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Workforce planning for the community services and health industry

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About the research

Workforce planning for the community services and health industry

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Due to skill shortages in vocationally trained and professionally trained occupations, workforce planning for the community services and health industry is critical. The authors of this paper argue that any workforce planning must consider the institutional features of the industry and the many ways in which people acquire and use their skills. The paper therefore aims to provide a picture of the occupations in the community services and health industry and to show how the workforce obtains the required skills. The paper also considers how well the outputs of the public vocational education and training (VET) system map to this industry.

Key messages

- Planning for the industry should concentrate on the occupations that are specific to community services and health, with greater consideration given to higher-skilled occupations.
- Community services and health VET courses are well targeted, with most graduates finding employment within the community services and health industry.
- The qualification levels of community services and health workers have increased substantially over the last decade:
  - Degrees have taken over from diplomas for a range of occupations, such as health service managers and chiropractors.
  - Diploma and advanced diploma training has replaced certificate-level training for associate professional and 'alternative' health workers.
  - There has been an increase in credentials among the lower-skilled occupations, such as personal carers and child care workers.

The study identifies two main implications related to the movement towards higher qualifications amongst workers. Firstly, there is a challenge for the industry to ensure that higher credentials lead to higher skill levels and not just better credentialled workers; secondly, there is a challenge for the VET sector to promote the value of its training for associate professional level community services and health occupations, and thus not let universities take over this training.

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Introduction

Workforce planning has become a more urgent issue for many industries in recent years. This urgency is driven by skills shortages in some industries and the need, as the population ages, to replace retiring workers in all industries.

Both skills shortages and an ageing population affect the community services and health industry. The Community Services and Health Industry Skills Council (2008) identified shortages in vocationally trained occupations as well as in the professionally trained occupations of nursing and medicine. The council reports that 46% of workers in the industry are over the age of 45 years. Planning is therefore critical to the industry.

In this paper, we argue that workforce planning for the industry must consider the institutional features of the industry and the many ways in which people acquire and use their skills. We aim, therefore, to build a picture of the occupations of people working in the industry and how they obtain the required skills. We do this in a number of stages, which also define the structure of the paper:

- a description of the occupational structure of the workforce
- an exploration of the links between education and training and the industry (in particular, how workers acquire the required skills)
- a comment on structural change in the industry over the last decade
- an examination of how the formal vocational education and training (VET) system interacts with the industry
- an examination of articulation between VET and higher education.

In the first section, we make use of census data to describe the community services and health workforce. We know that some occupations are largely specific to the industry (for example, nurses), while others are not (for example, receptionists). In thinking about planning for the industry, we identify the occupations largely confined to the industry; our view is that there is not much pay-off to the industry in worrying about occupations that are largely located elsewhere. Further, we argue that the industry should focus on planning the training of the more skilled occupations, on the basis that lead times are much longer for training such people and that shortages of skilled people are particularly critical to the industry (see Richardson 2007). On this basis we identify some 38 'community services and health' occupations and order them by skills (using wages as a proxy). This sorting of occupations prepares the ground for the second section, where we focus on the qualification profiles of the occupations important to the industry.

Section two examines how workers acquire their skills. The Community Services and Health Industry Skills Council (2008) reports a mix in qualifications within the industry. In 2007, the mix was:

- 38.5% higher education
- 36.1% VET qualification
- 25.4% no qualification.

However, this is not particularly helpful because workforce needs must be addressed at the occupational level. Our approach is to differentiate between occupations that require a degree (the

'university' trained), those that require a degree or a diploma VET qualification ('tertiary' trained) and the remainder in which people with various qualifications are employed ('vocational' occupations). Occupational licensing is important here because mandating qualifications seriously constrains ways of meeting skills needs. For the unlicensed parts of the industry, there is a large degree of flexibility in meeting skill needs. Qualifications are one route; another is learning on the job.

This point, that there is no fixed way of addressing skills needs, is reinforced in the next section, where we compare qualification profiles between 1996 and 2006. The level of qualifications has increased substantially, but this does not imply that having everyone qualified is necessarily a sensible way of meeting skills needs.[1] We find very significant increases in the proportion of the workforce with qualifications and changes in the way that occupations are conceptualised. The last decade has seen the completion of professionalisation of a number of occupations, such health service managers, chiropractors, medical imaging professionals and occupational therapists, such that a degree has become mandatory. There has been a significant shift towards tertiary training for a range of associate professional and 'alternative' health workers. Examples here are ambulance officers and paramedics, dental associate professionals, dieticians, and natural therapy professionals. For many of these occupations, certificate-level training is giving way to diplomas or degrees. Finally, we see large increases in credentials among the lower-skilled occupations such as personal carers and child care workers.

The comparison of the ten years also allows us to comment on structural change in terms of the mix of occupations within the industry. If a shortage occurs in one occupation, it is possible to reorganise the way work is done. In fact, the level of occupational structural change is very small. The share of the industry's employment taken up by community services and health occupations changed from 58% in 1996 to 56% in 2006. Within the community and service and health occupations there was a very small shift towards the medium-to-high-skill occupations (such as psychologists, physiotherapists, and welfare and community workers).

In section four we focus on the formal VET training system.[2] We look at the output of the system and how it maps to the industry. We find that most of the training relevant to community services and health occupations is well targeted, with a close match between intended occupations of courses and actual destination occupations.

We also look at the links between VET and higher education because they do interact with each other. Two issues are of specific interest: the extent to which VET is acting as a feeder to professional (university) training, and the extent to which VET is channelling university-trained individuals into the industry. With respect to the former, around 16% of enrolled and mothercraft nurse VET graduates proceed to university, as do 9% of welfare support worker graduates and a handful of care worker graduates. In relation to the latter, some 7900 VET students enrolled in community services and health courses in 2007 had a university degree. Some of them were enrolled in specific vocational training to complement their university-level education (for example, those doing child care centre management courses), but the majority were doing care worker courses apparently unrelated to possessing a university degree.

Finally, we draw some conclusions. In thinking about planning for the industry's workforce, we argue that planning should focus on occupations that are largely specific to the industry and which tend to be more skilled. In focusing on the training system, planners should note that training in

[1] On the other hand, the policy push is to reduce the number of workers with no qualifications, on the basis that it will improve the quality of services and that VET-qualified staff can support the professional staff who are in high demand (Community Services and Health Industry Skills Council 2008). The Community Services and Health Industry Skills Council (2009) also argues that shortages in some parts of the degree-qualified workforce have increased the need to maximise the effectiveness of the VET-trained workforce and to establish new skill-mix arrangements between VET and university-trained workers.

[2] A similar exercise could be undertaken for higher education but is beyond the scope of this paper.

community services and health courses is well targeted and most graduates use their training in a direct way. We also find a reasonable degree of movement, in both directions, between the VET and higher education sectors. The only concern we note here, is that some university graduates may be struggling to find employment and may be undertaking VET to obtain a lower-skilled job in the community services and health sector.

We also discuss the implications of the increase in credentials amongst the workforce over the past decade. A better-qualified community services and health workforce is not a bad thing, but there is a danger that universities will take over the training of the associate professional level occupations, and that the VET sector will be left with certificate training for lower-skilled occupations. Furthermore, there is a challenge to ensure that higher credentials lead to higher skill levels and not just to better credentialled workers.

Occupational structure of the workforce

Occupations within the community services and health industry are diverse in terms of skill levels and importance to the industry. With this diversity in mind, we argue that any planning for the industry should occur at the occupational level. The first section of the paper examines the occupations required within the industry.

Because of the detail it offers, we use the 2006 Census of Population and Housing to analyse the occupational structure of the workforce. The Australian and New Zealand Standard Classification of Occupations (ANZSCO) is used throughout the paper, except where time-series analyses are required. The 1993 edition of the Australian and New Zealand Standard Industrial Classification (ANZSIC) is used to identify the industry of employment.[3]

Data are grouped to show occupations at the more detailed unit group (four-digit) level for the occupations likely to be community services and health-related. All other occupations are grouped at the sub-major (two-digit) level.

Table 1 shows the top 20 employing occupations (appendix A shows data for all occupations). The first two columns indicate the relative importance to the industry in terms of the number of employees. The remaining four columns of table 1 show the proportion of employees who are employed in 'the community services and health industry' and 'other industries'. The purpose of this analysis is to find the occupations that are important to the community services and health industry in terms of size (number of employees) and concentration within the industry.

The table shows that the largest employing occupation in the community services and health industry is registered nurses, accounting for 16.9% of all employees. These employees are also largely contained within the community services and health industry, with 94.2% of registered nurses working in the industry. This occupation is obviously important to the industry. By contrast, the fourth largest employing occupation in the community services and health division comprises inquiry clerks and receptionists. However, 70.7% of inquiry clerks and receptionists are employed in other industries. For planning purposes, this occupation is of little importance to the industry, as there is very little pay-off to worrying about occupations that are largely located elsewhere.

We are interested in identifying the occupations largely confined to the industry, so we examine all occupations, and not just those with the most employees. Using data shown in appendix A, we disregard occupations where more than 50% of workers are employed in 'other industries'. We also remove the 'not further defined' occupational groups as we are unsure what occupations these groups represent. These groups also typically only represent a small number of workers.

[3] This classification was selected due to time-series requirements and was used for the entire paper, as the differences between the 1993 edition and the more recent edition were small for the community services and health industry.

Table 1 Employed persons, aged 15 years and over (excludes overseas visitors) by occupation (ANZSCO), by industry of employment (ANZSIC 1993), for the top 20 employing occupations in the community services and health industry[(a)]

Occupation	Employment in community services and health industry[(b)]			Total persons by industry of employment (%)			
	Number	Cumulative number	Cumulative %	Comm. services and health industry[(b)]	Other	Not stated	**Total**
2544 Registered nurses	162 639	162 639	16.9	94.2	5.3	0.4	**100.0**
4231 Aged and disabled carers	65 377	228 016	23.7	84.5	14.7	0.8	**100.0**
4211 Child carers	58 811	286 827	29.8	69.0	29.3	1.7	**100.0**
54 Inquiry clerks and receptionists	58 639	345 466	35.9	28.9	70.7	0.4	**100.0**
4233 Nursing support and personal care workers	54 942	400 408	41.6	94.4	5.1	0.5	**100.0**
2531 Generalist medical practitioners	34 149	434 557	45.1	96.3	3.5	0.2	**100.0**
53 General clerical workers	27 446	462 003	48.0	10.6	88.6	0.9	**100.0**
81 Cleaners and laundry workers	26 234	488 237	50.7	12.2	85.9	1.9	**100.0**
51 Office managers and program administrators	25 175	513 412	53.3	13.4	86.3	0.3	**100.0**
4117 Welfare support workers	23 841	537 253	55.8	59.2	40.4	0.4	**100.0**
85 Food preparation assistants	18 426	555 679	57.7	15.9	83.4	0.7	**100.0**
4114 Enrolled and mothercraft nurses	18 202	573 881	59.6	93.8	5.9	0.2	**100.0**
22 Business, human resource and marketing professionals	15 294	589 175	61.2	3.4	96.2	0.4	**100.0**
4232 Dental assistants	14 753	603 928	62.7	95.9	3.6	0.4	**100.0**
3112 Medical technicians	14 312	618 240	64.2	76.9	22.9	0.2	**100.0**
13 Specialist managers (excluding child care centre managers and health and welfare managers)	13 078	631 318	65.6	2.6	97.1	0.3	**100.0**
2541 Midwives	11 877	643 195	66.8	97.1	2.8	0.2	**100.0**
2525 Physiotherapists	11 649	654 844	68.0	94.8	5.1	0.1	**100.0**
55 Numerical clerks	11 326	666 170	69.2	3.9	95.6	0.5	**100.0**
1342 Health and welfare services managers	10 364	676 534	70.2	85.2	14.6	0.2	**100.0**
Total of all occupations (includes those not in top 20)	**963 076**	**Not applicable**		**10.6**	**88.1**	**1.4**	**100.0**

Notes: (a) Occupations regarded as community services and health are shown as the unit group (four-digit) level. All other occupations are grouped at the sub-major item (two-digit) level.
(b) The community services and health industry is based on ANZSIC 1993, Division O: Health and Community Services (minus 864 – Veterinary services)

Source: Derived from the ABS Census of Population and Housing (2006).

