosscheck that we have received surveys from all facilities and coders. Your name and address will not be kept with your answers or linked to them in the statistical analysis.

The results of the survey will be widely publicised in late 2002 through the publications, presentations and conferences of the National Centre for Classification in Health, the Health Information Management Association of Australia Ltd, and the Clinical Coders' Society of Australia. The results will also be used by these organisations to develop relevant and appropriate educational activities for clinical coders.

Your name:

Position/job title:

Address of facility:

City/town:

State:

Post code:

E-mail address:

Telephone:

Fax:

Date this survey was completed:

Thank you for your participation in this survey. If you have any questions or comments, please contact Sue Walker, Associate Director, National Centre for Classification in Health on 07 3864 5873 or <s.walker@qut.edu.au>.

NCCH / HIMAA / CCSA - 2002 CODER SURVEY - PART 2

page 2 of 8 pages

1. We would like you to complete a questionnaire for every facility in which you work as a clinical coder. Have you already, or will you, complete a questionnaire for another facility?	9. What normal annual salary range best applies to you? If you work part time or in multiple facilities, please calculate a gross full time equivalent salary to answer this question and use this response on all surveys you complete:
<input type="checkbox"/> No	<input type="checkbox"/> <\$20 000 per annum
<input type="checkbox"/> Yes - please name the other facility or facilities _____	<input type="checkbox"/> \$21 000 - \$24 999 per annum
2. Are you employed full time at this facility as a clinical coder?	<input type="checkbox"/> \$25 000 - \$29 999 per annum
<input type="checkbox"/> Yes	<input type="checkbox"/> \$30 000 - \$34 999 per annum
<input type="checkbox"/> No – employed part time (fixed working hours) as a coder at this facility Number of hours worked each week at this facility: _____	<input type="checkbox"/> \$35 000 - \$39 999 per annum
<input type="checkbox"/> No – employed on a casual basis (variable working hours) as a coder at this facility Average number of hours worked each week at this facility: _____	<input type="checkbox"/> \$40 000 - \$44 999 per annum
<input type="checkbox"/> No – other work to do besides coding in current position at this facility (Note: see definition of coding on page 1 of this survey) Average number of hours worked each week at this facility: _____	<input type="checkbox"/> \$45 000 - \$49 999 per annum
3. If you work in more than one facility, what is the total number of hours you spend working as a clinical coder each week?	<input type="checkbox"/> \$50 000 - \$54 999 per annum
_____ Hours or <input type="checkbox"/> Not applicable	<input type="checkbox"/> \$55 000 - \$59 999 per annum
4. What is your current position title at this facility? _____	<input type="checkbox"/> \$60 000 - \$64 999 per annum
5. What is the title of the department you report to? _____	<input type="checkbox"/> >\$65 000
6. What is the position title of the person you report to? _____	10.1 If you have other tasks to do besides abstracting information from records and allocating appropriate codes, what are they?
7. Which industrial award are you are employed under?	<input type="checkbox"/> Data entry (entering coded data into a morbidity database)
<input type="checkbox"/> No award	<input type="checkbox"/> Indexing (manual or computerised)
<input type="checkbox"/> State award - please give name of award if known: _____	<input type="checkbox"/> General medical record/health information service functions
<input type="checkbox"/> Federal award - please give name of award if known: _____	<input type="checkbox"/> Ward clerk
8. If you are not employed under an award, what are the circumstances of your employment?	<input type="checkbox"/> Reception or admissions
<input type="checkbox"/> Contract coder (self employed)	<input type="checkbox"/> Nursing
<input type="checkbox"/> Contract coder (employed by company)	<input type="checkbox"/> Accounts
<input type="checkbox"/> Other - please specify _____ _____	<input type="checkbox"/> Other – please specify _____ _____
	10.2 As a coder are you also involved in the following areas? Please tick as many as applicable.
	<input type="checkbox"/> Software testing and upgrading
	<input type="checkbox"/> Liaison with IT personnel
	<input type="checkbox"/> Analysing Patient Admin System/PMI data
	<input type="checkbox"/> Quality activities
	<input type="checkbox"/> Casemix activities
	<input type="checkbox"/> SNOMED
	<input type="checkbox"/> Organising/conducting continuing education
	<input type="checkbox"/> Other – please specify _____ _____

11. When you are coding, where are you physically located in your facility?

☐ Health Information Service/Medical Record Department – open plan office

☐ Health Information Service/Medical Record Department – office specifically for coders

☐ Ward - open plan

☐ Ward - office specifically for coders

☐ Other – *please specify*

12. Is the work location satisfactory from your point of view?

☐ No ☐ Yes

Please comment on your answer

13. Which resources do you have access to in order to help you code?

☐ Encoder

☐ Full set of current edition coding books

☐ Previous editions of coding books

☐ ICD-10-AM browser

☐ Code_L list server

☐ NCCH query database

☐ E-mail

☐ Library/medical textbooks/reference books

☐ Internet

☐ *Coding Matters*

☐ Health department coding newsletters/resources

☐ Local coder networks in your area or region

☐ In house coding guidelines

☐ Health department coding newsletters/resources

☐ Other – *please specify*

14. Generally, do you like coding as a job?

☐ No ☐ Yes

Please comment on your answer

15.1 Do you read *Coding Matters*?

☐ No - *go to question 16*

☐ Yes - If yes, which sections of *Coding Matters* do you find most useful? Please tick (✓) all that apply.

<input type="checkbox"/> Cover story	<input type="checkbox"/> Clinical updates
<input type="checkbox"/> Reports about particular health sector committees	<input type="checkbox"/> Reports about particular health classifications
<input type="checkbox"/> Quizzes	<input type="checkbox"/> International work reports
<input type="checkbox"/> Quality issues	<input type="checkbox"/> Book/literature reports
<input type="checkbox"/> Conference/events calendar	<input type="checkbox"/> NCCH people – staff reports
<input type="checkbox"/> 10-AM Commandments	<input type="checkbox"/> NCCH events information
<input type="checkbox"/> Education reports and bulletins	<input type="checkbox"/> IT / technical reports and reviews

☐ All of the above

15.2 Is there any additional information that you would like to see reported in *Coding Matters*?

☐ No ☐ Yes

If yes, please provide comments

15.3 How often do you think *Coding Matters* should be published?

15.4 Do you use the *Coding Matters*

☐ archive on the NCCH web site

☐ cumulative indexes

15.5 Do you receive

☐ a personal copy of *Coding Matters*

☐ a unit/department/facility copy

☐ a hard copy of *Coding Matters*

☐ an email version

15.6 Do you maintain a *Coding Matters* library or file of past editions

☐ No ☐ Yes

15.7 Do you have any other comments about *Coding Matters*?

16. There are many reasons why coding is not always as accurate, complete and timely as we would like. Some of these are listed below. Please indicate (✓) how much impact you think each of these has on the quality of coding at your facility.

		Enormous impact	Moderate impact	Slight impact	No impact	Don't know
1.	Illegible medical record entries					
2.	Incomplete medical record content (eg lack of detail, missing reports)					
3.	Principal diagnosis not identified in records					
4.	Complications and co morbidities not identified in records					
5.	Medical records unavailable (ie in constant use)					
6.	Limitations of ICD-10-AM as a coding system					
7.	Difficulty obtaining current versions of coding books					
8.	Not enough coders employed in facility					
9.	No other coders close enough to discuss problems with					
10.	My inexperience as a coder					
11.	Lack of coding training available					
12.	Lack of continuing education to update coding skills					
13.	Having to perform a number of tasks in addition to coding					
14.	Work environment is too distracting					
15.	Difficulties with data entry of codes					
16.	Lack of linkage between computers for administrative use and coding					
17.	Lack of access to print resources eg reference books, dictionaries					
18.	Lack of access to electronic resources eg Code_L, Medline					
19.	Lack of contact with clinical staff					
20.	Lack of management support					
21.	Pressure to maintain coding throughput					
22.	Submission deadlines					
23.	Other (please specify)					

17. Do you have contact with clinical staff to discuss coding issues?

- ☐ No
- ☐ Yes - *If yes, how does this happen?*
- ☐ Regular clinician / coder meetings
- ☐ Designated clinical contacts for queries
- ☐ Attendance at ward rounds
- ☐ Coding done at ward level
- ☐ Other – *please specify*

18. Do you undertake any regular quality assurance activities relating to your coding role?

- ☐ No – *Please comment on your answer*

- ☐ Yes, internal analysis using *Performance Indicators for Coding Quality (PICQ)*
- ☐ Yes, external analysis using *Performance Indicators for Coding Quality (PICQ)*
- ☐ Yes, internal analysis using *Australian Coding Benchmark Audit (ACBA)*
- ☐ Yes, external analysis using *Australian Coding Benchmark Audit (ACBA)*
- ☐ Yes, other audits - *Please specify*

- ☐ Yes, other QA activities - *Please specify*

19. Are you required to meet coding throughput targets?

- ☐ No
- ☐ Yes - *Please specify the targets*
- _____ records per day **or**
- _____ records per week

20. How did you learn to code?

- ☐ as part of an undergraduate HIM/MRA degree
- ☐ as part of an HIM postgraduate degree
- ☐ through an HIMAA distance education coding course
- ☐ through an HIMAA accelerated education program
- ☐ through an OTEN coding course
- ☐ Health department training
- ☐ on the job
- ☐ Other – *please specify*

21. Do you feel that the education you received adequately prepared you to code in a working environment?

- ☐ No
- ☐ Yes

Please comment on your answer

22. What is your professional background?

Please tick (✓) all that apply

- ☐ Clinical coder
- ☐ HIM/MRA
- ☐ Clerical/administration officer
- ☐ Medical practitioner - Australian qualification
- ☐ Medical practitioner - overseas qualification
- ☐ Registered nurse
- ☐ Other nurse
- ☐ HIM university student
- ☐ Other – *please specify*

23. Do you have any tertiary qualifications?

- ☐ HIM/MRA undergraduate degree
- ☐ HIM/MRA Associate Diploma
- ☐ Other university degree/s (undergraduate OR postgraduate)

Please specify title of degree/s and institution/s

24. How many years since you first learned to code?

- ☐ <1 year ☐ 1-4 years
- ☐ 5-9 years ☐ >10 years

25. How many years have you been working at this facility?

- ☐ <1 year ☐ 1-4 years
- ☐ 5-9 years ☐ >10 years

26. Since you first learned to code, how many different clinical coder positions have you held?

27.1 Does the facility you work for support your participation in continuing education events that relate to your coding role?

☐ No - go to question 28.1

☐ Yes - If yes, what sort of continuing education activities have you accessed in the past three years? Please tick (✓) all that apply.

☐ NCCH/CCSA conference

☐ NCCH update workshop

☐ NCCH print based materials

☐ Materials or events from the NCCH website

☐ HIMAA/HISA conference

☐ CCSA workshop

☐ Other conferences - please specify

☐ Health department coding workshop

☐ HIMAA medical terminology course

☐ HIMAA introductory coding course

☐ HIMAA intermediate coding course

☐ HIMAA advanced coding course

☐ OTEN training course

☐ Health area/region coding meetings

☐ Departmental coding meetings

☐ On-site coding updates

☐ Personal study

☐ University programs - please specify

☐ Other - please specify

27.2 If you receive facility support, what type of support do you receive? Please tick (✓) all that apply.

☐ payment of registration/enrolment fees

☐ time off work without need to make time up

☐ time off work but requirement to make time up later

☐ Other - please specify

27.3 What percentage of your coding time is spent on coder education/updates?

☐ <5%

☐ 5 - 10%

☐ 11 - 25%

☐ more than 25%

28.1 Do you have access to a computer with a CD-ROM drive? Please tick (✓) all that apply.

☐ No

☐ Yes, on my desktop at work

☐ Yes, on a shared computer in my office

☐ Yes, in the hospital library or other department

☐ Yes, at home

☐ Yes, other location - please specify

28.2 Do you have access to the Internet?

Please tick (✓) all that apply.