Table 2 shows the results of our first cut of occupations that are 'important' for planning purposes, sorted by size. This leaves us with 38 'important' occupations.[4] These occupations represented

[4] The 38 occupations were identified using the ANZSCO. The Community Services and Health Industry Skills Council (2009) notes that this classification is less than perfect for describing occupations in the industry and has recommended that the Australian Bureau of Statistics (ABS) undertakes a substantial review of the classification. One issue is that one occupational group can contain a variety of skill levels.

some 614 200 employed persons in the industry (equating to around 64% of total persons employed in the industry. Of note, is the removal of some occupations (for example, counsellors and pharmacists) who are employed in the community services and health industry, but not regarded as exclusive to the industry. Counsellors are obviously employed across many industries. Pharmacists are likely to be concentrated in the retail trade industry.

Table 2 Employed persons, aged 15 years and over (excludes overseas visitors) by occupation (ANZSCO), by industry of employment (ANZSIC 1993), for selected occupations where 50% or more of workers are employed in the community services and health industry[a], [b]

Occupation	Employment in community services and health industry[c]			Total persons by industry of employment (%)			
	Number	Cumulative number	Cumulative %	Comm. services and health industry[c]	Other	Not stated	**Total**
2544 Registered nurses	162 639	162 639	26.5	94.2	5.3	0.4	**100.0**
4231 Aged and disabled carers	65 377	228 016	37.1	84.5	14.7	0.8	**100.0**
4211 Child carers	58 811	286 827	46.7	69.0	29.3	1.7	**100.0**
4233 Nursing support and personal care workers	54 942	341 769	55.6	94.4	5.1	0.5	**100.0**
2531 Generalist medical practitioners	34 149	375 918	61.2	96.3	3.5	0.2	**100.0**
4117 Welfare support workers	23 841	399 759	65.1	59.2	40.4	0.4	**100.0**
4114 Enrolled and mothercraft nurses	18 202	417 961	68.1	93.8	5.9	0.2	**100.0**
4232 Dental assistants	14 753	432 714	70.5	95.9	3.6	0.4	**100.0**
3112 Medical technicians	14 312	447 026	72.8	76.9	22.9	0.2	**100.0**
2541 Midwives	11 877	458 903	74.7	97.1	2.8	0.2	**100.0**
2525 Physiotherapists	11 649	470 552	76.6	94.8	5.1	0.1	**100.0**
1342 Health and welfare services managers	10 364	480 916	78.3	85.2	14.6	0.2	**100.0**
2543 Nurse managers	10 306	491 222	80.0	94.6	5.3	0.1	**100.0**
2512 Medical imaging professionals	9 931	501 153	81.6	97.9	1.9	0.2	**100.0**
2725 Social workers	8 744	509 897	83.0	70.3	29.4	0.3	**100.0**
4111 Ambulance officers and paramedics	8 738	518 635	84.4	96.0	3.7	0.2	**100.0**
2523 Dental practitioners	8 663	527 298	85.9	95.5	4.1	0.4	**100.0**
2723 Psychologists	8 608	535 906	87.3	64.1	35.6	0.3	**100.0**
2346 Medical laboratory scientists	8 512	544 418	88.6	63.7	36.2	0.1	**100.0**
4116 Massage therapists	7 294	551 712	89.8	89.0	10.6	0.5	**100.0**
2524 Occupational therapists	6 001	557 713	90.8	87.8	12.1	0.2	**100.0**
2539 Other medical practitioners	5 560	563 273	91.7	95.1	4.8	0.2	**100.0**
1341 Child care centre managers	5 535	568 808	92.6	68.1	31.6	0.2	**100.0**
2522 Complementary health therapists	4 397	573 205	93.3	82.9	16.5	0.6	**100.0**
2527 Speech professionals and audiologists	4 029	577 234	94.0	81.4	18.5	0.1	**100.0**
4113 Diversional therapists	3 796	581 030	94.6	93.1	6.6	0.3	**100.0**
2535 Surgeons	3 794	584 824	95.2	97.3	2.5	0.2	**100.0**
2514 Optometrists and orthoptists	3 449	588 273	95.8	96.3	3.6	0.2	**100.0**

Occupation	Employment in community services and health industry[c]			Total persons by industry of employment (%)			
	Number	Cumulative number	Cumulative %	Comm. services and health industry[c]	Other	Not stated	**Total**
2533 Internal medicine specialists	3 433	591 706	96.3	95.6	4.3	0.1	**100.0**
2519 Other health diagnostic and promotion professionals	3 330	595 036	96.9	74.6	25.1	0.2	**100.0**
2521 Chiropractors and osteopaths	3 234	598 270	97.4	98.3	1.4	0.3	**100.0**
4112 Dental hygienists, technicians and therapists	3 128	601 398	97.9	60.5	39.1	0.4	**100.0**
2542 Nurse educators and researchers	2 948	604 346	98.4	78.4	21.5	0.1	**100.0**
2532 Anaesthetists	2 694	607 040	98.8	98.8	1.2	0.0	**100.0**
2511 Dietitians	2 103	609 143	99.2	81.3	18.4	0.3	**100.0**
2534 Psychiatrists	2 070	611 213	99.5	94.9	4.8	0.4	**100.0**
2526 Podiatrists	2 055	613 268	99.9	98.0	1.9	0.1	**100.0**
4115 Indigenous health workers	883	614 151	100.0	87.4	11.8	0.8	**100.0**
Total	**614 151**	**Not applicable**		**85.4**	**14.1**	**0.5**	**100.0**

Notes: (a) Occupations regarded as community services and health are shown as the unit group (four-digit) level. All other occupations are grouped at the sub-major item (two-digit) level.
(b) Occupations that were not further defined were deleted from the analysis.
(c) The community services and health industry is based on ANZSIC 1993, Division O: Health and Community Services (minus 864 – Veterinary services).

Source: Derived from the ABS Census of Population and Housing (2006).

The occupations in table 2 contain a mix of skill levels. Any planning conducted by the industry should focus on training persons to work in the more skilled occupations. This is because it typically takes longer to train persons for higher-skilled occupations compared with occupations that can utilise workers with no qualifications or certificate I or II qualifications. The main point is that it is important that skill shortages are identified early for occupations that require several or many years of training.

Table 3 provides a method to differentiate higher-skilled from lower-skilled occupations. In this table, weekly wages are used to measure skill levels.[5] This is crudely achieved by ranking occupations in terms of the proportion of employees who earn more than $1300 a week.[6]

[5] In a competitive market employees are paid their marginal product.

[6] The analysis was also undertaken using the percentage who earn a weekly income of $1600 or more (rather than $1300 or more) as a measure of skill level. There was little difference in the skill ranking of occupations between a measure of $1300 or more and $1600 or more (the rank correlation coefficient was 0.98).

Table 3 Employed persons, aged 15 years and over (excludes overseas visitors) by occupation (ANZSCO), by proportion earning $1300 or more in their individual weekly gross income, selected occupations, 2006

Occupation	% earning $1300 or more per week
2532 Anaesthetists	95.9
2535 Surgeons	91.1
2534 Psychiatrists	88.6
2533 Internal medicine specialists	88.3
2539 Other medical practitioners	83.0
2523 Dental practitioners	76.4
2531 Generalist medical practitioners	75.6
1342 Health and welfare services managers	52.3
2514 Optometrists and orthoptists	47.5
2543 Nurse managers	44.2
4111 Ambulance officers and paramedics	36.9
2521 Chiropractors and osteopaths	36.1
2512 Medical imaging professionals	34.4
2723 Psychologists	32.2
2526 Podiatrists	28.0
2346 Medical laboratory scientists	27.6
2542 Nurse educators and researchers	23.1
2525 Physiotherapists	21.2
2519 Other health diagnostic and promotion professionals	17.5
4112 Dental hygienists, technicians and therapists	16.7
2527 Speech professionals and audiologists	15.2
2511 Dietitians	12.6
2725 Social workers	11.8
2524 Occupational therapists	11.7
2544 Registered nurses	10.4
2541 Midwives	10.2
1341 Child care centre managers	9.1
4117 Welfare support workers	6.1
2522 Complementary health therapists	4.9
3112 Medical technicians	4.1
4115 Indigenous health workers	2.8
4116 Massage therapists	1.8
4114 Enrolled and mothercraft nurses	1.3
4231 Aged and disabled carers	1.0
4233 Nursing support and personal care workers	0.8
4113 Diversional therapists	0.8
4211 Child carers	0.6
4232 Dental assistants	0.5

Source: Derived from the ABS Census of Population and Housing (2006).

As expected, university-trained occupations are ranked as the highest-skilled occupations, while the vocationally trained occupations, such as enrolled or mothercraft workers, are further down the list. Child carers and dental assistants are ranked the lowest, in terms of skill level. These occupations have a mix of vocationally qualified and non-qualified workers, as is shown in the next section.

The links between education and training and the industry

Qualifications profile of workers

The ways in which workers acquire their skills is an important consideration of this paper. The analysis presented in table 4 aims to establish which occupations are 'tertiary' and which occupations are 'vocational'. The table is ordered using the skill ranking established in table 3.[7]

Table 4 Employed persons, aged 15 years and over (excludes overseas visitors) by occupation (ASCO 2nd edn), by level of education, selected occupations, 2006 (%)[(a)]

Occupation	Bach. deg. and above	Dip. and adv. dip.	Cert. III and IV	Cert. I and II	Not known [(b)]	No non-school qual.[(c)]	Total
2312 Specialist medical practitioners	89.2	1.0	0.3	0.1	8.1	1.3	**100.0**
2381 Dental practitioners	94.4	0.6	0.3	0.1	3.2	1.5	**100.0**
2311 Generalist medical practitioners	93.6	0.4	0.2	0.0	5.0	0.8	**100.0**
1292 Health services managers	71.2	12.7	3.1	0.6	5.6	6.7	**100.0**
2384 Optometrists	88.5	6.9	0.5	0.1	2.5	1.5	**100.0**
2321 Nurse managers	73.6	17.2	1.3	0.2	5.8	1.9	**100.0**
3491 Ambulance officers and paramedics	27.8	43.0	10.7	0.7	6.1	11.6	**100.0**
2387 Chiropractors and osteopaths	87.6	6.6	0.3	0.0	3.7	1.8	**100.0**
2391 Medical imaging professionals	64.9	29.3	0.2	0.0	4.2	1.3	**100.0**
2514 Psychologists	94.1	2.2	0.1	0.0	2.3	1.2	**100.0**
2388 Podiatrists	71.3	23.7	0.4	0.0	3.4	1.2	**100.0**
2115 Medical scientists	90.0	4.7	0.4	0.1	2.4	2.3	**100.0**
2322 Nurse educators and researchers	80.6	13.2	1.3	0.2	4.2	0.5	**100.0**
2385 Physiotherapists	88.5	8.5	0.3	0.0	1.7	1.0	**100.0**
2512 Welfare and community workers	46.1	18.8	10.7	0.7	6.4	17.2	**100.0**
3492 Dental associate professionals	10.0	40.4	25.2	0.2	17.6	6.5	**100.0**
2386 Speech pathologists	95.9	2.2	0.1	0.0	1.3	0.5	**100.0**
2393 Dietitians	82.9	6.4	2.3	0.1	2.9	5.4	**100.0**
2511 Social workers	83.0	6.3	2.2	0.2	3.4	4.9	**100.0**
2383 Occupational therapists	92.9	4.9	0.4	0.0	1.0	0.9	**100.0**
2323 Registered nurses	59.0	18.9	7.6	0.7	9.3	4.6	**100.0**
2325 Registered mental health nurses	63.8	22.4	3.8	0.4	7.8	1.8	**100.0**
2326 Registered developmental disability nurses	44.3	30.7	6.6	1.7	12.2	4.5	**100.0**

[7] Of note, is the change in occupational classification, due to a subsequent time-series analysis of level of education in section three. A mapping of occupations from ANZSCO first edition to ASCO second edition was used to identify the occupations that we had previously identified as occupations important to the community services and health industry. Appendix B provides the mapping and appendix C provides the data.

Occupation	Bach. deg. and above	Dip. and adv. dip.	Cert. III and IV	Cert. I and II	Not known [b]	No non-school qual.[c]	Total
2324 Registered developmental disability nurses	83.9	9.7	0.3	0.3	4.8	1.0	**100.0**
1295 Child care coordinators	29.0	48.6	5.8	0.5	4.8	11.3	**100.0**
3421 Welfare associate professionals	26.9	16.3	23.7	1.5	8.7	22.9	**100.0**
2394 Natural therapy professionals	48.4	36.1	2.4	0.1	8.2	4.7	**100.0**
3111 Medical technical officers	21.7	17.1	16.2	2.5	13.8	28.7	**100.0**
3493 Aboriginal and Torres Strait Islander health workers	8.9	15.1	20.1	5.0	14.7	36.1	**100.0**
3494 Massage therapists	15.7	49.2	13.0	1.2	11.9	9.1	**100.0**
3411 Enrolled nurses	6.8	26.6	46.5	1.5	10.4	8.2	**100.0**
6314 Personal care and nursing assistants	7.2	5.8	32.4	1.8	12.4	40.5	**100.0**
6312 Children's care workers	7.7	21.8	16.9	2.5	10.9	40.2	**100.0**
6391 Dental assistants	4.9	8.0	20.3	2.6	28.2	36.1	**100.0**

Notes: (a) The table is ordered by skill level (weekly wages). Diversional therapists were not included as they could not be identified under the ASCO.
(b) 'Not known' includes certificate not known and level not known.
(c) 'No non-school qualification' includes persons who have a qualification that is out of scope of this classification and persons still studying for a first qualification.

Source: Derived from the ABS Census of Population and Housing (2006).

There are many occupations in table 4 that are clearly university-trained, as they comprise mostly workers with degrees (for example, psychologists and dental practitioners). There are others we label as tertiary trained, with most workers having either a degree or a diploma. The remaining 11 occupations we label as 'vocational', with most workers obtaining their skills through a diploma, a certificate or on-the-job training. (We infer this is how those with no qualification obtained their skills.)

Based on this taxonomy, we place each occupation in one of the three groups defined as:

- ✧ university: 90% or more of workers have bachelor degrees or above
- ✧ tertiary: 80% or more of workers have diploma or above qualifications (excluding those in the university group)
- ✧ vocational: fewer than 80% of workers have diploma or higher qualifications.

The listing is presented in table 5.

Table 5 Occupations by worker qualifications group, 2006

University group	Tertiary group	Vocational group
2312 Specialist medical practitioners	1292 Health services managers	3491 Ambulance officers and paramedics
2381 Dental practitioners	2321 Nurse managers	2512 Welfare and community workers
2311 Generalist medical practitioners	2391 Medical imaging professionals	3492 Dental associate professionals
2384 Optometrists	2388 Podiatrists	3421 Welfare associate professionals
2387 Chiropractors and osteopaths	2322 Nurse educators and researchers	3111 Medical technical officers
2514 Psychologists	2393 Dietitians	3493 Aboriginal and Torres Strait Islander health workers
2115 Medical scientists	2511 Social workers	3494 Massage therapists
2385 Physiotherapists	2323 Registered nurses	3411 Enrolled nurses
2386 Speech pathologists	2325 Registered mental health nurses	6314 Personal care and nursing assistants
2383 Occupational therapists	2326 Registered developmental disability nurses	6312 Children's care workers
	2324 Registered midwives	6391 Dental assistants
	1295 Child care coordinators	
	2394 Natural therapy professionals	

Source: Derived from the ABS Census of Population and Housing (2006).

Occupational licensing

Occupational licensing is an important issue for the training sector.[8] If a licence is needed to practise an occupation, the training sector has ready made demand. By contrast, in unlicensed occupations there are many entry pathways and the training sector needs to sell the value of its training.

Registration of health professionals is currently a state and territory function.[9] Most university-trained occupations in the community services and health industry are subject to occupational licensing through annual registration requirements. Most vocationally trained workers in the industry are not regulated by occupation. Table 6 shows the occupations that are subject to state and territory licensing.

Worker mobility for licensed occupations is also further complicated by differences between jurisdictions. Table 6 shows that some vocational occupations (for example, dental hygienists) are licensed in some jurisdictions, but not in others. There are also differences in allowed work practices between jurisdictions. For example, enrolled nursing is licensed in all states and territories. However, in Victoria, Queensland and the Australian Capital Territory, enrolled nurses are not allowed to administer medication unless they have undertaken additional training (Community Services and Health Industry Skills Council 2006).

[8] Occupational licensing is defined by the Community Services and Health Industry Skills Council (2006, p.21) as 'any form of legislatively-based control that restricts entry to an occupation (or function within an occupation)'.

[9] There is a proposal to establish a national professional registration system for health practitioners. This will be established by 2010 and will apply to nine occupations that are currently subject to statutory regulation in all states and territories. Of interest to the vocational sector is nursing, where there is a proposal for a single register comprising the following three divisions: nurses, enrolled nurses and midwives (Community Services and Health Industry Skills Council 2006; Nurses and Midwives Board of New South Wales; Council of Australian Governments 2006).

Table 6 Occupations (ANZSCO) subject to state and territory licensure in the community services and health industry

Licensed in all jurisdictions	Licensed in selected jurisdictions
Vocational occupations	
Enrolled nurses	Dental technicians (NSW, ACT, Qld and SA)
Dental prosthetics	Dental hygienists (Vic. and WA)
Specified child care positions through implied licensing (where licensing for the business requires workers to have a specified skill level)	Optical dispensers (NSW and SA)
	Chinese medicine practitioner (Vic.)
	Aboriginal and Torres Strait Islander health worker (NT)
Tertiary occupations	
Psychologists	
All occupations within ANZSCO sub-major group 25: health professionals (health and diagnostic promotion professionals, health therapy professionals, medical practitioners and midwifery and nursing professionals)	

Source: Based on Industry Skills Council (2006) and advice from the Community Services and Health Industry Skills Council.

Structural change in the industry

We look at two aspects of structural change: the change in the mix of educational qualifications within occupations and the change in the mix of occupations in the industry.

Qualifications

This section examines the changes in qualification levels of community services and health workers between 1996 and 2006. The tables are ordered in terms of the skills ranking established earlier in the paper (table 3).

We begin the analysis by looking at the percentage of persons who have not obtained a non-school qualification (table 7).

We see that the percentage with no non-school qualification has declined in every one of our occupations. A number of occupations have declines of more than 20 percentage points. These declines, of course, represent an increase in the number of persons with a degree, a diploma or a certificate.

We make use of the taxonomy developed earlier, and consider university-trained, tertiary trained and vocational occupations separately.

Table 7 The percentage of employed persons aged 15 years and over (excludes overseas visitors) with no non-school qualification[a] by occupation (ASCO 2nd edn), 1996 and 2006[b]

Occupation	1996 %	2006 %	% points difference
2312 Specialist medical practitioners	2.6	1.4	-1.2
2381 Dental practitioners	1.8	1.5	-0.3
2311 Generalist medical practitioners	2.7	0.9	-1.8
1292 Health services managers	11.9	7.1	-4.7
2384 Optometrists	2.5	1.6	-0.9
2321 Nurse managers	3.2	2.0	-1.2
3491 Ambulance officers and paramedics	23.0	12.4	-10.6
2387 Chiropractors and osteopaths	3.1	1.9	-1.2
2391 Medical imaging professionals	2.3	1.4	-0.9
2514 Psychologists	2.6	1.3	-1.4
2388 Podiatrists	2.8	1.2	-1.5
2115 Medical scientists	3.7	2.4	-1.3
2322 Nurse educators and researchers	2.3	0.5	-1.8
2385 Physiotherapists	2.1	1.0	-1.1
2512 Welfare and community workers	32.3	18.4	-13.9
3492 Dental associate professionals	9.8	7.9	-1.9
2386 Speech pathologists	1.6	0.5	-1.1
2393 Dietitians	12.3	5.6	-6.8
2511 Social workers	6.6	5.1	-1.5
2383 Occupational therapists	4.1	0.9	-3.2
2323 Registered nurses	7.2	5.0	-2.1
2325 Registered mental health nurses	2.8	2.0	-0.8
2326 Registered developmental disability nurses	6.2	5.2	-1.0
2324 Registered midwives	1.4	1.0	-0.4
1295 Child care coordinators	22.6	11.9	-10.7
3421 Welfare associate professionals	33.0	25.0	-7.9
2394 Natural therapy professionals	32.2	5.1	-27.1
3111 Medical technical officers	35.8	33.3	-2.5
3493 Aboriginal and Torres Strait Islander health workers	71.9	42.3	-29.5
3494 Massage therapists	42.3	10.3	-32.0
3411 Enrolled nurses	13.0	9.2	-3.9
6314 Personal care and nursing assistants	78.0	46.2	-31.8
6312 Children's care workers	63.4	45.1	-18.3
6391 Dental assistants	58.3	50.2	-8.1

Notes: (a) 'No non-school qualification' in 2006 includes persons who have a qualification that is out of scope of the classification and persons still studying for a first qualification.
(b) Percentages were calculated after the number of persons in the 'level not known' and 'certificate not known' categories were distributed appropriately to qualification levels (pro-rata methodology).

Source: Derived from the ABS Census of Population and Housing (1996, 2006).

Table 8 presents our occupations defined by the qualification levels in 1996. Occupations that have increased the proportion of persons with a qualification to such an extent that they shift groups are outlined.

Table 8 Occupations (ASCO 2nd edn) by worker qualifications group, 1996

University group	Tertiary group	Vocational group
2312 Specialist medical practitioners	1292 Health services managers	3491 Ambulance officers and paramedics
2381 Dental practitioners	2384 Optometrists[(a)]	2512 Welfare and community workers
2311 Generalist medical practitioners	2321 Nurse managers	3492 Dental associate professionals
2514 Psychologists	2387 Chiropractors and osteopaths[(a)]	1295 Child care coordinators[(a)]
2386 Speech pathologists	2391 Medical imaging professionals	3421 Welfare associate professionals
	2388 Podiatrists	2394 Natural therapy professionals[(a)]
	2115 Medical scientists[(a)]	3111 Medical technical officers
	2322 Nurse educators and researchers	3493 Aboriginal and Torres Strait Islander health workers
	2385 Physiotherapists[(a)]	3494 Massage therapists
	2393 Dietitians	3411 Enrolled nurses
	2511 Social workers	6314 Personal care and nursing assistants
	2383 Occupational therapists[(a)]	6312 Children's care workers
	2323 Registered nurses	6391 Dental assistants
	2325 Registered mental health nurses	
	2326 Registered developmental disability nurses	
	2324 Registered midwives	

Note: (a) Occupation has changed groups between 1996 and 2006.
Source: Derived from the ABS Census of Population and Housing (1996, 2006).

As we can see, seven occupations have changed their categorisation between 1996 and 2006. Optometrists, chiropractors and osteopaths, medical scientists, physiotherapists and occupational therapists are now 'university' trained rather than 'tertiary' trained. Similarly, child care coordinators and natural therapy professionals have moved from being 'vocational' occupations to 'tertiary' trained.