☐ No

☐ Yes, on my desktop at work

☐ Yes, on a shared computer in my office

☐ Yes, in the hospital library or other department

☐ Yes, at home

☐ Yes, other location - please specify

28.3 Do you have access to email?

Please tick (✓) all that apply.

☐ No

☐ Yes, on my desktop at work

☐ Yes, on a shared computer in my office

☐ Yes, in the hospital library or other department

☐ Yes, at home

☐ Yes, other location - please specify

28.4 Do you have access to Code_L?

Please tick (✓) all that apply.

☐ No

☐ Yes, on my desktop at work

☐ Yes, on a shared computer in my office

☐ Yes, in the hospital library or other department

☐ Yes, at home

☐ Yes, other location - please specify

<p>29. How would you prefer to access continuing education? <i>Please number your preferences, with 1 being your highest preference).</i></p> <p><input type="checkbox"/> Face to face conferences or workshops</p> <p><input type="checkbox"/> Internet-based courses or materials</p> <p><input type="checkbox"/> CD-ROM courses or materials</p> <p><input type="checkbox"/> Print-based courses or materials</p> <p><input type="checkbox"/> Teleconferences</p> <p><input type="checkbox"/> Video</p> <p><input type="checkbox"/> Other – <i>please specify</i></p> <p>_____</p> <p>_____</p>	<p>34.2 What do you see as the main benefits of undertaking the coder certification examination?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>30. What continuing education topics would you find useful?</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>35. In preparation for the coder certification, would you be interested in participating in the ICD-10-AM advanced coding course?</p> <p><input type="checkbox"/> No <input type="checkbox"/> Yes</p>
<p>31. Do you use classifications other than ICD-10-AM?</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes – <i>please specify</i></p> <p>_____</p> <p>_____</p>	<p>36. If you are not interested in participating in the coder certification examination, would you still be interested in participating in the ICD-10-AM advanced coding course?</p> <p><input type="checkbox"/> No <input type="checkbox"/> Yes</p>
<p>32. What do you see as the role of a clinical coder in the future? Do you feel prepared for any changes you envisage?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>37. What do you see as the impact of electronic health records on coding practice in the future?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>33. Are you an HIMAA-accredited ICD-9-CM coder?</p> <p><input type="checkbox"/> No <input type="checkbox"/> Yes</p>	<p>38. Do you have any other comments you would like to make about coding or the clinical coder profession?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>34.1 Would you be interested in participating in a coder certification examination for ICD-10-AM when it is available?</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes</p> <p><i>Please comment on your answer</i></p> <p>_____</p> <p>_____</p> <p>_____</p>	

Thank you for your time in completing this survey.

Appendix 2

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Table A01: Manager respondents by locality characteristics

State/territory by public/private status	Metropolitan		Rural		Remote	
	n	%	n	%	n	%
Public facilities						
Australian Capital Territory	1	100	0	0	0	0
New South Wales	36	48.6	34	45.9	4	5.4
Northern Territory	0	0	0	0	3	100
Queensland	8	24.2	16	48.5	9	27.3
South Australia	9	34.6	15	57.7	2	7.7
Tasmania	0	0	3	100.0	0	0
Victoria	27	47.4	30	52.6	0	0
Western Australia	9	39.1	10	43.5	4	17.4
TOTAL	90	40.9	108	49.1	22	10.0
Private facilities						
Australian Capital Territory	0	0	0	0	0	0
New South Wales	45	80.4	11	19.6	0	0
Northern Territory	0	0	0	0	0	0
Queensland	17	51.5	16	48.5	0	0
South Australia	13	92.9	1	7.1	0	0
Tasmania	3	60.0	2	40.0	0	0
Victoria	41	85.4	7	14.6	0	0
Western Australia	9	81.8	2	18.2	0	0
TOTAL	128	76.6	39	23.3	0	0
(respondents=387 missing=37)						

Table A02: Coder respondents by locality characteristics

State/territory by public/private status	Metropolitan		Rural		Remote	
	n	%	n	%	n	%
Public facilities						
Australian Capital Territory	0	0	0	0	0	0
New South Wales	94	59.5	60	38.0	4	2.5
Northern Territory	0	0	0	0	4	100.0
Queensland	33	47.8	30	43.5	6	8.7
South Australia	31	53.4	22	37.9	5	8.6
Tasmania	0	0	3	100.0	0	0
Victoria	86	62.8	51	37.2	0	0
Western Australia	23	59.0	13	33.3	3	7.7
TOTAL	267	57.1	179	38.2	22	4.7
Private facilities						
Australian Capital Territory	0	0	0	0	0	0
New South Wales	69	82.1	15	17.9	0	0
Northern Territory	0	0	0	0	0	0
Queensland	23	56.1	18	43.9	0	0
South Australia	26	100.0	0	0	0	0
Tasmania	6	66.7	3	33.3	0	0
Victoria	64	86.5	10	13.5	0	0
Western Australia	20	83.3	4	16.7	0	0
TOTAL	208	80.6	50	19.4	0	0
(respondents=726 missing=305)						

Table A03: Manager respondents by facility categories by state/territory

Facility category	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Hospital	1	104	3	53	34	7	88	28
Free standing day care facility	0	22	0	11	3	1	13	3
Multipurpose facility	0	3	0	2	2	0	3	3
Parenting clinic	0	1	0	0	1	0	1	0
<i>Total</i> (respondents=387 missing=37)	<i>1</i>	<i>130</i>	<i>3</i>	<i>66</i>	<i>40</i>	<i>8</i>	<i>105</i>	<i>34</i>
Public	1	74	3	33	26	3	57	23
Private	0	56	0	33	14	5	48	11
<i>Total</i> (respondents=387 missing=37)	<i>1</i>	<i>130</i>	<i>3</i>	<i>66</i>	<i>40</i>	<i>8</i>	<i>105</i>	<i>34</i>
Teaching	1	29	1	15	11	2	26	8
Non-teaching	0	67	1	32	13	3	51	20
<i>Total</i> (respondents=280 missing=144)	<i>1</i>	<i>96</i>	<i>2</i>	<i>47</i>	<i>24</i>	<i>5</i>	<i>77</i>	<i>28</i>

Table A04: Coder respondents by facility categories by state/territory

Facility category	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Hospital	0	216	4	98	78	10	189	61
Free standing day care facility	0	23	0	8	6	2	20	1
Multipurpose facility	0	3	0	4	0	0	1	1
Parenting clinic	0	0	0	0	0	0	1	0
<i>Total</i> (respondents=726 missing=305)	<i>0</i>	<i>242</i>	<i>4</i>	<i>110</i>	<i>84</i>	<i>12</i>	<i>211</i>	<i>63</i>
Public	0	158	4	69	58	3	137	39
Private	0	84	0	41	26	9	74	24
<i>Total</i> (respondents=726 missing=305)	<i>0</i>	<i>242</i>	<i>4</i>	<i>110</i>	<i>84</i>	<i>12</i>	<i>211</i>	<i>63</i>
Teaching	0	106	1	46	37	1	85	34
Non-teaching	0	95	2	36	17	5	81	20
<i>Total</i> (respondents=566 missing=465)	<i>0</i>	<i>201</i>	<i>3</i>	<i>82</i>	<i>54</i>	<i>6</i>	<i>166</i>	<i>54</i>

Table A05: Manager respondents by facility bed size by state/territory

Number of beds	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
<10	0	15	0	8	3	1	10	5
11–50	0	34	2	18	16	3	31	5
51–100	0	26	0	10	6	0	23	7
101–200	0	20	1	9	4	1	13	5
201–500	1	16	0	9	6	3	16	8
>500	0	3	0	2	1	0	4	0
(respondents=345 missing=79)								

Table A06: Coder respondents by facility bed size by state/territory

Number of beds	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
<10	0	17	0	4	2	2	8	3
11–50	0	34	3	16	19	2	29	4
51–100	0	38	0	12	8	0	37	9
101–200	0	41	1	11	7	0	21	10
201–500	0	64	0	36	23	8	80	21
>500	0	25	0	18	14	0	12	0
(respondents=639 missing=392)								

Table A07: Manager respondents by facility bed size by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
Metropolitan									
<10	0	1	0	1	0	0	0	0	2
11–50	0	3	0	0	2	0	4	1	10
51–100	0	6	0	0	1	0	4	0	11
101–200	0	8	0	1	1	0	3	0	13
201–500	1	11	0	3	3	0	11	5	34
>500	0	3	0	2	1	0	2	0	8
<i>Respondents per state</i>	1	36	0	8	9	0	27	9	
Rural									
<10	0	1	0	0	0	0	3	0	4
11–50	0	14	0	5	9	1	14	3	46
51–100	0	7	0	2	2	0	8	3	22
101–200	0	7	0	3	2	1	3	3	19
201–500	0	2	0	2	1	1	2	0	8
>500	0	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	0	34	0	16	15	3	30	10	
Remote									
<10	0	1	0	1	1	0	0	2	5
11–50	0	3	2	7	1	0	0	0	13
51–100	0	0	0	0	0	0	0	1	1
101–200	0	0	1	0	0	0	0	1	2
201–500	0	0	0	0	0	0	0	0	0
>500	0	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	0	4	3	9	2	0	0	4	
Private									
Metropolitan									
<10	0	9	0	3	2	0	7	2	23
11–50	0	13	0	2	3	1	10	1	30
51–100	0	8	0	3	3	0	9	2	25
101–200	0	5	0	3	1	0	5	1	15
201–500	0	3	0	3	2	2	3	3	16
>500	0	0	0	0	0	0	2	0	2
<i>Respondents per state</i>	0	45	0	17	13	3	41	9	
Rural									
<10	0	3	0	3	0	1	0	1	8
11–50	0	1	0	4	1	1	3	0	10
51–100	0	5	0	5	0	0	2	1	13
101–200	0	0	0	2	0	0	2	0	4
201–500	0	0	0	1	0	0	0	0	1
>500	0	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	0	11	0	16	1	2	7	2	
(respondents=345 missing=79)									

Table A08: Coder respondents by facility bed size by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
Metropolitan									
<10	0	3	0	0	0	0	0	0	3
11–50	0	3	0	0	1	0	3	0	7
51–100	0	9	0	0	0	0	6	0	15
101–200	0	15	0	0	4	0	3	0	22
201–500	0	29	0	13	16	0	56	9	123
>500	0	25	0	18	5	0	6	0	54
Respondents per state	0	94	0	33	31	0	86	23	
Rural									
<10	0	2	0	0	0	0	2	0	4
11–50	0	13	0	6	11	0	15	3	48
51–100	0	13	0	1	5	0	18	6	43
101–200	0	17	0	3	2	0	5	3	30
201–500	0	10	0	12	2	3	11	0	38
>500	0	0	0	0	0	0	0	0	0
Respondents per state	0	60	0	30	22	3	51	13	
Remote									
<10	0	1	0	0	1	0	0	2	4
11–50	0	3	3	6	4	0	0	0	16
51–100	0	0	0	0	0	0	0	1	1
101–200	0	0	1	0	0	0	0	0	1
201–500	0	0	0	0	0	0	0	0	0
>500	0	0	0	0	0	0	0	0	0
Respondents per state	0	4	4	6	5	0	0	3	
Private									
Metropolitan									
<10	0	7	0	3	1	0	6	1	18
11–50	0	13	0	2	3	1	6	1	26
51–100	0	9	0	3	3	0	10	1	26
101–200	0	9	0	5	1	0	11	4	30
201–500	0	25	0	7	5	5	13	12	67
>500	0	0	0	0	9	0	6	0	15
Respondents per state	0	69	0	23	26	6	64	20	
Rural									
<10	0	4	0	1	0	2	0	0	7
11–50	0	2	0	2	0	1	5	0	10
51–100	0	7	0	8	0	0	3	1	19
101–200	0	0	0	3	0	0	2	3	8
201–500	0	0	0	4	0	0	0	0	4
>500	0	0	0	0	0	0	0	0	0
Respondents per state	0	15	0	18	0	3	10	4	
(respondents=639 missing=392)									

Table A09: Manager respondents by facility annual separations (2001–2002) by state/territory

Separations	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
<500	0	14	0	3	4	1	6	5
500–999	0	6	0	8	4	0	5	1
1,000–9,999	0	52	2	24	18	1	52	13
10,000–19,999	1	14	1	11	3	2	13	8
20,000–29,999	0	10	0	6	1	0	6	2
30,000–49,999	0	5	0	2	0	1	7	3
>50,000	0	4	0	2	3	0	5	1
(respondents=330 missing=94)								

Table A10: Coder respondents by facility annual separations (2001–2002) by state/territory

Separations	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
<500	0	11	0	2	2	1	5	3
500–999	0	5	0	6	1	0	2	1
1,000–9,999	0	70	3	23	22	1	69	13
10,000–19,999	0	35	1	15	7	5	32	24
20,000–29,999	0	30	0	23	5	0	28	7
30,000–49,999	0	27	0	13	0	3	30	13
>50,000	0	32	0	18	21	0	33	1
(respondents=643 missing=388)								

Table A11: Manager respondents by facility annual separations (2001–2002) by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
<i>Metropolitan</i>									
<500	0	2	0	0	0	0	1	0	3
500–999	0	1	0	0	2	0	1	0	4
1,000–9,999	0	8	0	1	2	0	7	3	21
10,000–19,999	1	6	0	2	1	0	4	3	17
20,000–29,999	0	7	0	3	0	0	4	1	15
30,000–49,999	0	4	0	0	0	0	4	1	9
>50,000	0	4	0	2	3	0	5	1	15
<i>Respondents per state</i>	1	36	0	8	9	0	27	9	
<i>Rural</i>									
<500	0	6	0	0	2	0	3	1	12
500–999	0	3	0	2	2	0	0	1	8
1,000–9,999	0	11	0	7	7	0	20	6	51
10,000–19,999	0	6	0	2	1	0	4	1	13
20,000–29,999	0	1	0	1	0	0	1	0	3
30,000–49,999	0	0	0	2	0	1	0	0	3
>50,000	0	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	0	34	0	16	15	3	30	10	
<i>Remote</i>									
<500	0	2	0	2	1	0	0	2	7
500–999	0	0	0	3	0	0	0	0	3
1,000–9,999	0	0	2	2	1	0	0	0	5
10,000–19,999	0	0	1	0	0	0	0	2	3
20,000–29,999	0	0	0	0	0	0	0	0	0
30,000–49,999	0	0	0	0	0	0	0	0	0
>50,000	0	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	0	4	3	9	2	0	0	4	
Private									
<i>Metropolitan</i>									
<500	0	3	0	0	0	1	2	1	7
500–999	0	2	0	1	0	0	3	0	6
1,000–9,999	0	26	0	8	8	0	20	4	66
10,000–19,999	0	2	0	5	1	2	4	1	15
20,000–29,999	0	2	0	2	1	0	1	1	7
30,000–49,999	0	1	0	0	0	0	3	2	6
>50,000	0	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	0	45	0	17	13	3	41	9	
<i>Rural</i>									
<500	0	1	0	1	1	0	0	1	4
500–999	0	0	0	2	0	0	1	0	3
1,000–9,999	0	7	0	6	0	1	5	0	19
10,000–19,999	0	0	0	2	0	0	1	1	4
20,000–29,999	0	0	0	0	0	0	0	0	0
30,000–49,999	0	0	0	0	0	0	0	0	0
>50,000	0	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	0	11	0	16	1	2	7	2	

(respondents=330 missing=94)

Table A12: Coder respondents by facility annual separations (2001–2002) by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
Metropolitan									
<500	0	1	0	0	0	0	1	0	2
500–999	0	0	0	0	1	0	0	0	1
1,000–9,999	0	12	0	0	0	0	5	0	17
10,000–19,999	0	16	0	2	4	0	7	16	45
20,000–29,999	0	21	0	13	0	0	22	3	59
30,000–49,999	0	4	0	0	0	0	17	3	24
>50,000	0	32	0	18	21	0	29	1	101
Respondents per state	0	94	0	33	31	0	86	23	
Rural									
<500	0	5	0	0	1	0	2	1	9
500–999	0	3	0	2	0	0	0	1	6
1,000–9,999	0	19	0	7	11	0	29	10	76
10,000–19,999	0	17	0	1	2	0	12	0	32
20,000–29,999	0	5	0	5	0	0	6	0	16
30,000–49,999	0	0	0	13	0	3	0	0	16
>50,000	0	0	0	0	0	0	0	0	0
Respondents per state	0	60	0	30	22	3	51	13	
Remote									
<500	0	2	0	1	1	0	0	2	6
500–999	0	0	0	2	0	0	0	0	2
1,000–9,999	0	0	3	2	4	0	0	0	9
10,000–19,999	0	0	1	0	0	0	0	1	2
20,000–29,999	0	0	0	0	0	0	0	0	0
30,000–49,999	0	0	0	0	0	0	0	0	0
>50,000	0	0	0	0	0	0	0	0	0
Respondents per state	0	4	4	6	5	0	0	3	
Private									
Metropolitan									
<500	0	3	0	0	0	1	2	0	6
500–999	0	2	0	1	0	0	1	0	4
1,000–9,999	0	27	0	8	7	0	26	3	71
10,000–19,999	0	2	0	8	1	5	13	3	32
20,000–29,999	0	4	0	5	5	0	0	4	18
30,000–49,999	0	23	0	0	0	0	13	10	46
>50,000	0	0	0	0	0	0	4	0	4
Respondents per state	0	69	0	23	26	6	64	20	
Rural									
<500	0	0	0	1	0	0	0	0	1
500–999	0	0	0	1	0	0	1	0	2
1,000–9,999	0	12	0	6	0	1	9	0	28
10,000–19,999	0	0	0	4	0	0	0	4	8
20,000–29,999	0	0	0	0	0	0	0	0	0
30,000–49,999	0	0	0	0	0	0	0	0	0
>50,000	0	0	0	0	0	0	0	0	0
Respondents per state	0	15	0	18	0	3	10	4	

(respondents=643 missing=388)

Table A13: Position titles of managers by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
Metropolitan									
HIM	1	18	0	6	1	0	18	1	45
Manager	0	11	0	1	2	0	4	1	19
Clinical coder	0	2	0	0	0	0	0	1	3
Administration officer	0	3	0	0	0	0	0	1	4
Director of nursing	0	0	0	1	1	0	0	0	2
Clinical coding co-ordinator	0	1	0	0	4	0	2	5	12
Nurse	0	0	0	0	0	0	0	0	0
Finance officer	0	0	0	0	0	0	0	0	0
Consultant HIM/coder	0	0	0	0	0	0	0	0	0
Other	0	1	0	0	1	0	2	0	4
<i>Respondents per state</i>	1	36	0	8	9	0	27	9	
Rural									
HIM	0	17	0	5	3	1	26	7	59
Manager	0	7	0	4	4	1	0	0	16
Clinical coder	0	5	0	3	2	0	3	2	15
Administration officer	0	5	0	1	1	1	0	0	8
Director of nursing	0	0	0	1	1	0	0	1	3
Clinical coding co-ordinator	0	0	0	0	1	0	0	0	1
Nurse	0	0	0	0	0	0	0	0	0
Finance officer	0	0	0	1	1	0	0	0	2
Consultant HIM/coder	0	0	0	0	0	0	0	0	0
Other	0	0	0	1	1	0	0	0	2
<i>Respondents per state</i>	0	34	0	16	15	3	30	10	
Remote									
HIM	0	1	1	2	0	0	0	2	6
Manager	0	0	1	0	0	0	0	0	1
Clinical coder	0	0	1	1	0	0	0	1	3
Administration officer	0	3	0	0	0	0	0	0	3
Director of nursing	0	0	0	4	0	0	0	0	4
Clinical coding co-ordinator	0	0	0	0	0	0	0	0	0
Nurse	0	0	0	1	1	0	0	1	3
Finance officer	0	0	0	1	0	0	0	0	1
Consultant HIM/coder	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	1	0	0	0	1
<i>Respondents per state</i>	0	4	3	9	2	0	0	4	
Private									
Metropolitan									
HIM	0	27	0	9	7	1	31	4	79
Manager	0	4	0	3	2	0	6	3	18
Clinical coder	0	6	0	2	3	1	2	1	15
Administration officer	0	3	0	1	0	0	0	0	4
Director of nursing	0	2	0	0	0	1	1	0	4
Clinical coding co-ordinator	0	0	0	0	0	0	0	0	0
Nurse	0	0	0	0	0	0	0	0	0
Finance officer	0	0	0	0	0	0	0	0	0
Consultant HIM/coder	0	2	0	1	0	0	0	0	3
Other	0	0	0	0	1	0	0	0	1
<i>Respondents per state</i>	0	45	0	17	13	3	41	9	
Rural									
HIM	0	4	0	6	0	0	4	1	15
Manager	0	1	0	3	0	1	2	0	7
Clinical coder	0	3	0	3	1	1	1	1	10
Administration officer	0	1	0	1	0	0	0	0	2
Director of nursing	0	1	0	1	0	0	0	0	2
Clinical coding co-ordinator	0	0	0	0	0	0	0	0	0
Nurse	0	0	0	1	0	0	0	0	1
Finance officer	0	0	0	1	0	0	0	0	1
Consultant HIM/ coder	0	1	0	0	0	0	0	0	1
Other	0	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	0	11	0	16	1	2	7	2	

Table A14: HIS/MRD responsible for coding by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
Metropolitan									
Yes	0	34	0	7	4	0	23	8	76
No	0	1	0	0	5	0	2	0	8
Respondents per state	1	36	0	8	9	0	27	9	
Rural									
Yes	0	25	0	14	9	2	26	6	82
No	0	5	0	2	3	0	1	1	12
Respondents per state	0	34	0	16	15	3	30	10	
Remote									
Yes	0	3	3	6	1	0	0	1	14
No	0	0	0	2	0	0	0	3	5
Respondents per state	0	4	3	9	2	0	0	4	
Private									
Metropolitan									
Yes	0	35	0	16	12	3	35	7	108
No	0	5	0	1	1	0	5	1	13
Respondents per state	0	45	0	17	13	3	41	9	
Rural									
Yes	0	5	0	15	1	1	5	1	28
No	0	3	0	1	0	1	1	1	7
Respondents per state	0	11	0	16	1	2	7	2	
(respondents=353 missing=71)									

Table A15: Managers' views of factors affecting coding quality: NSW

Factor	Impact		No impact	
	n	%	n	%
Incomplete medical record content	84	73.0	31	27.0
Principal diagnosis not identified	75	65.2	40	34.8
Complications/co-morbidities not identified	73	62.4	44	37.6
Illegible medical record entries	70	60.3	46	39.7
Performing multiple tasks	59	50.4	58	49.6
Lack of continuing education to update skills	42	36.5	73	63.5
Not enough coders available for employment	41	37.6	68	62.4
Work environment is too distracting	40	34.5	76	65.5
Lack of training available for coders	37	32.5	77	67.5
Medical records unavailable	34	29.8	80	70.2
Not enough coders employed in facility	31	26.7	85	73.3
Inexperience of coders in this facility	27	23.3	89	76.7
Limitations of ICD-10-AM as coding system	15	13.6	95	86.4
Lack of linkages between computers	15	13.5	96	86.5
Lack of reference books or guidelines	15	13.3	98	86.7
Difficulties with data entry of codes	14	12.4	99	87.6
Difficulty obtaining current coding books	7	6.3	104	93.7
(n=>109 missing values <=21 for any one factor)				