Data in appendix D provide further information on the increasing level of qualification for the community services and health occupations. While the proportion of workers with a degree has increased in each occupation, this is not true for diplomas and certificates. We find that the proportion with a diploma increased in some occupations but declined in others, and the same phenomenon is observed for certificates. Table 9 examines these changes between 1996 and 2006, according to whether the occupations were tertiary trained or vocationally trained in 1996.

Between 1996 and 2006, there has been a decline in the proportion of workers with diplomas and advanced diplomas for all people employed within occupations that were tertiary trained in 1996. (Dietitians are the only exception to this observation.) The decline is due to the increase in workers with bachelor degrees and above. Meanwhile, occupations that were vocationally trained in 1996 have changed in a number of ways. In 2006, compared with 1996, a lower proportion of ambulance officers and paramedics have certificates, diplomas, and advanced diplomas and a higher proportion have bachelor degree and above qualifications. There are also several occupations that have declined in workers with certificates and increased in workers with qualifications at diploma and above levels. Examples of these occupations are dental associate professionals and child care coordinators. Other occupations, such as personal care and nursing assistants and Aboriginal and Torres Strait Islander health workers, have increased in all levels of qualifications, but most substantially in certificate-level qualifications.

Table 9 Percentage point change in the proportion of employed persons with a bachelor degree and above qualification, diploma and advanced diploma qualification, and a certificate, by selected occupations, 1996–2006[a]

Occupation	% point difference in bach. deg. or above	% point difference in dip. and adv. dip.[b]	% point difference in certificate[c]
Tertiary trained occupations in 1996			
1292 Health services managers	21.3	-17.4	0.8
2384 Optometrists	7.0	-5.6	-0.4
2321 Nurse managers	28.0	-26.9	0.1
2387 Chiropractors and osteopaths	6.1	-4.7	-0.2
2391 Medical imaging professionals	27.2	-21.5	-4.8
2388 Podiatrists	30.8	-27.3	-2.0
2115 Medical scientists	5.1	-2.4	-1.4
2322 Nurse educators and researchers	15.7	-14.4	0.5
2385 Physiotherapists	11.5	-10.4	0.0
2393 Dietitians	5.2	2.3	-0.7
2511 Social workers	1.0	-0.4	0.9
2383 Occupational therapists	11.5	-7.9	-0.4
2323 Registered nurses	28.9	-29.5	2.8
2325 Registered mental health nurses	34.4	-33.3	-0.3
2326 Registered developmental disability nurses	30.5	-32.6	3.1
2324 Registered midwives	5.7	-5.7	0.3
Vocationally trained occupations in 1996			
3491 Ambulance officers and paramedics	22.0	-5.3	-6.2
2512 Welfare and community workers	13.1	-1.6	2.5
3492 Dental associate professionals	8.2	21.3	-27.6
1295 Child care coordinators	1.3	14.1	-4.7
3421 Welfare associate professionals	4.6	-7.3	10.6
2394 Natural therapy professionals	16.7	14.1	-3.6
3111 Medical technical officers	2.7	-4.5	4.3
3493 Aboriginal and Torres Strait Islander health workers	5.2	6.4	18.0
3494 Massage therapists	3.3	29.8	-1.1
3411 Enrolled nurses	2.5	8.6	-7.2
6314 Personal care and nursing assistants	3.4	1.3	27.1
6312 Children's care workers	1.8	8.9	7.7
6391 Dental assistants	3.4	2.6	2.1

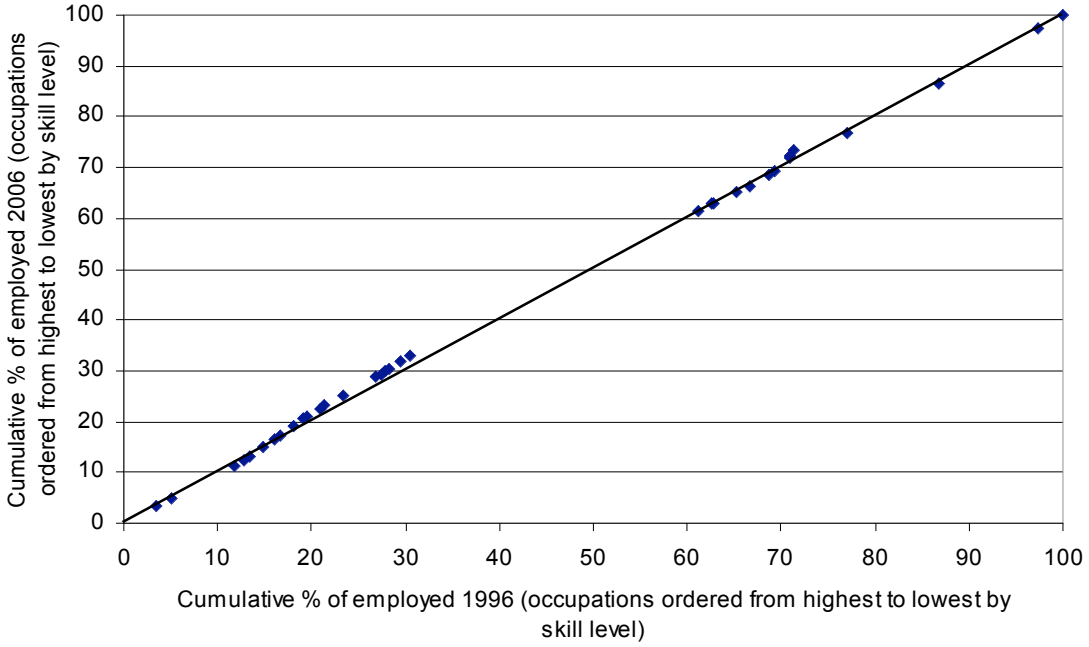
Notes: (a) Percentages were calculated after the number of persons in the 'level not known' and 'certificate not known' categories were distributed appropriately to qualification levels (pro-rata methodology).
(b) 'Diploma and advanced diploma' in 1996 includes associate diploma and undergraduate diploma.
(c) 'Certificate' in 1996 includes skilled vocational and basic vocational. 'Certificate' in 2006 includes certificates I to IV (note that certificate level not further defined was not included).

Source: Derived from the ABS Census of Population and Housing (1996, 2006).

Occupational structure

Structural change in the mix of occupations is a little difficult to assess because of the number of occupations. Consistent with earlier sections, our approach is based on ordering occupations by skill level. We look at how the relative importance of various parts of the skills distribution has changed. The way we do this is to plot the cumulative shares of the occupations across the two years, in a sort of 'Lorenz' curve (see figure 1). If the points sit on the 45-degree line, then there has been no structural change in terms of the mix of occupations. Thus deviations from the 45-degree line show graphically where there has been differential growth.

Figure 1 Cumulative per cent of employment by occupations (occupations ordered by skill level from high to low), community services and health industry[(a)], 1996 and 2006



Note: (a) The community services and health industry is based on ANZSIC 1993, Division O: Health and Community Services (minus 864 – Veterinary services).

Source: Derived from the ABS Census of Population and Housing (1996, 2006).

We see that the points up to around the twentieth percentile sit firmly on the 45-degree line. So the most highly skilled occupations have maintained their share of community services and heath occupations. However, the points then deviate up to the thirtieth percentile or so, indicating that the medium-to-high-skills-level jobs have increased their employment share. This is borne out by the occupations in question, which are shown with their growth rates in table 10. We also see significant growth in two medium-to-low-skilled occupations—Aboriginal and Torres Strait Islander health workers and massage therapists. Thus, while there has not been a dramatic shift in the skills profile of the community services and health workforce, there has been some movement.

The other area where there could be change is in the relative share of community services and health occupations within the industry. In fact, their share has declined a little (57.7% in 1996 to 56.0% in 2006), indicating that the industry is increasing its use of what could be described as support workers.

Table 10 The number of persons employed within the community services and health industry[(a)] by occupation (ASCO 2nd edn)[(b)], selected occupations, 1996 and 2006

	Employed persons		
	1996	2006	% change
Highly skilled occupations			
Specialist medical practitioners	14 013	18 578	32.6
Dental practitioners	7 175	8 638	20.4
Generalist medical practitioners	27 297	34 104	24.9
Health services managers	4 446	6 190	39.2
Optometrists	2 156	2 958	37.2
Nurse managers	5 897	10 308	74.8
Ambulance officers and paramedics	5 604	8 260	47.4
Chiropractors and osteopaths	1 949	3 231	65.8
Medical imaging professionals	6 359	9 932	56.2
Medium to highly skilled			
Psychologists	4 334	8 603	98.5
Podiatrists	1 402	2 054	46.5
Medical scientists	6 158	8 681	41.0
Nurse educators and researchers	1 535	2 945	91.9
Physiotherapists	8 302	11 649	40.3
Welfare and community workers	14 361	18 943	31.9
Dental associate professionals	2 398	3 129	30.5
Speech pathologists	1 778	3 039	70.9
Dietitians	1 411	2 562	81.6
Social workers	5 430	8 727	60.7
Occupational therapists	3 813	5 996	57.3
Nurses			
Registered nurses	126 529	153 736	21.5
Registered mental health nurses	5 804	7 354	26.7
Registered developmental disability nurses	1 018	211	-79.3
Low to medium skilled			
Registered midwives	10 548	11 892	12.7
Child care coordinators	5 316	5 535	4.1
Welfare associate professionals	8 556	13 357	56.1
Natural therapy professionals	2 414	4 006	65.9
Medical technical officers	6 611	14 037	112.3
Aboriginal and Torres Strait Islander health workers	540	883	63.5
Massage therapists	1 546	7 285	371.2
Enrolled nurses	23 140	18 197	-21.4
Low skilled			
Personal care and nursing assistants	40 538	50 973	25.7
Children's care workers	44 121	58 771	33.2
Dental assistants	10 510	14 710	40.0

Notes: (a) The community services and health industry is based on ANZSIC 1993, Division O: Health and Community Services (minus 864 – Veterinary services).
(b) Occupations were labelled as 'highly skilled', 'medium to highly skilled', 'low to medium skilled', and 'low skilled' according to the skill level of occupations established by wages in table 3. A separate category was created for 'nurses'.

Source: Derived from the ABS Census of Population and Housing (1996, 2006).

The formal VET system and interactions with industry

Mapping of training to the industry

Karmel, Mlotkowski and Awodeyi (2008) examined, for those who graduate from VET, the match between what people study and the jobs they acquire.[10] Their aim was to determine the extent to which training is 'wasted' and the extent to which training is generic—that is, graduates work in many occupations but judge their training to be relevant to their employment. Following this approach, we examine the match between the intended occupation of courses and the actual occupation for selected community services and health graduates[11] (see table 11).

The analysis shows particularly high matches for people with a child care or an enrolled and mothercraft nurse qualification—72.7% of child care graduates are later employed as child carers and 61.1% of enrolled and mothercraft nurse graduates are later employed as enrolled and mothercraft nurses. The match between the intended and the actual occupation is lower for graduates from welfare support worker, aged and disabled carer, and nursing support and personal care worker courses. It is possible that these graduates are using their skills in other occupations within the industry. Table 12 examines the destination occupations for these graduates.[12]

Table 11 Selected community services and health graduates by employment after training (%), 2007

Intended occupation (4-digit ANZSCO)	Employed in intended occupation (%)	Not employed in intended occupation (%)
4114 Enrolled and mothercraft nurses	61.1	38.9
4117 Welfare support workers	25.0	75.0
4211 Child carers	72.7	27.3
4231 Aged and disabled carers	34.2	68.5
4233 Nursing support and personal care workers	33.9	66.1

Source: NCVER Student Outcomes Survey (2007).