Table A16: Managers' views of factors affecting coding quality: QLD

Factor	Impact		No impact	
	n	%	n	%
Incomplete medical record content	50	76.9	15	23.1
Principal diagnosis not identified	43	67.2	21	32.8
Complications/co-morbidities not identified	43	66.2	22	33.8
Illegible medical record entries	39	60.9	25	39.1
Performing multiple tasks	22	34.9	41	65.1
Lack of continuing education to update skills	21	35.0	39	65.0
Medical records unavailable	21	32.8	43	67.2
Lack of training available for coders	18	30.5	41	69.5
Work environment is too distracting	17	27.0	46	73.0
Not enough coders available for employment	16	29.1	39	70.9
Inexperience of coders in this facility	14	22.6	48	77.4
Not enough coders employed in facility	13	21.3	48	78.7
Limitations of ICD-10-AM as coding system	7	12.3	50	87.7
Difficulties with data entry of codes	6	10.0	54	90.0
Lack of linkages between computers	6	10.0	54	90.0
Difficulty obtaining current coding books	5	8.3	55	91.7
Lack of reference books or guidelines	1	1.7	59	98.3

(n=>55 missing values <=11 for any one factor)

Table A17: Managers' views of factors affecting coding quality: SA

Factor	Impact		No impact	
	n	%	n	%
Incomplete medical record content	26	74.3	9	25.7
Principal diagnosis not identified	23	65.7	12	34.3
Complications/co-morbidities not identified	22	62.9	13	37.1
Illegible medical record entries	20	57.1	15	42.9
Performing multiple tasks	17	51.5	16	48.5
Work environment is too distracting	14	41.2	20	58.8
Medical records unavailable	10	30.3	23	69.7
Not enough coders employed in facility	9	28.1	23	71.9
Lack of linkages between computers	8	25.0	24	75.0
Lack of continuing education to update skills	8	24.2	25	75.8
Not enough coders available for employment	7	22.6	24	77.4
Difficulties with data entry of codes	7	22.6	24	77.4
Limitations of ICD-10-AM as coding system	7	21.2	26	78.8
Lack of training available for coders	5	15.2	28	84.8
Inexperience of coders in this facility	4	12.5	28	87.5
Lack of reference books or guidelines	4	12.5	28	87.5
Difficulty obtaining current coding books	1	3.0	32	97.0

(n=>31 missing values <=9 for any one factor)

Table A18: Managers' views of factors affecting coding quality: VIC

Factor	Impact		No impact	
	n	%	n	%
Incomplete medical record content	65	65.0	35	35.0
Principal diagnosis not identified	65	65.0	35	35.0
Complications/co-morbidities not identified	63	64.3	35	35.7
Illegible medical record entries	57	57.0	43	43.0
Performing multiple tasks	45	46.4	52	53.6
Work environment is too distracting	35	36.1	62	63.9
Not enough coders available for employment	31	33.0	63	67.0
Lack of continuing education to update skills	28	29.5	67	70.5
Lack of training available for coders	23	24.2	72	75.8
Inexperience of coders in this facility	23	24.2	72	75.8
Medical records unavailable	23	24.0	73	76.0
Not enough coders employed in facility	21	21.6	76	78.4
Limitations of ICD-10-AM as coding system	18	19.4	75	80.6
Lack of reference books or guidelines	14	14.9	80	85.1
Difficulties with data entry of codes	9	9.4	87	90.6
Lack of linkages between computers	8	8.5	86	91.5
Difficulty obtaining current coding books	4	4.3	88	95.7

(n=>92 missing values <=13 for any one factor)

Table A19: Managers' views of factors affecting coding quality: WA

Factor	Impact		No impact	
	n	%	n	%
Incomplete medical record content	27	90.0	3	10.0
Complications/co-morbidities not identified	21	70.0	9	30.0
Illegible medical record entries	19	63.3	11	36.7
Principal diagnosis not identified	17	58.6	12	41.4
Work environment is too distracting	9	31.0	20	69.0
Lack of training available for coders	9	31.0	20	69.0
Medical records unavailable	9	30.0	21	70.0
Not enough coders available for employment	8	27.6	21	72.4
Performing multiple tasks	7	25.9	20	74.1
Lack of continuing education to update skills	7	24.1	22	75.9
Lack of reference books or guidelines	6	21.4	22	78.6
Inexperience of coders in this facility	6	20.7	23	79.3
Not enough coders employed in facility	6	20.0	24	80.0
Lack of linkages between computers	4	13.3	26	86.7
Limitations of ICD-10-AM as coding system	2	7.7	24	92.3
Difficulties with data entry of codes	2	6.7	28	93.3
Difficulty obtaining current coding books	1	3.4	28	96.6

(n=>26 missing values <=8 for any one factor)

Table A20: Presence of activities to assess coding quality by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
Metropolitan									
Yes	0	24	0	8	7	0	21	6	66
No	0	11	0	0	2	0	5	2	20
<i>Respondents per state</i>	<i>1</i>	<i>36</i>	<i>0</i>	<i>8</i>	<i>9</i>	<i>0</i>	<i>27</i>	<i>9</i>	
Rural									
Yes	0	16	0	13	9	2	22	6	68
No	0	14	0	2	3	0	6	1	26
<i>Respondents per state</i>	<i>0</i>	<i>34</i>	<i>0</i>	<i>16</i>	<i>15</i>	<i>3</i>	<i>30</i>	<i>10</i>	
Remote									
Yes	0	0	2	3	1	0	0	4	10
No	0	2	1	5	0	0	0	0	8
<i>Respondents per state</i>	<i>0</i>	<i>4</i>	<i>3</i>	<i>9</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>4</i>	
Private									
Metropolitan									
Yes	0	30	0	10	6	2	24	7	79
No	0	11	0	6	6	1	16	2	42
<i>Respondents per state</i>	<i>0</i>	<i>45</i>	<i>0</i>	<i>17</i>	<i>13</i>	<i>3</i>	<i>41</i>	<i>9</i>	
Rural									
Yes	0	6	0	11	0	1	5	1	24
No	0	2	0	5	1	1	1	1	11
<i>Respondents per state</i>	<i>0</i>	<i>11</i>	<i>0</i>	<i>16</i>	<i>1</i>	<i>2</i>	<i>7</i>	<i>2</i>	
(respondents=354 missing=70)									

Table A21: Planned changes to coding services by state/territory

Change	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Increase hours/number of positions	0	3	0	3	0	0	0	5
Improve resources for coders	0	1	0	4	1	0	2	2
Introduce/increase audits	0	2	0	1	0	0	3	0
Introduce 3M Encoder	0	1	0	1	0	0	3	0
Introduce/increase coding at ward level	0	1	0	1	0	0	0	0
Improve clinician-coder communication	0	0	0	1	0	0	2	0
Restructuring of departments	0	3	0	0	0	0	0	0
Changes to coding deadlines	0	1	0	1	0	0	1	0
Introducing ICD-10-AM Third Edition changes	0	1	0	0	0	0	1	0
TOTAL	0	13	0	12	1	0	12	7
(respondents=45 missing=12)								

Table A22: Number of facilities with in-house educational opportunities available to coders by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
Metropolitan									
Area coding meetings	0	27	0	1	2	0	2	6	38
Departmental coding meetings	0	19	0	4	5	0	18	6	52
Clinician meetings/updates	0	16	0	1	4	0	13	3	37
Medical science updates	0	7	0	3	2	0	4	0	16
Library sessions	0	2	0	0	1	0	1	0	4
<i>Respondents per state</i>	<i>1</i>	<i>36</i>	<i>0</i>	<i>8</i>	<i>9</i>	<i>0</i>	<i>27</i>	<i>9</i>	
Rural									
Area coding meetings	0	23	0	8	10	1	10	0	52
Departmental coding meetings	0	9	0	5	4	2	11	4	35
Clinician meetings/updates	0	8	0	5	4	1	6	3	27
Medical science updates	0	3	0	0	0	1	6	1	11
Library sessions	0	0	0	0	0	0	1	0	1
<i>Respondents per state</i>	<i>0</i>	<i>34</i>	<i>0</i>	<i>16</i>	<i>15</i>	<i>3</i>	<i>30</i>	<i>10</i>	
Remote									
Area coding meetings	0	2	3	4	1	0	0	0	10
Departmental coding meetings	0	0	0	0	0	0	0	0	0
Clinician meetings/updates	0	0	0	3	1	0	0	0	4
Medical science updates	0	0	0	0	0	0	0	0	0
Library sessions	0	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>0</i>	<i>4</i>	<i>3</i>	<i>9</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>4</i>	
Private									
Metropolitan									
Area coding meetings	0	12	0	3	6	2	8	2	33
Departmental coding meetings	0	11	0	6	2	2	12	4	37
Clinician meetings/updates	0	10	0	3	2	1	7	3	26
Medical science updates	0	3	0	5	0	0	6	1	15
Library sessions	0	0	0	0	0	0	1	0	1
<i>Respondents per state</i>	<i>0</i>	<i>45</i>	<i>0</i>	<i>17</i>	<i>13</i>	<i>3</i>	<i>41</i>	<i>9</i>	
Rural									
Area coding meetings	0	1	0	8	1	1	1	0	12
Departmental coding meetings	0	2	0	6	0	1	1	0	10
Clinician meetings/updates	0	2	0	4	0	0	2	1	9
Medical science updates	0	1	0	1	0	0	1	0	3
Library sessions	0	0	0	1	0	0	0	0	1
<i>Respondents per state</i>	<i>0</i>	<i>11</i>	<i>0</i>	<i>16</i>	<i>1</i>	<i>2</i>	<i>7</i>	<i>2</i>	
(respondents=387 missing=37)									

Table A23: Managers involvement in continuing education by locality characteristics

Facility	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public									
Metropolitan									
Yes	0	22	0	3	5	0	15	5	50
No	0	12	0	2	4	0	10	3	31
<i>Respondents per state</i>	<i>1</i>	<i>36</i>	<i>0</i>	<i>8</i>	<i>9</i>	<i>0</i>	<i>27</i>	<i>9</i>	
Rural									
Yes	0	10	0	9	5	2	7	2	35
No	0	20	0	7	7	0	21	5	60
<i>Respondents per state</i>	<i>0</i>	<i>34</i>	<i>0</i>	<i>16</i>	<i>15</i>	<i>3</i>	<i>30</i>	<i>10</i>	
Remote									
Yes	0	0	1	0	0	0	0	2	3
No	0	3	2	7	1	0	0	2	15
<i>Respondents per state</i>	<i>0</i>	<i>4</i>	<i>3</i>	<i>9</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>4</i>	
Private									
Metropolitan									
Yes	0	17	0	8	6	3	17	4	55
No	0	23	0	9	7	0	23	4	66
<i>Respondents per state</i>	<i>0</i>	<i>45</i>	<i>0</i>	<i>17</i>	<i>13</i>	<i>3</i>	<i>41</i>	<i>9</i>	
Rural									
Yes	0	3	0	6	0	0	3	1	13
No	0	5	0	10	1	2	3	1	22
<i>Respondents per state</i>	<i>0</i>	<i>11</i>	<i>0</i>	<i>16</i>	<i>1</i>	<i>2</i>	<i>7</i>	<i>2</i>	
(respondents=350 missing=74)									