A quarter of graduates who completed a welfare support worker qualification were later employed as a welfare support worker. Table 12 shows that a further 29.8% of welfare support worker graduates were employed in another occupation related to community services and health. There was a small proportion (4.2%) of welfare support worker graduates employed after training as sales assistants. As expected, few of these graduates rated their training as being relevant to their current job.

Over a third of graduates from aged and disabled person carer courses were employed in the intended occupation after training. At least a further 47.4% of these graduates were employed in another community services and health-related occupation, such as nursing support and personal care workers.

[10] A similar analysis could be undertaken for higher education graduates.

[11] The analysis is only shown for selected community services and health occupations. This is because estimates of graduates from other course areas at the unit group level were based on a small number of respondents, resulting in lower reliability of estimates.

[12] See appendix E for the occupations after training for other selected graduates, such as enrolled and mothercraft nursing graduates and child care graduates.

Around a third of nursing support and personal care worker graduates were employed in the intended occupation after training. A further 19.7% were employed in the community service and health industry as aged and disabled carers. We also note that over 20% of nursing support and personal care worker graduates were employed after training as cleaners, kitchen hands and machine operators. The majority of graduates rated their training as highly or somewhat relevant to their current job, suggesting that they are likely to be working in the community services and health industry as cleaners, kitchen hands, or machine operators.

Table 12 Top six destination occupations (ANZSCO) and percentage reporting that training was highly or somewhat relevant for intended occupations, by selected occupations, 2007

Intended occupation: 4117 Welfare support workers

Destination occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Welfare support workers	25.0	25.0	95.2
Aged and disabled carers	15.4	40.4	93.1
Nursing support and personal care workers	5.7	46.1	95.5
Welfare, recreation and community arts workers	5.1	51.2	98.0
Sales assistants (General)	4.2	55.4	14.1
Diversional therapists	3.6	59.0	87.7

Source: NCVER Student Outcomes Survey (2007).

Intended occupation: 4231 Aged and disabled carers

Destination occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Nursing support and personal care workers	39.7	39.7	97.7
Aged and disabled carers	34.2	73.8	98.5
Welfare support workers	5.4	79.3	98.9
Enrolled and mothercraft nurses	2.3	81.5	100.0
Sales assistants (General)	1.6	83.1	4.5**
General clerks	1.1	84.3	44.1

Note: ** Fewer than five respondents in cell.
Source: NCVER Student Outcomes Survey (2007).

Intended occupation: 4233 Nursing support and personal care workers

Destination occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Nursing support and personal care workers	33.9	33.9	98.3
Aged and disabled carers	19.7	53.6	93.2
Commercial cleaners	6.6	60.2	70.6
Kitchenhands	5.2	65.3	93.7
Other machine operators	5.0	70.3	97.7
Other cleaners	4.4	74.7	87.8

Source: NCVER Student Outcomes Survey (2007).

Departing from Karmel, Mlotkowski and Awodeyi's approach, we also look at the reverse match. That is, we examine which courses actually lead to occupations in nursing, aged care, child care and welfare support occupations (table 13).[13]

Enrolled and mothercraft nurses stand out. Of graduates going into this occupation, 81.6% completed training in an enrolled and mothercraft nurse course. In addition, 6.4% had completed training as an aged and disabled carer.

The other occupations obtain graduates from a broader range of training courses. For example, welfare support workers come from allied courses such as aged and disabled carer courses (14.2%), teaching courses (4.9%), enrolled and mothercraft nursing courses (2.0%) and health and welfare services managers (2.0%), as well as from the course designed for the occupation—welfare support (50.1%). However, some welfare support workers have completed training not obviously related, such as general clerical courses (2.3%) and hospitality workers (2.1%). The hospitality graduates from these courses judge that their courses have been of less relevance to their employment. For example, only 18.7% of graduates from a hospitality course reported that their training was relevant to their job as a welfare support worker.

Similar patterns are seen for graduates working in child care, aged and disabled care and nursing support and personal care: a high proportion of graduates who have done the course designed for the occupation, a substantial proportion of graduates who have done other health or welfare courses, and a smattering of graduates from unrelated courses.

We conclude that, overall, the match between training and occupation is pretty good, and that VET for the community services and health industry is largely vocational, and wastage is modest.

Table 13 Top intended occupations (ANZSCO) and percentage reporting that training was highly or somewhat relevant for destination occupations, by selected destination occupations, 2007

Destination occupation: 4114 Enrolled and mothercraft nurses

Intended occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Enrolled and mothercraft nurses	81.6	81.6	98.8
Aged and disabled carers	6.4	88.0	100.0

Source: NCVER Student Outcomes Survey (2007).

Destination occupation: 4117 Welfare support workers

Intended occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Welfare support workers	50.1	50.1	95.2
Aged and disabled carers	14.2	64.3	98.9
Vocational education teachers (Aus.)/polytechnic teachers (NZ)	4.9	69.2	83.2
General clerks	2.3	71.5	87.6
Hospitality workers – nfd	2.1	73.6	18.7**
Enrolled and mothercraft nurses	2.0	75.6	67.8**
Health and welfare services managers	2.0	77.6	100.0

Note: ** Fewer than five respondents in cell.
Source: NCVER Student Outcomes Survey (2007).

[13] Data shown in table 13 are for all graduates who are employed in the destination occupation. The analysis was also undertaken for graduates who were not employed before training and for graduates who were employed before training but not in the destination occupation (see appendix F). Overall, the match between intended and destination occupations was slightly higher. The overall conclusion did not change.

Destination occupation: 4211 Child carers

Intended occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Child carers	56.1	56.1	97.9
Child care centre managers	25.6	81.7	99.1
Welfare support workers	2.6	84.3	89.6
General clerks	2.1	86.5	27.5
Sales assistants (general)	2.0	88.5	32.4**

Note: ** Fewer than five respondents in cell.
Source: NCVER Student Outcomes Survey (2007).

Destination occupation: 4231 Aged and disabled carers

Intended occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Aged and disabled carers	55.7	55.7	98.5
Welfare support workers	19.4	75.1	93.1
Nursing support and personal care workers	8.6	83.7	93.2

Source: NCVER Student Outcomes Survey (2007).

Destination occupation: 4233 Nursing support and personal care workers

Intended occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Aged and disabled carers	60.5	60.5	97.7
Nursing support and personal care workers	13.8	74.2	98.3
Welfare support workers	6.7	80.9	95.5
Enrolled and mothercraft nurses	4.4	85.3	97.5
Hospitality workers – nfd	2.2	87.5	44.4
General clerks	2.1	89.5	37.3

Source: NCVER Student Outcomes Survey (2007).

Destination occupation: 3112 Medical technicians

Intended occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Medical technicians	31.8	31.8	100.0
Agricultural, medical and science technicians – nfd	21.4	53.2	77.3
Enrolled and mothercraft nurses	10.0	63.2	35.4
Pharmacy sales assistants	8.8	72.0	65.7
Business administration managers – nfd	4.1**	76.1	51.2**
Delivery drivers	3.6**	79.7	0.0
General clerks	3.3**	83.0	21.6**
Chemical, gas, petroleum and power generation plant operators	2.6**	85.6	100.0**
Farmers and farm managers – nfd	2.1**	87.7	0.0

Note: ** Fewer than five respondents in cell.
Source: NCVER Student Outcomes Survey (2007).

Articulation between VET and higher education

The Community Services and Health Industry Skills Council (2008, 2009) indicates that more VET-qualified workers and new skill mixes that combine VET and higher education will be required to address labour shortages in some of the higher education-trained occupations. The council notes that improved articulation between VET and higher education will be required to achieve new skill mixes.

Following this interest in using articulation pathways to drive workers into the industry, we explore two issues:

- the extent to which VET is acting as a feeder to university-level occupations in the industry
- the extent to which VET is channelling university-trained graduates into the industry.

Two data sets are used to explore the extent to which students are using the VET-to-university pathway. The Student Outcomes Survey (see table 14) suggests that, overall, around 6.6% of the selected community services and health graduates go onto study at university. The Higher Education Collection (see table 15) confirms this proportion—7.2% of community services and health university students entered university based on their vocational education. Welfare support and enrolled and mothercraft nursing courses stand out in both datasets as being courses where there is a fairly high amount of articulation from VET to university.

Table 14 The percentage of graduates going onto further study at university by intended occupations (ANZSCO), selected occupations 2007

Intended occupation	% enrolled in further study at university
Enrolled and mothercraft nurses	16.3
Welfare support workers	9.0
Child carers	3.2
Aged and disabled carers	4.1
Nursing support and personal care workers	2.0
Total community services and health graduates	**6.6**

Source: NCVER Student Outcomes Survey (2007).

Table 15 Commencing university students where basis of admission was a complete VET award course by course field of education, 2007, selected fields of education

Selected course fields of education	Basis of submission is a VET award course	
	Number of students	% of students in field of education
Health	24	2.8
Medical studies	32	0.3
Nursing	6095	14.8
Pharmacy	26	0.5
Dental studies	63	2.7
Optical science	0	0.0
Radiography	106	3.6
Rehabilitation therapies	214	1.7
Complementary therapies	201	5.4
Other health	989	6.4
Human welfare studies and services	10	20.0
Behavioural science	24	6.9
Total of selected fields of education	**7784**	**7.2**

Source: Derived from Department of Education, Employment and Workplace Relations, selected higher education statistics (2007).

Finally, we explore the extent to which university graduates enrol in vocational courses relevant to the community services and health industry. The VET Provider Collection collects enrolment data on VET courses that were coded as intended to lead to occupations within the community services and health industry. Table 16 shows the proportion of students enrolled in community services and health courses who previously obtained a bachelor degree or higher qualification. Overall, 7900 students with a bachelor degree or higher qualification enrolled in a vocational course relevant to occupations within the community services and health industry. Students with a bachelor degree or higher qualification represented 6.1% of student enrolments within these courses, a fairly modest proportion.

Table 16 Vocational students with prior education of bachelor degree or higher by occupation (ANZSCO) assigned to current VET course, selected courses, 2007

Occupation assigned to current VET course	Number of students with bachelor degree or higher	% of total students in occupational area of course
1341 Child care centre managers	560	4.2
1342 Health and welfare services managers	241	6.1
2512 Medical imaging professionals	2	14.3
2519 Other health diagnostic and promotion professionals	218	13.8
2522 Complementary health therapists	49	20.9
2531 Generalist medical practitioners	14	30.4
2544 Registered nurses	192	4.2
2725 Social workers	27	50.9
3112 Medical technicians	116	8.8
4111 Ambulance officers and paramedics	6	1.5
4112 Dental hygienists, technicians and therapists	73	8.1
4113 Diversional therapists	10	2.3
4114 Enrolled and mothercraft nurses	344	3.7
4115 Indigenous health workers	6	0.7
4116 Massage therapists	181	8.3
4117 Welfare support workers	1778	6.8
4211 Child carers	828	3.7
4231 Aged and disabled carers	1088	4.1
4232 Dental assistants	101	4.3
4233 Nursing support and personal care workers	2041	15.7
Total	**7875**	**6.1**

Source: NCVER VET Provider Collection (2007).

We speculate that there are a number of motivations for someone with a degree to undertake a VET qualification. First, there is the group who have obtained a general education through university, obtained a management-type job, and then undertake a VET course to obtain specific VET knowledge and skills. An example is the 560 university graduates who are undertaking a course for child care centre managers.

The second group is those who are undertaking a VET course to obtain a job, although they may not be building on their general university education. We suggest that this is the motivation for the relatively large number of university graduates undertaking courses in areas such as welfare support, child care, aged and disabled carer, and nursing support and personal care workers. Possible reasons could be the lack of work suitable for a university graduate in the region in which the person lives, or that the person has a degree which is not very useful in the labour market because of its nature (creative arts degrees come to mind) or because it is of very ordinary quality. There is no doubt that there are also other motivations, but these are the major ones that occurred to us.