Table A24: Position/job titles of coders by locality characteristics

Title	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
Clinical coder	68	0	18	28	0	9	21	144
HIM	13	0	14	1	0	73	1	102
Administration officer	4	0	0	0	0	0	0	4
Manager	3	0	0	0	0	2	0	5
Clerk	2	0	0	0	0	0	0	2
Nurse	0	0	0	0	0	1	0	1
Director of nursing	0	0	0	0	0	0	0	0
Nosologist	0	0	0	0	0	0	0	0
Other	0	0	1	2	0	1	0	4
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>	
Rural								
Clinical coder	20	0	22	18	3	12	6	81
HIM	13	0	3	1	0	35	3	55
Administration officer	9	0	4	2	0	1	0	16
Manager	3	0	1	0	0	1	0	5
Clerk	14	0	0	1	0	2	0	17
Nurse	0	0	0	0	0	0	0	0
Director of nursing	0	0	0	0	0	0	0	0
Nosologist	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	1	1
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>	
Remote								
Clinical coder	0	1	3	4	0	0	2	10
HIM	0	0	1	0	0	0	0	1
Administration officer	3	0	0	0	0	0	0	3
Manager	0	1	0	0	0	0	0	1
Clerk	1	1	0	0	0	0	0	2
Nurse	0	0	2	0	0	0	1	3
Director of nursing	0	0	0	0	0	0	0	0
Nosologist	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>	
Private								
Metropolitan								
Clinical coder	35	0	13	21	4	16	16	105
HIM	21	0	5	2	1	40	0	69
Administration officer	2	0	1	0	1	1	0	5
Manager	5	0	2	0	0	4	0	11
Clerk	3	0	0	0	0	0	0	3
Nurse	0	0	1	2	0	0	0	3
Director of nursing	1	0	0	0	0	1	0	2
Nosologist	0	0	0	0	0	1	0	1
Other	0	0	0	0	0	0	1	1
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>	
Rural								
Clinical coder	6	0	11	0	2	6	3	28
HIM	2	0	3	0	0	3	0	8
Administration officer	2	0	0	0	0	0	0	2
Manager	1	0	2	0	1	1	0	5
Clerk	3	0	0	0	0	0	0	3
Nurse	0	0	1	0	0	0	0	1
Director of nursing	1	0	0	0	0	0	0	1
Nosologist	0	0	0	0	0	0	0	0
Other	0	0	1	0	0	0	0	1
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>	

(respondents=706 missing=325)

Table A25: Position/job titles of people whom coders report to by locality characteristics

Title	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
HIM	27	0	17	0	0	39	2	85
Director/manager	12	0	10	8	0	11	0	41
Coding manager/co-ordinator	44	0	6	16	0	25	14	105
CEO	3	0	0	0	0	2	0	5
Finance/business manager	0	0	0	2	0	2	0	4
Director of nursing	2	0	0	0	0	1	0	3
Patient services manager	2	0	0	2	0	2	0	6
Other	0	0	0	0	0	0	2	2
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>	
Rural								
HIM	27	0	9	2	0	31	6	75
Director/manager	17	0	8	2	3	9	0	39
Coding manager/co-ordinator	3	0	6	1	0	0	0	10
CEO	2	0	0	0	0	9	0	11
Finance/business manager	3	0	1	5	0	1	0	10
Director of nursing	4	0	1	3	0	0	2	10
Patient services manager	1	0	4	5	0	0	0	10
Other	2	0	0	3	0	0	2	7
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>	
Remote								
HIM	0	1	0	0	0	0	0	1
Director/manager	1	0	2	1	0	0	0	4
Coding manager/co-ordinator	0	0	0	0	0	0	1	1
CEO	0	0	0	0	0	0	0	0
Finance/business manager	0	1	1	1	0	0	0	3
Director of nursing	0	0	1	0	0	0	1	2
Patient services manager	0	1	0	0	0	0	0	1
Other	2	0	0	2	0	0	0	4
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>	
Private								
Metropolitan								
HIM	22	0	10	13	4	34	12	95
Director/manager	20	0	5	2	1	13	1	42
Coding manager/co-ordinator	8	0	0	2	0	0	0	10
CEO	7	0	0	1	0	6	0	14
Finance/business manager	2	0	2	6	0	3	0	13
Director of nursing	2	0	2	1	1	2	0	8
Patient services manager	1	0	0	0	0	0	6	7
Other	0	0	0	1	0	0	0	1
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>	
Rural								
HIM	3	0	7	0	0	5	3	18
Director/manager	4	0	2	0	1	3	0	10
Coding manager/co-ordinator	0	0	1	0	0	0	0	1
CEO	2	0	3	0	2	2	0	9
Finance/business manager	3	0	2	0	0	0	0	5
Director of nursing	1	0	0	0	0	0	0	1
Patient services manager	0	0	1	0	0	0	0	1
Other	1	0	0	0	0	0	0	1
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>	

(respondents=675 missing=356)

Table A26: Employment status of coders by locality characteristics

Employment status	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
Full-time	45	0	22	16	0	30	14	127
Part-time (fixed working hours)	26	0	5	13	0	27	5	76
Casual (variable hours)	8	0	2	0	0	0	0	10
Other work	14	0	4	2	0	29	1	50
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>	
Rural								
Full-time	12	0	12	5	2	7	5	43
Part-time (fixed working hours)	12	0	9	4	1	15	4	45
Casual (variable hours)	2	0	2	7	0	2	1	14
Other work	34	0	7	6	0	26	3	76
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>	
Remote								
Full-time	2	1	3	0	0	0	1	7
Part-time (fixed working hours)	0	0	1	1	0	0	2	4
Casual (variable hours)	0	0	1	2	0	0	0	3
Other work	2	3	1	1	0	0	0	7
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>	
Private								
Metropolitan								
Full-time	17	0	8	7	3	15	7	57
Part-time (fixed working hours)	23	0	2	11	0	16	8	60
Casual (variable hours)	7	0	4	4	1	5	2	23
Other work	22	0	9	4	2	28	3	68
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>	
Rural								
Full-time	3	0	7	0	0	0	2	12
Part-time (fixed working hours)	4	0	2	0	1	5	1	13
Casual (variable hours)	1	0	2	0	1	0	0	4
Other work	7	0	7	0	1	5	0	20
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>	

(respondents=719 missing=312)

Table A27: Coders' award conditions by locality characteristics

Award	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
No award	1	0	1	0	0	3	0	5
State award	88	0	30	29	0	58	21	226
Federal award	0	0	0	0	0	22	1	23
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>	
Rural								
No award	2	0	2	3	0	5	0	12
State award	56	0	26	19	3	22	9	135
Federal award	0	0	0	0	0	17	1	18
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>	
Remote								
No award	1	0	0	0	0	0	0	1
State award	3	2	5	4	0	0	3	17
Federal award	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>	
Private								
Metropolitan								
No award	26	0	13	7	1	15	9	71
State award	38	0	8	18	3	31	9	107
Federal award	2	0	0	0	0	8	0	10
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>	
Rural								
No award	5	0	6	0	0	4	1	16
State award	9	0	11	0	2	2	2	26
Federal award	0	0	0	0	0	2	0	2
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>	

(respondents=669 missing=362)

Table A28: Coders' award types by locality characteristics

Award type	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
Administration officer Level 3	2	0	1	3	0	0	0	
Administration officer Level 4	10	0	0	1	0	0	0	
Administration officer (unspec)	9	0	4	3	0	0	0	
Health Services Union award	2	0	5	1	0	46	13	
MRA/ librarian award	18	0	0	0	0	2	0	
Nurses award	0	0	0	0	0	0	0	0
State award (nos)	0	0	1	0	0	0	1	
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>	
Rural								
Administration officer Level 3	4	0	1	1	0	0	0	
Administration officer Level 4	4	0	0	0	0	0	0	
Administration officer (unspec)	13	0	6	6	2	2	0	
Health Services Union award	0	0	2	0	0	15	8	
MRA/ librarian award	10	0	0	0	0	1	0	
Nurses award	0	0	0	0	0	0	1	
State award (nos)	1	0	4	0	0	0	0	
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>	
Remote								
Administration officer Level 3	0	0	2	0	0	0	0	
Administration officer Level 4	0	0	0	0	0	0	0	0
Administration officer (unspec)	2	0	0	3	0	0	0	
Health Services Union award	0	0	0	0	0	0	2	
MRA/ librarian award	0	0	0	0	0	0	0	0
Nurses award	0	0	2	0	0	0	1	
State award (nos)	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>	
Private								
Metropolitan								
Administration officer Level 3	0	0	0	3	0	0	0	
Administration officer Level 4	0	0	0	0	0	0	0	0
Administration officer (unspec)	7	0	3	9	0	0	0	
Health Services Union award	0	0	1	0	1	20	6	
MRA/ librarian award	7	0	0	0	0	0	0	
Nurses award	1	0	1	0	0	0	0	
Private hospital award (nos)	8	0	1	0	0	0	0	
State award (nos)	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>	
Rural								
Administration officer Level 3	1	0	0	0	0	0	0	
Administration officer Level 4	0	0	0	0	0	0	0	0
Administration officer (unspec)	0	0	5	0	0	0	0	
Health Services Union award	0	0	0	0	1	1	2	
MRA/ librarian award	0	0	0	0	0	0	0	0
Nurses award	1	0	2	0	0	0	0	
Private hospital award (nos)	4	0	0	0	0	0	0	
State award (nos)	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>	

(respondents=300 missing=493)

Table A29: Coders' contract types by locality characteristics

Contract	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
Self-employed	1	0	0	0	0	0	0	1
Employed by company	0	0	1	0	0	2	0	3
Employed by hospital	0	0	0	0	0	0	0	0
Workplace agreement	0	0	0	0	0	1	0	1
Salaried employee	0	0	0	0	0	0	0	0
Private hospital award	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>	
Rural								
Self-employed	0	0	0	0	0	1	1	2
Employed by company	0	0	1	3	0	3	0	7
Employed by hospital	0	0	0	0	0	1	0	1
Workplace agreement	0	0	0	0	0	0	0	0
Salaried employee	2	0	0	0	0	0	0	2
Private hospital award	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>	
Remote								
Self-employed	0	0	0	0	0	0	0	0
Employed by company	0	0	0	0	0	0	0	0
Employed by hospital	0	0	0	0	0	0	0	0
Workplace agreement	0	0	0	0	0	0	0	0
Salaried employee	1	0	0	0	0	0	0	1
Private hospital award	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>	
Private								
Metropolitan								
Self-employed	6	0	3	1	1	5	0	16
Employed by company	4	0	4	1	0	2	4	15
Employed by hospital	0	0	2	0	0	2	0	4
Workplace agreement	13	0	2	1	0	2	4	22
Salaried employee	1	0	2	2	0	3	0	8
Private hospital award	0	0	2	1	0	1	0	4
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>	
Rural								
Self-employed	1	0	0	0	0	2	0	3
Employed by company	1	0	1	0	0	2	0	4
Employed by hospital	1	0	0	0	0	0	0	1
Workplace agreement	0	0	2	0	0	2	1	5
Salaried employee	1	0	3	0	0	0	0	4
Private hospital award	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>	

(respondents=104 missing=49)

Table A30: Coders' average and mode salary range by locality characteristics

Facility	Average salary range	Mode salary range
NSW (Total) (n=232 missing=10)	\$35,000–\$39,999	\$30,000–\$34,999
Public (n=153 missing=5)	\$35,000–\$39,999	\$30,000–\$34,999
Metropolitan (n=89 missing=5)	\$35,000–\$39,999	\$35,000–\$39,999
Rural (n=89 missing=5)	\$35,000–\$39,999	\$30,000–\$34,999
Private (n=79 missing=5)	\$35,000–\$39,999	\$35,000–\$39,999
Metropolitan (n=64 missing=5)	\$35,000–\$39,999	\$35,000–\$39,999
Rural (n=15 missing=0)	\$30,000–\$34,999	\$25,000–\$29,999
QLD (Total) (n=108 missing=2)	\$35,000–\$39,999	\$35,000–\$39,999
Public (n=69 missing=0)	\$35,000–\$39,999	\$35,000–\$39,999
Metropolitan (n=33 missing=0)	\$35,000–\$39,999	\$35,000–\$39,999
Rural (n=30 missing=0)	\$35,000–\$39,999	\$40,000–\$44,999
Private (n=39 missing=2)	\$35,000–\$39,999	\$35,000–\$39,999
Metropolitan (n=22 missing=1)	\$40,000–\$44,999	\$40,000–\$44,999
Rural (n=17 missing=1)	\$30,000–\$34,999	\$35,000–\$39,999
SA (Total) (n= missing=)	\$35,000–\$39,999	\$35,000–\$39,999
Public (n=54 missing=4)	\$35,000–\$39,999	\$35,000–\$39,999
Metropolitan (n=29 missing=2)	\$35,000–\$39,999	\$35,000–\$39,999
Rural (n=21 missing=1)	\$35,000–\$39,999	\$35,000–\$39,999
Private (n=26 missing=0)	\$30,000–\$34,999	\$35,000–\$39,999
Metropolitan (n=26 missing=0)	\$30,000–\$34,999	\$35,000–\$39,999
VIC (Total) (n=199 missing=12)	\$40,000–\$44,999	\$50,000–\$54,999
Public (n=128 missing=9)	\$40,000–\$44,999	\$50,000–\$54,999
Metropolitan (n=81 missing=5)	\$45,000–\$49,999	\$50,000–\$54,999
Rural (n=47 missing=4)	\$40,000–\$44,999	\$45,000–\$49,999
Private (n=71 missing=3)	\$40,000–\$44,999	\$40,000–\$44,999
		^a \$50,000–\$54,999
Metropolitan (n=62 missing=2)	\$40,000–\$44,999	\$45,000–\$49,999
Rural (n=9 missing=1)	\$40,000–\$44,999	\$40,000–\$44,999
WA (Total) (n=59 missing=4)	\$35,000–\$39,999	\$40,000–\$44,999
Public (n=37 missing=2)	\$40,000–\$44,999	\$40,000–\$44,999
Metropolitan (n=23 missing=0)	\$40,000–\$44,999	\$40,000–\$44,999
Rural (n=11 missing=2)	\$35,000–\$39,999	\$35,000–\$39,999
Private (n=22 missing=2)	\$35,000–\$39,999	\$30,000–\$34,999
Metropolitan (n=19 missing=1)	\$35,000–\$39,999	\$30,000–\$34,999

Note: Northern Territory, Tasmania, private rural Western Australia and all remote areas data are not reported due to small number.

^aA bimodal distribution was evident for the salary of coders in private hospitals in Victoria, which means that equal numbers of coders earned both salary ranges reported in the mode column.

Table A3I: Coders' departments by locality characteristics

Department	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
HIS/Coding department	81	0	33	27	0	76	20	237
Administration	4	0	0	0	0	2	0	6
Executive department	1	0	0	0	0	0	0	1
Finance/Business department	0	0	0	0	0	1	0	1
Nursing department	1	0	0	0	0	2	1	4
State/District support services	0	0	0	0	0	0	0	0
Day surgery/Private facility	1	0	0	1	0	1	0	3
Corporate services	1	0	0	0	0	0	0	1
Other	0	0	0	2	0	1	0	3
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>	
Rural								
HIS/Coding department	42	0	21	9	3	37	5	117
Administration	8	0	2	5	0	3	1	19
Executive department	2	0	1	0	0	5	0	8
Finance/Business department	1	0	1	5	0	0	0	7
Nursing department	0	0	0	1	0	0	1	2
State/District support services	0	0	2	0	0	0	1	3
Day surgery/Private facility	0	0	0	0	0	0	0	0
Corporate services	0	0	1	0	0	0	2	3
Other	3	0	0	0	0	0	0	3
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>	
Remote								
HIS/Coding department	1	2	1	0	0	0	3	7
Administration	1	0	0	2	0	0	0	3
Executive department	0	0	0	0	0	0	0	0
Finance/Business department	0	1	0	0	0	0	0	1
Nursing department	0	0	1	1	0	0	0	2
State/District support services	1	0	1	0	0	0	0	2
Day surgery/Private facility	0	0	0	0	0	0	0	0
Corporate services	0	0	0	1	0	0	0	1
Other	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>	
Private								
Metropolitan								
HIS/Coding department	41	0	14	19	5	42	17	138
Administration	13	0	2	1	1	2	2	21
Executive department	5	0	0	0	0	8	0	13
Finance/Business department	1	0	1	4	0	1	0	7
Nursing department	0	0	1	0	0	1	0	2
State/District support services	0	0	0	0	0	0	1	1
Day surgery/Private facility	3	0	0	0	0	1	0	4
Corporate services	0	0	0	0	0	0	0	0
Other	1	0	0	1	0	1	0	3
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>	
Rural								
HIS/Coding department	4	0	9	0	1	5	3	22
Administration	5	0	4	0	1	1	0	11
Executive department	4	0	0	0	1	3	0	8
Finance/Business department	0	0	2	0	0	0	0	2
Nursing department	0	0	0	0	0	0	0	0
State/District support services	0	0	0	0	0	0	0	0
Day surgery/Private facility	0	0	0	0	0	0	0	0
Corporate services	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>	

(respondents=666 missing=365)

Table A32: Coders' work locations by locality characteristics

Work location	NSW	NT	OLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
HIS/MRD—open plan	45	0	10	1	0	38	7	101
HIS/MRD—office for coders	38	0	23	15	0	37	15	128
Finance/admin office	2	0	0	2	0	0	0	4
Own office	2	0	0	0	0	6	0	8
Ward—office for coders	0	0	0	6	0	2	1	9
Reception area	0	0	0	0	0	0	0	0
Shared office with other medical staff	2	0	0	2	0	0	0	4
Spare desk/office	0	0	0	0	0	0	0	0
Conference/training room	0	0	0	0	0	0	0	0
Ward—open plan	0	0	0	1	0	1	0	2
Other office—unspecified	4	0	0	0	0	2	0	6
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>	
Rural								
HIS/MRD—open plan	33	0	15	5	0	22	2	77
HIS/MRD—office for coders	13	0	6	8	3	19	7	56
Finance/admin office	5	0	2	0	0	0	0	7
Own office	2	0	0	1	0	3	3	9
Ward—office for coders	1	0	7	2	0	0	0	10
Reception area	2	0	0	2	0	0	0	4
Shared office with other medical staff	0	0	0	0	0	1	1	2
Spare desk/office	0	0	0	1	0	1	0	2
Conference/training room	0	0	0	2	0	1	0	3
Ward—open plan	1	0	0	0	0	2	0	3
Other office—unspecified	3	0	0	1	0	2	0	6
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>	
Remote								
HIS/MRD—open plan	0	2	2	0	0	0	1	5
HIS/MRD—office for coders	1	1	2	0	0	0	0	4
Finance/admin office	2	0	0	0	0	0	1	3
Own office	1	0	1	1	0	0	0	3
Ward—office for coders	0	0	0	1	0	0	0	1
Reception area	0	0	0	0	0	0	0	0
Shared office with other medical staff	0	0	0	0	0	0	0	0
Spare desk/office	0	0	0	0	0	0	0	0
Conference/training room	0	0	0	0	0	0	1	1
Ward—open plan	0	1	1	0	0	0	0	2
Other office—unspecified	0	0	0	2	0	0	0	2
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>	
Private								
Metropolitan								
HIS/MRD—open plan	34	0	6	7	0	33	7	87
HIS/MRD—office for coders	19	0	10	8	5	20	12	74
Finance/admin office	6	0	1	3	1	1	0	12
Own office	2	0	3	1	0	3	0	9
Ward—office for coders	0	0	0	1	0	1	0	2
Reception area	2	0	2	0	0	2	1	7
Shared office with other medical staff	1	0	1	0	0	0	0	2
Spare desk/office	1	0	0	0	0	0	0	1
Conference/training room	0	0	0	0	0	2	0	2
Ward—open plan	0	0	0	2	0	0	0	2
Other office—unspecified	4	0	0	4	0	1	0	9
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>	
Rural								
HIS/MRD—open plan	8	0	9	0	1	5	0	23
HIS/MRD—office for coders	0	0	9	0	1	2	2	14
Finance/admin office	1	0	0	0	0	1	0	2
Own office	1	0	0	0	0	1	0	2
Ward—office for coders	1	0	0	0	1	1	0	3
Reception area	0	0	0	0	0	0	0	0
Shared office with other medical staff	2	0	0	0	0	0	0	2
Spare desk/office	0	0	0	0	0	0	0	0
Conference/training room	0	0	0	0	0	0	0	0
Ward—open plan	0	0	0	0	0	0	1	1
Other office—unspecified	2	0	0	0	0	0	1	3
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>	

(respondents=719 missing=312)

Table A33: Percentage of coders with access to computing resources by locality characteristics

Computing resources	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
Metropolitan							
Access to a computer	80.9		93.9	87.1		89.5	60.9
Access to the Internet	51.1		97.0	87.1		100	82.6
Access to e-mail	85.1		100	90.3		100	100
Access to Code-L	64.9		75.8	93.5		75.6	73.9
Respondents per state	94	0	33	31	0	86	23
Rural							
Access to a computer	91.7		93.3	90.9	100	86.3	100
Access to the Internet	78.3		93.3	77.3	100	94.1	92.3
Access to e-mail	90.0		100	90.9	100	96.1	92.3
Access to Code-L	66.7		63.3	59.1	66.6	60.8	46.2
Respondents per state	60	0	30	22	3	51	13
Remote							
Access to a computer	100	100	83.3	80.0			100
Access to the Internet	100	100	83.3	80.0			100
Access to e-mail	75.0	100	100	80.0			100
Access to Code-L	0	75	16.6	80.0			33.3
Respondents per state	4	4	6	5	0	0	3
Private							
Metropolitan							
Access to a computer	84.1		82.6	96.2	66.6	84.4	75.0
Access to the Internet	84.1		91.3	96.2	100	96.9	85.0
Access to e-mail	89.9		91.3	96.2	100	95.3	90.0
Access to Code-L	56.5		65.2	65.4	83.3	64.1	55.0
Respondents per state	69	0	23	26	6	64	20
Rural							
Access to a computer	73.3		88.9		100	80.0	75.0
Access to the Internet	73.3		94.4		100	100	100
Access to e-mail	73.3		94.4		100	100	100
Access to Code-L	53.3		66.7		33.3	60.0	50.0
Respondents per state	15	0	18	0	3	10	4

(respondents=1,031 missing=0)

Table A34: Number of coders with access to clinical staff by locality characteristics

Access to clinical staff	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
Metropolitan	72	0	23	22	0	80	19
Respondents per state	94	0	33	31	0	86	23
Rural	44	0	26	19	2	41	12
Respondents per state	60	0	30	22	3	51	13
Remote	4	3	6	3	0	0	2
Respondents per state	4	4	6	5	0	0	3
Private							
Metropolitan	46	0	20	20	5	42	15
Respondents per state	69	0	23	26	6	64	20
Rural	11	0	14	0	2	4	3
Respondents per state	15	0	18	0	3	10	4

(respondents=1,031 missing=0)

Table A35: Number of coders with coding throughput requirements by locality characteristics

Coding throughput	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
Metropolitan	54	0	18	21	0	49	15
<i>Respondents per state</i>	94	0	33	31	0	86	23
Rural	14	0	19	3	0	22	1
<i>Respondents per state</i>	60	0	30	22	3	51	13
Remote	0	0	1	3	0	0	0
<i>Respondents per state</i>	4	4	6	5	0	0	3
Private							
Metropolitan	19	0	10	7	4	36	13
<i>Respondents per state</i>	69	0	23	26	6	64	20
Rural	5	0	8	0	0	4	2
<i>Respondents per state</i>	15	0	18	0	0	10	4
(respondents=693 missing=338)							

Table A36: Number of coders within each coding throughput category by locality characteristics