Concluding comments

The community services and health industry covers a wide range of occupations. Most people employed in the industry are in community services and health occupations (nursing, for example) but many are not (clerical occupations, for example). Occupations range from highly skilled (surgeons) to very low skilled (cleaners). A number of occupations are regulated.

In thinking about planning for the industry's workforce, we suggest that the industry focuses on those occupations that are largely confined to the industry and those occupations which tend to be more skilled, because of the long lead times needed for training. Thus the industry should worry more about, say, nurses than clerks, and more about those undertaking more substantial qualifications than the lower-level certificates, which can be completed quite quickly.

We also observed that licensing can constrain flexibility because it typically rules out people from acquiring skills on the job, and that over the last ten years there have been large numbers of examples where degrees have taken over from diplomas in some occupations, and diplomas have taken over from certificates in others, and certificates from on-the-job training. While we are not suggesting that having a better-qualified workforce is a bad thing, higher levels of qualifications come at a cost, and the challenge is to ensure that those qualifications lead to higher skill levels rather than just better credentialled workers.

The increasing level of credentials poses particular issues for the VET sector. It appears to us that there is a danger that universities will take over the training of the associate professional level occupations, with degrees substituting for diplomas, and that the VET sector will be left with certificate training for lower-skilled occupations.

On a positive note, we concluded that VET training in the community services and health area was well targeted, with most graduates using their training in a direct way and with little wastage. We also noted a reasonable degree of movement between the VET and higher education sectors. We saw that substantial proportions of enrolled and mothercraft nursing and welfare support graduates went onto to university-level studies. The VET pathway was also of particular importance for registered nursing courses at university. We also saw movement in the other direction, so-called reverse articulation. While some of this undoubtedly is positive, with university graduates in professional or associate professional jobs obtaining specific vocational skills, a large proportion of it is likely to reflect the fact that some university graduates are struggling in the labour market and are undertaking VET qualifications to obtain a job, albeit a lower-skilled job.

References

Community Services and Health Industry Skills Council 2006, *Working together: The licensing and regulatory requirements and training packages for community services and health,* Community Services and Health Industry Skills Council, Sydney.

——2008, *Environmental scan 2008,* Community Services and Health Industry Skills Council, Strawberry Hills.

——2009, *Environmental scan 2009,* Community Services and Health Industry Skills Council, Strawberry Hills.

Karmel, T, Mlotkowski, P & Awodeyi, T 2008, *Is VET vocational? The relevance of training to the occupations of vocational education and training graduates*, NCVER, Adelaide.

NCVER (National Centre for Vocational Education Research) 2007, *Australian vocational education and training statistics: Student outcomes 2007—Summary*, NCVER, Adelaide.

Richardson, S 2007, *What is a skill shortage?* NCVER, Adelaide.

Appendix A: Employment within community services and health

Appendix A provides census data for persons employed in all occupations within the community services and health industry in 2006.

Table A1 Employed persons, aged 15 years and over (excludes overseas visitors) by occupation (ANZSCO), by industry of employment (ANZSIC 1993)[a], 2006

Occupation	Persons employed within community services and health industry[b]			Total persons by industry of employment (%)			
	Number	Cumulative number	Cumulative %	Health and comm. services industry[b]	Other	Not stated	**Total**
2544 Registered nurses	162 639	162 639	16.9	94.2	5.3	0.4	**100.0**
4231 Aged and disabled carers	65 377	228 016	23.7	84.5	14.7	0.8	**100.0**
4211 Child carers	58 811	286 827	29.8	69.0	29.3	1.7	**100.0**
54 Inquiry clerks and receptionists	58 639	345 466	35.9	28.9	70.7	0.4	**100.0**
4233 Nursing support and personal care workers	54 942	400 408	41.6	94.4	5.1	0.5	**100.0**
2531 Generalist medical practitioners	34 149	434 557	45.1	96.3	3.5	0.2	**100.0**
53 General clerical workers	27 446	462 003	48.0	10.6	88.6	0.9	**100.0**
81 Cleaners and laundry workers	26 234	488 237	50.7	12.2	85.9	1.9	**100.0**
51 Office managers and program administrators	25 175	513 412	53.3	13.4	86.3	0.3	**100.0**
4117 Welfare support workers	23 841	537 253	55.8	59.2	40.4	0.4	**100.0**
85 Food preparation assistants	18 426	555 679	57.7	15.9	83.4	0.7	**100.0**
4114 Enrolled and mothercraft nurses	18 202	573 881	59.6	93.8	5.9	0.2	**100.0**
22 Business, human resource and marketing professionals	15 294	589 175	61.2	3.4	96.2	0.4	**100.0**
4232 Dental assistants	14 753	603 928	62.7	95.9	3.6	0.4	**100.0**
3112 Medical technicians	14 312	618 240	64.2	76.9	22.9	0.2	**100.0**
13 Specialist managers (excluding Child care centre managers and Health and welfare managers)	13 078	631 318	65.6	2.6	97.1	0.3	**100.0**
2541 Midwives	11 877	643 195	66.8	97.1	2.8	0.2	**100.0**
2525 Physiotherapists	11 649	654 844	68.0	94.8	5.1	0.1	**100.0**
55 Numerical clerks	11 326	666 170	69.2	3.9	95.6	0.5	**100.0**
1342 Health and welfare services managers	10 364	676 534	70.2	85.2	14.6	0.2	**100.0**
2543 Nurse managers	10 306	686 840	71.3	94.6	5.3	0.1	**100.0**
52 Personal assistants and secretaries	9 950	696 790	72.4	7.2	92.2	0.7	**100.0**
2512 Medical imaging professionals	9 931	706 721	73.4	97.9	1.9	0.2	**100.0**
35 Food trades workers	9 439	716 160	74.4	7.3	91.7	1.0	**100.0**
2725 Social workers	8 744	724 904	75.3	70.3	29.4	0.3	**100.0**

Occupation	Persons employed within community services and health industry[(b)]			Total persons by industry of employment (%)			
	Number	Cumulative number	Cumulative %	Health and comm. services industry[(b)]	Other	Not stated	**Total**
4111 Ambulance officers and paramedics	8 738	733 642	76.2	96.0	3.7	0.2	**100.0**
2523 Dental practitioners	8 663	742 305	77.1	95.5	4.1	0.4	**100.0**
2723 Psychologists	8 608	750 913	78.0	64.1	35.6	0.3	**100.0**
2346 Medical laboratory scientists	8 512	759 425	78.9	63.7	36.2	0.1	**100.0**
14 Hospitality, retail and service managers	7 679	767 104	79.7	2.1	97.7	0.2	**100.0**
4116 Massage therapists	7 294	774 398	80.4	89.0	10.6	0.5	**100.0**
2721 Counsellors	7 034	781 432	81.1	48.0	51.5	0.5	**100.0**
2726 Welfare, recreation and community arts workers	6 663	788 095	81.8	47.8	51.8	0.3	**100.0**
45 Sports and personal service workers	6 347	794 442	82.5	5.7	93.5	0.8	**100.0**
24 Educational professionals	6 237	800 679	83.1	1.6	98.1	0.4	**100.0**
59 Other clerical and administrative workers	6 217	806 896	83.8	3.3	96.4	0.3	**100.0**
2524 Occupational therapists	6 001	812 897	84.4	87.8	12.1	0.2	**100.0**
2539 Other medical practitioners	5 560	818 457	85.0	95.1	4.8	0.2	**100.0**
56 Clerical and office support workers	5 558	824 015	85.6	6.0	93.4	0.6	**100.0**
1341 Child care centre managers	5 535	829 550	86.1	68.1	31.6	0.2	**100.0**
83 Factory process workers	5 013	834 563	86.7	2.4	96.5	1.0	**100.0**
89 Other labourers	4 959	839 522	87.2	2.8	96.2	1.0	**100.0**
11 Chief executives, general managers and legislators	4 767	844 289	87.7	5.5	94.2	0.3	**100.0**
2522 Complementary health therapists	4 397	848 686	88.1	82.9	16.5	0.6	**100.0**
39 Other technicians and trades workers	4 357	853 043	88.6	2.6	96.6	0.8	**100.0**
2527 Speech professionals and audiologists	4 029	857 072	89.0	81.4	18.5	0.1	**100.0**
62 Sales assistants and salespersons	3 841	860 913	89.4	0.7	98.6	0.7	**100.0**
4113 Diversional therapists	3 796	864 709	89.8	93.1	6.6	0.3	**100.0**
2535 Surgeons	3 794	868 503	90.2	97.3	2.5	0.2	**100.0**
71 Machine and stationary plant operators	3 514	872 017	90.5	2.1	97.0	0.9	**100.0**
23 Design, engineering, science and transport professionals (excluding medical laboratory scientists)	3 506	875 523	90.9	1.5	98.1	0.4	**100.0**
2514 Optometrists and orthoptists	3 449	878 972	91.3	96.3	3.6	0.2	**100.0**
2533 Internal medicine specialists	3 433	882 405	91.6	95.6	4.3	0.1	**100.0**
31 Engineering, ICT and science technicians (excluding medical technicians)	3 420	885 825	92.0	2.3	97.4	0.3	**100.0**
2519 Other health diagnostic and promotion professionals	3 330	889 155	92.3	74.6	25.1	0.2	**100.0**
4200 Carers and aides, nfd	3 297	892 452	92.7	70.9	21.7	7.4	**100.0**
2521 Chiropractors and osteopaths	3 234	895 686	93.0	98.3	1.4	0.3	**100.0**
4112 Dental hygienists, technicians and therapists	3 128	898 814	93.3	60.5	39.1	0.4	**100.0**

Occupation	Persons employed within community services and health industry[(b)]			Total persons by industry of employment (%)			
	Number	Cumulative number	Cumulative %	Health and comm. services industry[(b)]	Other	Not stated	**Total**
26 ICT professionals	3 088	901 902	93.6	2.1	97.6	0.3	**100.0**
2542 Nurse educators and researchers	2 948	904 850	94.0	78.4	21.5	0.1	**100.0**
27 Legal, social and welfare professionals (excluding counsellors, psychologists, social workers and welfare, recreation and community arts workers)	2 914	907 764	94.3	3.9	95.6	0.5	**100.0**
73 Road and rail drivers	2 772	910 536	94.5	1.2	97.7	1.1	**100.0**
2532 Anaesthetists	2 694	913 230	94.8	98.8	1.2	0.0	**100.0**
36 Skilled animal and horticultural workers	2 682	915 912	95.1	3.1	95.6	1.3	**100.0**
2515 Pharmacists	2 572	918 484	95.4	16.8	82.9	0.3	**100.0**
1000 Managers, nfd	2 165	920 649	95.6	4.4	93.3	2.3	**100.0**
2511 Dieticians	2 103	922 752	95.8	81.3	18.4	0.3	**100.0**
44 Protective service workers	2 102	924 854	96.0	1.8	97.5	0.7	**100.0**
2534 Psychiatrists	2 070	926 924	96.2	94.9	4.8	0.4	**100.0**
2526 Podiatrists	2 055	928 979	96.5	98.0	1.9	0.1	**100.0**
74 Storepersons	1 806	930 785	96.6	1.9	97.3	0.8	**100.0**
43 Hospitality workers	1 775	932 560	96.8	1.0	98.3	0.7	**100.0**
4230 Personal carers and assistants, nfd	1 566	934 126	97.0	74.7	23.3	2.1	**100.0**
8000 Labourers, nfd	1 536	935 662	97.2	6.8	85.1	8.0	**100.0**
2000 Professionals, nfd	1 496	937 158	97.3	6.2	93.4	0.5	**100.0**
63 Sales support workers	1 416	938 574	97.5	1.0	98.5	0.5	**100.0**
33 Construction trades workers	1 415	939 989	97.6	0.5	98.3	1.2	**100.0**
2513 Occupational and environmental health professionals	1 413	941 402	97.7	13.0	86.7	0.2	**100.0**
34 Electrotechnology and telecommunications trades workers	1 266	942 668	97.9	0.8	98.6	0.6	**100.0**
2530 Medical practitioners, nfd	1 237	943 905	98.0	91.4	8.2	0.4	**100.0**
32 Automotive and engineering trades workers	1 194	945 099	98.1	0.4	98.8	0.8	**100.0**
84 Farm, forestry and garden workers	1 163	946 262	98.3	1.2	97.3	1.4	**100.0**
61 Sales representatives and agents	1 033	947 295	98.4	0.6	99.1	0.3	**100.0**
4221 Education aides	928	948 223	98.5	1.6	97.9	0.4	**100.0**
4115 Indigenous health workers	883	949 106	98.5	87.4	11.8	0.8	**100.0**
4234 Special care workers	862	949 968	98.6	36.6	62.6	0.8	**100.0**
21 Arts and media professionals	847	950 815	98.7	1.2	98.0	0.8	**100.0**
2540 Midwifery and nursing professionals, nfd	846	951 661	98.8	91.1	8.6	0.3	**100.0**
2500 Health professionals, nfd	763	952 424	98.9	75.5	24.1	0.4	**100.0**
4110 Health and welfare support workers, nfd	538	952 962	98.9	78.9	20.4	0.7	**100.0**
3000 Technicians and trades workers, nfd	511	953 473	99.0	2.9	94.4	2.7	**100.0**
82 Construction and mining labourers	430	953 903	99.0	0.4	98.6	1.0	**100.0**