Records per day	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
1–19 records	2	0	1	1	0	1	0	5
20–29 records	1	0	1	10	0	18	2	32
30–39 records	17	0	1	7	0	3	7	35
40–49 records	22	0	8	0	0	6	3	39
50–59 records	9	0	3	1	0	1	0	14
60+ records	1	0	3	0	0	2	0	6
Respondents per state	94	0	33	31	0	86	23	
Rural								
1–19 records	1	0	1	0	0	7	0	9
20–29 records	0	0	0	0	0	1	0	1
30–39 records	4	0	2	0	0	2	0	8
40–49 records	0	0	7	1	0	0	0	8
50–59 records	0	0	5	0	0	0	0	5
60+ records	1	0	0	0	0	0	1	2
Respondents per state	60	0	30	22	3	51	13	
Remote								
1–19 records	0	0	0	3	0	0	0	3
20–29 records	0	0	0	0	0	0	0	0
30–39 records	0	0	0	0	0	0	0	0
40–49 records	0	0	0	0	0	0	0	0
50–59 records	0	0	1	0	0	0	0	1
60+ records	0	0	0	0	0	0	0	0
Respondents per state	4	4	6	5	0	0	3	
Private								
Metropolitan								
1–19 records	2	0	0	0	0	3	0	5
20–29 records	0	0	2	1	0	2	0	5
30–39 records	2	0	4	0	1	11	4	22
40–49 records	6	0	2	0	0	3	6	17
50–59 records	5	0	0	1	0	4	0	10
60+ records	1	0	0	0	0	1	0	2
Respondents per state	69	0	23	26	6	64	20	
Rural								
1–19 records	1	0	1	0	0	1	0	3
20–29 records	0	0	0	0	0	1	0	1
30–39 records	0	0	2	0	0	0	0	2
40–49 records	1	0	3	0	0	0	2	6
50–59 records	0	0	1	0	0	0	0	1
60+ records	1	0	0	0	0	1	0	2
Respondents per state	15	0	18	0	3	10	4	
(respondents=244 missing=213)								

Table A37: Coders' views of factors affecting coding quality: NSW

Factor	Impact		No impact	
	n	%	n	%
Incomplete medical record content	193	80.8	46	19.2
Principal diagnosis not identified	187	79.2	49	20.8
Complications/co-morbidities not identified	177	75.3	58	24.7
Illegible medical record entries	167	71.7	66	28.3
Submission deadlines	128	56.4	99	43.6
Pressure to maintain coding throughput	123	54.4	103	45.6
Having to perform a number of tasks in addition to coding	111	47.6	122	52.4
Medical records unavailable	92	40.0	138	60.0
Lack of contact with clinical staff	87	38.2	141	61.8
Lack of continuing education to update skills	81	36.2	143	63.8
Work environment is too distracting	77	33.3	154	66.7
Not enough coders employed in facility	72	32.1	152	67.9
Lack of coding training available	63	28.1	161	71.9
My inexperience as a coder	52	23.3	171	76.7
Limitations of ICD-10-AM as coding system	50	23.8	160	76.2
Lack of management support	50	22.6	171	77.4
No other coders close enough to discuss problems with	42	18.3	187	81.7
Lack of access to electronic resources	32	15.4	176	84.6
Lack of access to print resources	29	12.6	201	87.4
Lack of linkages between computers for admin use	28	13.1	186	86.9
Difficulty obtaining current coding books	26	11.7	196	88.3
Difficulties with data entry of codes	22	10.1	195	89.9
(n=>208 missing values <=34 for any one factor)				

Table A38: Coders' views of factors affecting coding quality: QLD

Factor	Impact		No impact	
	n	%	n	%
Incomplete medical record content	86	78.9	23	21.1
Principal diagnosis not identified	81	75.0	27	25.0
Illegible medical record entries	78	71.6	31	28.4
Complications/co-morbidities not identified	75	70.1	32	29.9
Pressure to maintain coding throughput	51	47.7	56	52.3
Lack of contact with clinical staff	43	39.4	66	60.6
Lack of continuing education to update skills	42	40.0	63	60.0
Submission deadlines	40	37.7	66	62.3
Medical records unavailable	38	35.5	69	64.5
Lack of coding training available	36	33.3	72	66.7
Having to perform a number of tasks in addition to coding	32	29.4	77	70.6
Not enough coders employed in facility	29	26.9	79	73.1
Work environment is too distracting	28	26.2	79	73.8
Limitations of ICD-10-AM as coding system	25	24.8	76	75.2
My inexperience as a coder	24	23.1	80	76.9
Lack of management support	24	23.1	80	76.9
No other coders close enough to discuss problems with	20	18.9	86	81.1
Lack of access to print resources	15	13.9	93	86.1
Lack of linkages between computers for admin use	14	13.2	92	86.8
Difficulties with data entry of codes	11	10.4	95	89.6
Lack of access to electronic resources	8	7.8	94	92.2
Difficulty obtaining current coding books	7	6.6	99	93.4
(n=>101 missing values <=9 for any one factor)				

Table A39: Coders' views of factors affecting coding quality: SA

Factor	Impact		No impact	
	n	%	n	%
Incomplete medical record content	64	79.0	17	21.0
Complications/co-morbidities not identified	64	78.0	18	22.0
Principal diagnosis not identified	60	73.2	22	26.8
Illegible medical record entries	57	71.3	23	28.8
Having to perform a number of tasks in addition to coding	38	48.1	41	51.9
Pressure to maintain coding throughput	37	45.7	44	54.3
Medical records unavailable	35	45.5	42	54.5
Submission deadlines	35	44.3	44	55.7
Work environment is too distracting	25	31.3	55	68.8
Lack of management support	25	31.3	55	68.8
Lack of continuing education to update skills	24	30.8	54	69.2
Lack of contact with clinical staff	21	26.6	58	73.4
Not enough coders employed in facility	19	25.3	56	74.7
Difficulties with data entry of codes	19	24.4	59	75.6
Limitations of ICD-10-AM as coding system	18	24.3	56	75.7
No other coders close enough to discuss problems with	17	22.1	60	77.9
Lack of coding training available	15	19.5	62	80.5
Lack of linkages between computers for admin use	15	20.3	59	79.7
My inexperience as a coder	14	18.2	63	81.8
Lack of access to electronic resources	13	17.3	62	82.7
Lack of access to print resources	11	13.8	69	86.3
Difficulty obtaining current coding books	10	13.5	64	86.5
(n=>74 missing values <=10 for any one factor)				

Table A40: Coders' views of factors affecting coding quality: VIC

Factor	Impact		No impact	
	n	%	n	%
Incomplete medical record content	158	76.3	49	23.7
Principal diagnosis not identified	151	74.4	52	25.6
Complications/co-morbidities not identified	140	69.0	63	31.0
Illegible medical record entries	133	65.5	70	34.5
Pressure to maintain coding throughput	84	41.4	119	58.6
Submission deadlines	75	38.5	120	61.5
Having to perform a number of tasks in addition to coding	72	36.2	127	63.8
Medical records unavailable	69	33.8	135	66.2
Lack of contact with clinical staff	68	33.8	133	66.2
Work environment is too distracting	53	25.9	152	74.1
Not enough coders employed in facility	47	23.2	156	76.8
My inexperience as a coder	42	21.0	158	79.0
Lack of continuing education to update skills	42	20.9	159	79.1
Limitations of ICD-10-AM as coding system	39	20.2	154	79.8
Lack of coding training available	37	18.3	165	81.7
Lack of management support	32	16.3	164	83.7
No other coders close enough to discuss problems with	26	13.0	174	87.0
Lack of access to print resources	20	9.9	182	90.1
Lack of access to electronic resources	20	10.7	167	89.3
Difficulties with data entry of codes	18	9.1	179	90.9
Lack of linkages between computers for admin use	18	9.4	173	90.6
Difficulty obtaining current coding books	12	6.1	185	93.9
(n=>187 missing values <=24 for any one factor)				

Table A41: Coders' views of factors affecting coding quality: WA

Factor	Impact		No impact	
	n	%	n	%
Complications/co-morbidities not identified	47	75.8	15	24.2
Incomplete medical record content	45	72.6	17	27.4
Principal diagnosis not identified	45	71.4	18	28.6
Illegible medical record entries	42	67.7	20	32.3
Lack of continuing education to update skills	27	45.0	33	55.0
Pressure to maintain coding throughput	25	41.7	35	58.3
Lack of contact with clinical staff	21	34.4	40	65.6
Lack of coding training available	19	32.2	40	67.8
Medical records unavailable	18	31.0	40	69.0
Submission deadlines	18	32.1	38	67.9
Work environment is too distracting	16	26.2	45	73.8
Limitations of ICD-10-AM as coding system	15	25.9	43	74.1
Not enough coders employed in facility	14	23.7	45	76.3
Having to perform a number of tasks in addition to coding	14	23.0	47	77.0
Lack of management support	13	22.8	44	77.2
Lack of access to print resources	8	13.8	50	86.2
Lack of access to electronic resources	8	16.0	42	84.0
No other coders close enough to discuss problems with	7	11.5	54	88.5
My inexperience as a coder	7	12.1	51	87.9
Difficulties with data entry of codes	5	8.1	57	91.9
Lack of linkages between computers for admin use	4	7.4	50	92.6
Difficulty obtaining current coding books	1	1.7	57	98.3
(n=>50 missing values <=13 for any one factor)				

Table A42: Number of coders who perform regular QA activities by locality characteristics

Perform QA	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
Metropolitan	57	0	23	23	0	64	23
<i>Respondents per state</i>	94	0	33	31	0	86	23
Rural	28	0	24	17	3	39	12
<i>Respondents per state</i>	60	0	30	22	3	51	13
Remote	0	3	5	3	0	0	2
<i>Respondents per state</i>	4	4	6	5	0	0	3
Private							
Metropolitan	44	0	18	21	5	42	15
<i>Respondents per state</i>	69	0	23	26	6	64	20
Rural	10	0	10	0	0	8	3
<i>Respondents per state</i>	15	0	18	0	0	10	4
(respondents=502 missing=185)							

Table A43: Percentage of coders performing each type of QA by locality characteristics

Type of QA	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
Metropolitan							
Internal analysis using PICQ	12.8	0	6.1	12.9	0	24.4	34.8
External analysis using PICQ	1.1	0	0	3.2	0	11.6	34.8
Internal analysis using ACBA	30.9	0	0	0	0	5.8	4.3
External analysis using ACBA	4.3	0	0	3.2	0	4.7	8.7
Other audits	14.9	0	42.4	35.5	0	48.8	52.2
Other QA	13.8	0	39.4	25.8	0	11.6	26.1
Respondents per state	94	0	33	31	0	86	23
Rural							
Internal analysis using PICQ	1.7	0	10.0	27.3	0	23.5	30.8
External analysis using PICQ	0	0	3.3	9.1	100	27.5	46.2
Internal analysis using ACBA	1.7	0	3.3	27.3	0	5.9	0
External analysis using ACBA	5.0	0	0	18.2	100	7.8	7.7
Other audits	28.3	0	46.7	31.8	0	29.4	15.4
Other QA	21.7	0	36.7	22.7	100	11.8	15.4
Respondents per state	60	0	30	22	3	51	13
Remote							
Internal analysis using PICQ	0	25.0	0	0	0	0	0
External analysis using PICQ	0	0	0	0	0	0	0
Internal analysis using ACBA	0	0	0	0	0	0	0
External analysis using ACBA	0	0	16.7	0	0	0	0
Other audits	0	25.0	50.0	20.0	0	0	0
Other QA	0	0	16.7	40	0	0	66.7
Respondents per state	4	4	6	5	0	0	3
Private							
Metropolitan							
Internal analysis using PICQ	2.9	0	4.3	30.8	16.7	6.3	25.0
External analysis using PICQ	1.4	0	4.3	7.7	16.7	1.6	15.0
Internal analysis using ACBA	2.9	0	4.3	7.7	16.7	1.6	5.0
External analysis using ACBA	11.6	0	4.3	15.4	50.0	9.4	5.0
Other audits	39.1	0	43.5	46.2	33.3	35.9	35.0
Other QA	5.8	0	39.1	26.9	0	17.2	5.0
Respondents per state	69	0	23	26	6	64	20
Rural							
Internal analysis using PICQ	0	0	0	0	0	0	25.0
External analysis using PICQ	13.3	0	0	0	33.3	0	25.0
Internal analysis using ACBA	6.7	0	0	0	20.0	0	0
External analysis using ACBA	0	0	5.6	0	0	0	25.0
Other audits	26.7	0	44.4	0	66.7	40.0	50.0
Other QA	20.0	0	11.1	0	33.3	20.0	0
Respondents per state	15	0	18	0	3	10	4

(respondents=1,031 missing=0)

Table A44: Number of coders who like coding as a job by locality characteristics

Like coding as a job	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
Metropolitan	85	0	28	26	0	82	22
<i>Respondents per state</i>	94	0	33	31	0	86	23
Rural	56	0	28	22	3	46	11
<i>Respondents per state</i>	60	0	30	22	3	51	13
Remote	4	4	5	4	0	0	3
<i>Respondents per state</i>	4	4	6	5	0	0	3
Private							
Metropolitan	65	0	22	24	6	57	19
<i>Respondents per state</i>	69	0	23	26	6	64	20
Rural	14	0	17	0	2	8	4
<i>Respondents per state</i>	15	0	18	0	3	10	4
(respondents=707 missing=324)							

Table A45: Percentage of coders who learned to code through each method by locality characteristics

Learn to code	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
<i>Metropolitan</i>							
Undergraduate HIM/MRA	34.0	0	51.5	0	0	89.5	30.4
HIM postgraduate	6.4	0	3.0	0	0	2.3	0
HIMAA distance course	16.0	0	33.3	71.0	0	4.7	13.0
HIMAA accelerated course	3.2	0	3.0	0	0	0	0
OTEN coding course	36.2	0	3.0	3.2	0	0	0
Health department training	6.4	0	0	16.1	0	1.2	34.8
On the job	34.0	0	21.2	61.3	0	37.2	43.5
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>
<i>Rural</i>							
Undergraduate HIM/MRA	25.0	0	10.0	0	0	62.7	0
HIM postgraduate	1.7	0	3.3	0	0	2.0	0
HIMAA distance course	31.7	0	36.7	95.5	0	27.5	7.7
HIMAA accelerated course	1.7	0	16.7	0	33.3	0	0
OTEN coding course	31.7	0	13.3	13.6	33.3	2.0	0
Health department training	16.7	0	13.3	13.6	0	3.9	61.5
On the job	38.3	0	23.3	27.3	0	15.7	46.2
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>
<i>Remote</i>							
Undergraduate HIM/MRA	0	0	0	0	0	0	33.3
HIM postgraduate	0	0	16.7	0	0	0	0
HIMAA distance course	25.0	50.0	50.0	80.0	0	0	0
HIMAA accelerated course	0	25.0	33.3	0	0	0	0
OTEN coding course	0	25.0	0	0	0	0	0
Health department training	0	50.0	0	0	0	0	66.7
On the job	75.0	25.0	0	40.0	0	0	0
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>
Private							
<i>Metropolitan</i>							
Undergraduate HIM/MRA	30.4	0	47.8	0	0	67.2	35.0
HIM postgraduate	7.2	0	0	0	0	1.6	0
HIMAA distance course	8.7	0	26.1	88.5	66.7	15.6	15.0
HIMAA accelerated course	10.1	0	8.7	0	16.7	1.6	10.0
OTEN coding course	29.0	0	13.0	3.8	0	3.1	15.0
Health department training	10.1	0	17.4	3.8	0	3.1	40.0
On the job	44.9	0	26.1	46.2	50.0	18.8	30.0
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>
<i>Rural</i>							
Undergraduate HIM/MRA	6.7	0	5.6	0	0	60.0	0
HIM postgraduate	0	0	0	0	0	0	0
HIMAA distance course	20.0	0	50.0	0	33.3	30.0	25.0
HIMAA accelerated course	20.0	0	5.6	0	0	0	25.0
OTEN coding course	40.0	0	55.6	0	33.3	0	0
Health department training	6.7	0	11.1	0	0	0	50.0
On the job	66.7	0	27.8	0	0	0	25.0
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>

Table A46: Coders years of experience by locality characteristics

Records per day	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
<1 year	1	0	2	0	0	2	0	5
1–4 years	32	0	19	4	0	28	7	90
5–9 years	25	0	7	11	0	19	9	71
10+ years	34	0	5	12	0	34	6	91
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>	
Rural								
<1 year	5	0	0	0	0	2	0	7
1–4 years	16	0	4	6	0	12	4	42
5–9 years	16	0	18	11	1	15	7	68
10+ years	21	0	8	4	2	19	0	54
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>	
Remote								
<1 year	0	0	0	0	0	0	0	0
1–4 years	2	2	2	3	0	0	1	10
5–9 years	2	1	2	1	0	0	2	8
10+ years	0	1	2	0	0	0	0	3
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>	
Private								
Metropolitan								
<1 year	5	0	2	3	0	5	1	16
1–4 years	13	0	6	5	3	13	7	47
5–9 years	17	0	9	16	1	15	6	64
10+ years	33	0	6	2	2	28	6	77
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>	
Rural								
<1 year	0	0	3	0	0	0	0	3
1–4 years	3	0	4	0	1	2	1	11
5–9 years	8	0	8	0	2	3	3	24
10+ years	4	0	3	0	0	5	0	12
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>	

Table A47: Percentage of time spent by coders on continuing education by locality characteristics

Time	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Public								
Metropolitan								
<5%	54	0	14	22	0	53	18	161
5–10%	20	0	3	2	0	18	1	44
11–25%	7	0	3	0	0	6	2	18
>25%	3	0	1	0	0	1	1	6
<i>Respondents per state</i>	94	0	33	31	0	86	23	
Rural								
<5%	46	0	23	16	3	37	6	131
5–10%	9	0	6	3	0	5	3	26
11–25%	0	0	1	0	0	1	0	2
>25%	1	0	0	0	0	2	0	3
<i>Respondents per state</i>	60	0	30	22	3	51	13	
Remote								
<5%	2	4	2	0	0	0	1	9
5–10%	0	0	3	0	0	0	2	5
11–25%	0	0	1	1	0	0	0	2
>25%	0	0	0	1	0	0	0	1
<i>Respondents per state</i>	4	4	6	5	0	0	3	
Private								
Metropolitan								
<5%	44	0	16	17	2	39	11	129
5–10%	7	0	2	5	3	8	7	32
11–25%	0	0	0	1	0	1	1	3
>25%	2	0	0	1	0	3	0	6
<i>Respondents per state</i>	69	0	23	26	6	64	20	
Rural								
<5%	10	0	15	0	3	7	2	37
5–10%	4	0	1	0	0	0	2	7
11–25%	0	0	1	0	0	0	0	1
>25%	0	0	0	0	0	0	0	0
<i>Respondents per state</i>	15	0	18	0	3	10	4	
(respondents=623 missing=408)								

Table A48: Percentage of coders who receive facility support for continuing education by locality characteristics

Learn to code	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
<i>Metropolitan</i>							
Payment of fees	54.3	0	48.5	51.6	0	47.7	52.2
Time off work no makeup	61.7	0	63.6	61.3	0	64.0	56.5
Time off work with makeup	2.1	0	9.1	3.2	0	9.3	4.3
<i>Respondents per state</i>	<i>94</i>	<i>0</i>	<i>33</i>	<i>31</i>	<i>0</i>	<i>86</i>	<i>23</i>
<i>Rural</i>							
Payment of fees	58.3	0	80.0	63.6	66.7	70.6	53.8
Time off work no makeup	55.0	0	60.0	59.1	100	76.5	69.2
Time off work with makeup	3.3	0	3.3	0	0	0	0
<i>Respondents per state</i>	<i>60</i>	<i>0</i>	<i>30</i>	<i>22</i>	<i>3</i>	<i>51</i>	<i>13</i>
<i>Remote</i>							
Payment of fees	25.0	75.0	50.0	40.0	0	0	66.7
Time off work no makeup	50.0	50.0	83.3	0	0	0	66.7
Time off work with makeup	0	0	0	40.0	0	0	0
<i>Respondents per state</i>	<i>4</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>0</i>	<i>0</i>	<i>3</i>
Private							
<i>Metropolitan</i>							
Payment of fees	50.7	0	47.8	53.8	66.7	50.0	55.0
Time off work no makeup	56.5	0	43.5	65.4	33.3	75.0	53.4
Time off work with makeup	5.8	0	0	3.8	0	3.1	0
<i>Respondents per state</i>	<i>69</i>	<i>0</i>	<i>23</i>	<i>26</i>	<i>6</i>	<i>64</i>	<i>20</i>
<i>Rural</i>							
Payment of fees	66.7	0	83.3	0	100	60.0	50.0
Time off work no makeup	73.3	0	66.7	0	66.7	40.0	50.0
Time off work with makeup	6.7	0	11.1	0	0	0	0
<i>Respondents per state</i>	<i>15</i>	<i>0</i>	<i>18</i>	<i>0</i>	<i>3</i>	<i>10</i>	<i>4</i>

Table A49: Percentage of coders that attended each type of continuing education activity by locality characteristics

Learn to code	NSW	NT	QLD	SA	TAS	VIC	WA
Public							
<i>Metropolitan</i>							
NCCH update workshops	69.1	0	72.7	71.0	0	64.0	91.3
NCCH print-based materials	52.1	0	60.6	51.6	0	67.4	65.2
Departmental coding meetings	58.5	0	39.4	64.5	0	60.5	34.8
Materials from NCCH web	19.1	0	51.5	22.6	0	64.0	47.8
Health department workshops	23.4	0	24.2	38.7	0	33.7	65.2
<i>Respondents per state</i>	94	0	33	31	0	86	23
<i>Rural</i>							
NCCH update workshops	56.7	0	80.0	31.8	100.0	68.6	76.9
NCCH print-based materials	48.3	0	33.3	18.2	100.0	49.0	53.8
Departmental coding meetings	30.0	0	43.3	31.8	66.7	35.3	15.4
Materials from NCCH web	26.7	0	40.0	4.5	100.0	35.3	30.8
Health department workshops	18.3	0	10.0	36.4	33.3	31.4	61.5
<i>Respondents per state</i>	60	0	30	22	3	51	13
<i>Remote</i>							
NCCH update workshops	75.0	75.0	100.0	40.0	0	0	66.7
NCCH print-based materials	25.0	50.0	50.0	40.0	0	0	66.7
Departmental coding meetings	0	0	0	20.0	0	0	0
Materials from NCCH web	25.0	75.0	50.0	40.0	0	0	66.7
Health department workshops		25.0	33.3	20.0	0	0	66.7
<i>Respondents per state</i>	4	4	6	5	0	0	3
Private							
<i>Metropolitan</i>							
NCCH update workshops	59.4	0	56.5	88.5	83.3	53.1	75.0
NCCH print-based materials	40.6	0	21.7	65.4	66.7	39.1	50.0
Departmental coding meetings	21.7	0	26.1	50.0	83.3	42.2	65.0
Materials from NCCH web	26.1	0	21.7	34.6	66.7	39.1	50.0
Health department workshops	8.7	0	30.4	34.6	33.3	26.6	80.0
<i>Respondents per state</i>	69	0	23	26	6	64	20
<i>Rural</i>							
NCCH update workshops	46.7	0	94.4	0	100.0	60.0	75.0
NCCH print-based materials	40.0	0	27.8	0	33.3	30.0	25.0
Departmental coding meetings	20.0	0	33.3	0	0	20.0	50.0
Materials from NCCH web	33.3	0	61.1	0	33.3	30.0	25.0
Health department workshops	6.7	0	22.2	0	0	30.0	100.0
<i>Respondents per state</i>	15	0	18	0	3	10	4

(respondents=1,031 missing=0)