Occupation	Persons employed within community services and health industry[b]			Total persons by industry of employment (%)			
	Number	Cumulative number	Cumulative %	Health and comm. services industry[b]	Other	Not stated	**Total**
4000 Community and personal service workers, nfd	359	954 262	99.1	44.1	54.4	1.5	**100.0**
5000 Clerical and administrative workers, nfd	308	954 570	99.1	7.3	91.8	0.9	**100.0**
72 Mobile plant operators	225	954 795	99.1	0.2	99.2	0.6	**100.0**
12 Farmers and farm managers	204	954 999	99.2	0.1	98.8	1.1	**100.0**
2520 Health therapy professionals, nfd	182	955 181	99.2	85.4	13.1	1.4	**100.0**
2510 Health diagnostic and promotion professionals, nfd	77	955 258	99.2	65.8	34.2	0.0	**100.0**
7000 Machinery operators and drivers, nfd	62	955 320	99.2	0.6	97.0	2.4	**100.0**
6000 Sales workers, nfd	53	955 373	99.2	2.0	97.1	1.0	**100.0**
Inadequately described/not stated	7 703	963 076	100.0	4.7	58.5	36.8	**100.0**
Total	**963 076**	**Not applicable**		**10.6**	**88.1**	**1.4**	**100.0**

Notes: (a) Occupations regarded as community services and health are shown as the four-digit occupation. All other occupations are grouped at the sub-item (two-digit) level.
(b) The health and community services industry is based on ANZSIC 1993, Division O: Health and Community Services (minus 864 – Veterinary services).

Source: Derived from the ABS Census of Population and Housing (2006).

Appendix B: Mapping of ANZSCO to ASCO

Appendix B provides the mapping of occupations from ANZSCO first edition to ASCO second edition.

Table B1 Mapping of occupations from ANZSCO first edition to ASCO second edition, selected occupations

ANZSCO first edition	ABS[(a)] mapping to ASCO second edition	ASCO code used in paper	Comment
1341 Child care centre managers	1295 Child care coordinators	1295	
1342 Health and welfare services managers	1112 General managers (partial), 1292 Health services managers, 1299 Other specialist managers (partial), 3329 Other hospitality and accommodation managers (partial)	1292	1112, 1299 and 3329 occupational groups includes occupations not relevant to community services and health or occupations not specific to any industry.
2346 Medical laboratory scientists	2115 Medical scientists (partial)	2115	This occupation is not mapped to another community services and so health ANZSCO group was used.
2511 Dietitians	2393 Dietitians	2393	
2512 Medical imaging professionals	2391 Medical imaging professionals	2391	
2514 Optometrists and orthoptists	2384 Optometrists, 2399 Other health professionals (partial)	2384	2399 maps to many community services and health ANZSCO occupations so did not use.
2519 Other health diagnostic and promotion professionals	2399 Other health professionals (partial), 2512 Welfare and community workers (partial)	2512	2399 maps to many community services and health ANZSCO occupations so did not use. 2512 maps to two community service and health ANZSCO occupations but the qualifications profile more closely matches this ANZSCO occupation.
2521 Chiropractors and osteopaths	2387 Chiropractors and osteopaths	2387	
2522 Complementary health therapists	2394 Natural therapy professionals, 2399 Other health professionals (partial)	2394	2399 maps to many community services and health ANZSCO occupations so did not use.
2523 Dental practitioners	2381 Dental practitioners	2381	
2524 Occupational therapists	2383 Occupational therapists	2383	
2525 Physiotherapists	2385 Physiotherapists	2385	
2526 Podiatrists	2388 Podiatrists	2388	
2527 Speech professionals and audiologists	2399 Other health professionals (partial), 2386 Speech pathologists	2386	2399 maps to many community services and health ANZSCO occupations so did not use.
2531 Generalist medical practitioners	2311 Generalist medical practitioners	2311	
2532 Anaesthetists	2312 Specialist medical practitioners (partial)	2312	
2533 Internal medicine specialists	2312 Specialist medical practitioners (partial)	2312	
2534 Psychiatrists	2312 Specialist medical practitioners (partial)	2312	

ANZSCO first edition	ABS[(a)] mapping to ASCO second edition	ASCO code used in paper	Comment
2535 Surgeons	2312 Specialist medical practitioners (partial)	2312	
2539 Other medical practitioners	2312 Specialist medical practitioners (partial)	2312	
2541 Midwives	2324 Registered midwives	2324	
2542 Nurse educators and researchers	2322 Nurse educators and researchers	2322	
2543 Nurse managers	2321 Nurse managers	2321	
2544 Registered nurses	2323 Registered nurses, 2325 Registered mental health nurses, 2326 Registered developmental disability nurses	2323, 2325, 2326	
2723 Psychologists	2514 Psychologists	2514	
2725 Social workers	2511 Social workers	2511	
3112 Medical technicians	3111 Medical technical officers, 3129 Other building and engineering associate professionals (partial), 3999 Other miscellaneous associate professionals (partial)	3111	3129 and 3999 occupational groups includes occupations not relevant to community services and health.
4111 Ambulance officers and paramedics	3491 Ambulance officers and paramedics	3491	
4112 Dental hygienists, technicians and therapists	3492 Dental associate professionals	3492	
4113 Diversional therapists	2399 Other health professionals (partial), 2549 Other professionals (partial)		2399 maps to many community services and health occupations so did not use. 2549 includes occupations not relevant to community services and health.
4114 Enrolled and mothercraft nurses	3411 Enrolled nurses (partial)	3411	
4115 Indigenous health workers	3411 Enrolled nurses (partial), 3493 Aboriginal and Torres Strait Islander health workers	3493	
4116 Massage therapists	3494 Massage therapists	3494	
4117 Welfare support workers	2512 Welfare and community workers (partial), 3421 Welfare associate professionals	3421	2512 maps to two community service and health ANZSCO occupations but the qualifications profile more closely matches the other ANZSCO occupation.
4211 Child carers	6312 Children's care workers	6312	
4231 Aged and disabled carers	6313 Special care workers (partial), 6314	6314	6313 was not used as was regarded as not industry specific in this paper (see appendix A).
4232 Dental assistants	6391 Dental assistants	6391	
4233 Nursing support and personal care workers	3999 Other miscellaneous associate professionals (partial), 6313 Special care workers (partial), 6314 Personal care and nursing assistants	6314	3999 includes occupations not specific to any industry. 6313 was not used as was regarded as not industry specific in this paper (see appendix A).

Note: (a) Based on Australian and New Zealand Standard Classification of Occupations, first edn, table 3 (ABS cat.no.1220.0 ANZSCO).

Appendix C: Employed persons by the level of qualification

Appendix C provides time-series information for the number of employed persons by occupation and level of qualification for the identified community service and health occupations.

Table C1 Employed persons, aged 15 years and over (excludes overseas visitors) by occupation (ASCO 2nd edn), by level of education, selected occupations, 2006

Occupation	Bach. deg. and above	Dip. and adv. dip.	Cert. IV	Cert. III	Cert. I and II	Not known[(a)]	No non-school qual[(b)]	Total
2312 Specialist medical practitioners	17 279	196	21	45	14	1 575	244	**19 374**
2381 Dental practitioners	8 526	53	5	24	6	288	132	**9 034**
2311 Generalist medical practitioners	33 148	139	27	28	3	1 765	297	**35 407**
1292 Health services managers	4 932	879	107	110	43	388	467	**6 926**
2384 Optometrists	2 713	212	0	14	3	76	47	**3 065**
2321 Nurse managers	8 023	1 871	97	46	26	632	203	**10 898**
3491 Ambulance officers and paramedics	2 336	3 609	197	703	62	508	976	**8 391**
2387 Chiropractors and osteopaths	2 879	217	0	10	0	120	60	**3 286**
2391 Medical imaging professionals	6 585	2 971	6	19	3	428	134	**10 146**
2514 Psychologists	12 650	296	7	12	3	309	167	**13 444**
2388 Podiatrists	1 496	498	3	6	0	71	25	**2 099**
2115 Medical scientists	12 245	641	23	32	15	333	314	**13 603**
2322 Nurse educators and researchers	3 031	498	40	10	6	158	18	**3 761**
2385 Physiotherapists	10 874	1 047	16	19	0	208	122	**12 286**
2512 Welfare and community workers	14 858	6 075	1 853	1 599	237	2 076	5 537	**32 235**
3492 Dental associate professionals	518	2 090	58	1 248	9	912	338	**5 173**
2386 Speech pathologists	3 711	85	3	0	0	52	18	**3 869**
2393 Dietitians	2 615	201	26	47	3	91	170	**3 153**
2511 Social workers	10 312	785	157	116	21	421	608	**12 420**
2383 Occupational therapists	6 339	334	6	19	0	69	59	**6 826**
2323 Registered nurses	96 168	30 808	8 382	4 028	1 097	15 176	7 423	**163 082**
2325 Registered mental health nurses	4 916	1 726	245	47	29	605	142	**7 710**
2326 Registered developmental disability nurses	127	88	19	0	5	35	13	**287**
2324 Registered midwives	10 277	1 190	21	10	39	593	121	**12 251**

Occupation	Bach. deg. and above	Dip. and adv. dip.	Cert. IV	Cert. III	Cert. I and II	Not known[(a)]	No non-school qual[(b)]	Total
1295 Child care coordinators	2 353	3 952	109	363	43	386	919	**8 125**
3421 Welfare associate professionals	5 989	3 642	2 976	2 314	331	1 951	5 097	**22 300**
2394 Natural therapy professionals	2 336	1 743	52	66	7	396	226	**4 826**
3111 Medical technical officers	3 944	3 099	1 242	1 706	450	2 517	5 216	**18 174**
3493 Aboriginal and Torres Strait Islander health workers	90	153	94	109	51	148	365	**1 010**
3494 Massage therapists	1 284	4 025	744	319	95	972	746	**8 185**
3411 Enrolled nurses	1 315	5 163	8 499	519	295	2 010	1 591	**19 392**
6314 Personal care and nursing assistants	3 886	3 107	2 395	15 064	987	6 695	21 829	**53 963**
6312 Children's care workers	6 514	18 599	1 449	12 924	2 150	9 310	34 178	**85 124**
6391 Dental assistants	748	1 224	660	2 450	394	4 330	5 531	**15 337**

Notes: (a) 'Not known' includes certificate not known and level not known.
(b) 'No non-school qualification' includes persons who have a qualification that is out of scope of this classification and persons still studying for a first qualification.

Source: Derived from the ABS Census of Population and Housing (2006).

Table C2 Employed persons, aged 15 years and over (excludes overseas visitors) by occupation (ASCO 2nd edn), by level of education, selected occupations, 1996

Occupation	Bach. deg. and above	Under-grad. diploma	Assoc. diploma	Skilled voc. qual.	Basic voc. qual.	No non-school qual.[(a)]	Not known	Total
2312 Specialist medical practitioners	13 652	193	110	42	78	369	504	14 948
2381 Dental practitioners	7 196	19	10	16	16	133	212	7 602
2311 Generalist medical practitioners	27 144	123	54	54	58	764	862	29 059
1292 Health services managers	2 554	1 315	137	37	112	559	353	5 067
2384 Optometrists	1 813	231	44	13	9	54	93	2 257
2321 Nurse managers	2 890	2 487	117	23	67	183	414	6 181
3491 Ambulance officers and paramedics	423	520	2 322	567	457	1 280	401	5 970
2387 Chiropractors and osteopaths	1 553	207	4	7	3	57	150	1 981
2391 Medical imaging professionals	2 585	2 352	960	19	306	144	381	6 747
2514 Psychologists	6 441	152	23	10	12	180	107	6 925
2388 Podiatrists	591	534	179	10	24	38	87	1 463
2115 Medical scientists	8 021	339	329	45	134	336	310	9 514
2322 Nurse educators and researchers	1 356	533	27	3	18	46	83	2 066
2385 Physiotherapists	6 915	1 653	31	9	17	184	83	8 892
2512 Welfare and community workers	7 495	1 945	2 567	830	1 188	6 690	1 407	22 122
3492 Dental associate professionals	144	461	561	1 476	676	361	774	4 453
2386 Speech pathologists	2 106	104	0	6	0	36	82	2 334
2393 Dietitians	1 283	57	11	28	23	197	117	1 716
2511 Social workers	5 944	205	282	39	69	460	196	7 195
2383 Occupational therapists	3 481	525	20	12	19	174	131	4 362
2323 Registered nurses	43 964	59 178	2 022	428	7 323	8 702	12 327	133 944
2325 Registered mental health nurses	1 880	3 006	110	26	233	151	628	6 034
2326 Reg dev'mental disability nurses	200	661	17	9	55	62	82	1 086
2324 Registered midwives	8 618	1 565	94	7	22	149	449	10 904
1295 Child care coordinators	1 967	1 216	1 287	515	253	1 530	366	7 134
3421 Welfare associate professionals	3 019	959	2 099	938	1 126	4 004	1 088	13 233
2394 Natural therapy professionals	780	461	86	79	61	697	639	2 803
3111 Medical technical officers	1 685	543	1 278	660	641	2 677	730	8 214
3493 Aboriginal and Torres Strait Island health workers	33	21	50	15	57	450	82	708
3494 Massage therapists	293	302	225	124	224	858	234	2 260
3411 Enrolled nurses	1 158	2 799	1 987	379	13 404	2 958	1 886	24 571
6314 Personal care and nursing assistants	1 867	1 258	767	2 020	2 574	30 083	4 200	42 769
6312 Children's care workers	3 842	3 165	5 681	5 378	2 595	35 828	5 519	62 008
6391 Dental assistants	281	469	245	128	2 361	4 876	2 905	11 265

Note: (a) 'No non-school qualification' includes persons who have a qualification that is out of scope of the ABS Classification of Qualifications.

Source: Derived from the ABS Census of Population and Housing (1996).

Appendix D: Change in qualifications, 1996 and 2006

This appendix provides data for the percentage of employed persons with a degree, diploma and certificate in 2006 and 1996 for the community services and health occupations.

Table D1 The percentage of employed persons aged 15 years and over (excludes overseas visitors) with a bachelor degree and above qualification by occupation (ASCO 2nd edn), selected occupations, 1996 and 2006[(a)]

Occupation	1996 %	2006 %	% points difference
2312 Specialist medical practitioners	94.5	97.1	2.6
2381 Dental practitioners	97.4	97.5	0.1
2311 Generalist medical practitioners	96.3	98.5	2.3
1292 Health services managers	54.2	75.4	21.3
2384 Optometrists	83.8	90.8	7.0
2321 Nurse managers	50.1	78.2	28.0
3491 Ambulance officers and paramedics	7.6	29.6	22.0
2387 Chiropractors and osteopaths	84.8	90.9	6.1
2391 Medical imaging professionals	40.6	67.8	27.2
2514 Psychologists	94.5	96.3	1.8
2388 Podiatrists	43.0	73.8	30.8
2115 Medical scientists	87.1	92.3	5.1
2322 Nurse educators and researchers	68.4	84.1	15.7
2385 Physiotherapists	78.5	90.0	11.5
2512 Welfare and community workers	36.2	49.3	13.1
3492 Dental associate professionals	3.9	12.2	8.2
2386 Speech pathologists	93.5	97.2	3.7
2393 Dietitians	80.2	85.4	5.2
2511 Social workers	84.9	85.9	1.0
2383 Occupational therapists	82.3	93.8	11.5
2323 Registered nurses	36.1	65.0	28.9
2325 Registered mental health nurses	34.8	69.2	34.4
2326 Registered developmental disability nurses	19.9	50.4	30.5
2324 Registered midwives	82.4	88.2	5.7
1295 Child care coordinators	29.1	30.4	1.3
3421 Welfare associate professionals	24.9	29.4	4.6
2394 Natural therapy professionals	36.0	52.7	16.7
3111 Medical technical officers	22.5	25.2	2.7
3493 Aboriginal and Torres Strait Islander health workers	5.3	10.4	5.2
3494 Massage therapists	14.5	17.8	3.3
3411 Enrolled nurses	5.1	7.6	2.5
6314 Personal care and nursing assistants	4.8	8.2	3.4
6312 Children's care workers	6.8	8.6	1.8
6391 Dental assistants	3.4	6.8	3.4

Note: (a) Percentages were calculated after the number of persons in the 'level not known' and 'certificate not known' category were distributed appropriately to qualification levels (pro-rata methodology).

Source: Derived from the ABS Census of Population and Housing (1996, 2006).

Table D2 The percentage of employed persons aged 15 years and over (excludes overseas visitors) with a diploma or advanced diploma[(a)] by occupation (ASCO 2nd edn), selected occupations, 1996 and 2006[(b)]

Occupation	1996 %	2006 %	% points difference
2312 Specialist medical practitioners	2.1	1.1	-1.0
2381 Dental practitioners	0.4	0.6	0.2
2311 Generalist medical practitioners	0.6	0.4	-0.2
1292 Health services managers	30.8	13.4	-17.4
2384 Optometrists	12.7	7.1	-5.6
2321 Nurse managers	45.2	18.2	-26.9
3491 Ambulance officers and paramedics	51.0	45.8	-5.3
2387 Chiropractors and osteopaths	11.5	6.9	-4.7
2391 Medical imaging professionals	52.0	30.6	-21.5
2514 Psychologists	2.6	2.3	-0.3
2388 Podiatrists	51.8	24.6	-27.3
2115 Medical scientists	7.3	4.8	-2.4
2322 Nurse educators and researchers	28.2	13.8	-14.4
2385 Physiotherapists	19.1	8.7	-10.4
2512 Welfare and community workers	21.8	20.1	-1.6
3492 Dental associate professionals	27.8	49.0	21.3
2386 Speech pathologists	4.6	2.2	-2.4
2393 Dietitians	4.3	6.6	2.3
2511 Social workers	7.0	6.5	-0.4
2383 Occupational therapists	12.9	4.9	-7.9
2323 Registered nurses	50.3	20.8	-29.5
2325 Registered mental health nurses	57.6	24.3	-33.3
2326 Registered developmental disability nurses	67.5	34.9	-32.6
2324 Registered midwives	15.9	10.2	-5.7
1295 Child care coordinators	37.0	51.1	14.1
3421 Welfare associate professionals	25.2	17.9	-7.3
2394 Natural therapy professionals	25.3	39.3	14.1
3111 Medical technical officers	24.3	19.8	-4.5
3493 Aboriginal and Torres Strait Islander health workers	11.3	17.7	6.4
3494 Massage therapists	26.0	55.8	29.8
3411 Enrolled nurses	21.1	29.7	8.6
6314 Personal care and nursing assistants	5.3	6.6	1.3
6312 Children's care workers	15.7	24.5	8.9
6391 Dental assistants	8.5	11.1	2.6

Note: (a) 'Diploma and advanced diploma' in 1996 includes associate diploma and undergraduate diploma.
(b) Percentages were calculated after the number of persons in the 'level not known' and 'certificate not known' category were distributed appropriately to qualification levels (pro-rata methodology).

Source: Derived from the ABS Census of Population and Housing (1996, 2006).

Table D3 The percentage of employed persons aged 15 years and over (excludes overseas visitors) with a certificate[(a)] level qualification by occupation (ASCO 2nd edn), selected occupations, 1996 and 2006[(b)]

Occupation	1996 %	2006 %	% points difference
2312 Specialist medical practitioners	0.8	0.4	-0.4
2381 Dental practitioners	0.4	0.4	0.0
2311 Generalist medical practitioners	0.4	0.2	-0.2
1292 Health services managers	3.2	4.0	0.8
2384 Optometrists	1.0	0.6	-0.4
2321 Nurse managers	1.6	1.6	0.1
3491 Ambulance officers and paramedics	18.4	12.2	-6.2
2387 Chiropractors and osteopaths	0.5	0.3	-0.2
2391 Medical imaging professionals	5.1	0.3	-4.8
2514 Psychologists	0.3	0.2	-0.2
2388 Podiatrists	2.5	0.4	-2.0
2115 Medical scientists	1.9	0.5	-1.4
2322 Nurse educators and researchers	1.1	1.6	0.5
2385 Physiotherapists	0.3	0.3	0.0
2512 Welfare and community workers	9.7	12.2	2.5
3492 Dental associate professionals	58.5	30.9	-27.6
2386 Speech pathologists	0.3	0.1	-0.2
2393 Dietitians	3.2	2.5	-0.7
2511 Social workers	1.5	2.5	0.9
2383 Occupational therapists	0.7	0.4	-0.4
2323 Registered nurses	6.4	9.1	2.8
2325 Registered mental health nurses	4.8	4.5	-0.3
2326 Registered developmental disability nurses	6.4	9.5	3.1
2324 Registered midwives	0.3	0.6	0.3
1295 Child care coordinators	11.3	6.7	-4.7
3421 Welfare associate professionals	17.0	27.6	10.6
2394 Natural therapy professionals	6.5	2.8	-3.6
3111 Medical technical officers	17.4	21.7	4.3
3493 Aboriginal and Torres Strait Islander health workers	11.5	29.5	18.0
3494 Massage therapists	17.2	16.1	-1.1
3411 Enrolled nurses	60.8	53.6	-7.2
6314 Personal care and nursing assistants	11.9	39.0	27.1
6312 Children's care workers	14.1	21.8	7.7
6391 Dental assistants	29.8	31.8	2.1

Note: (a) 'Certificate' in 1996 includes skilled vocational and basic vocational. 'Certificate' in 2006 includes certificate I to IV (note that certificate level not further defined was not included).
(b) Percentages were calculated after the number of persons in the 'level not known' and 'certificate not known' category were distributed appropriately to qualification levels (pro-rata methodology).

Source: Derived from the ABS Census of Population and Housing (1996, 2006).

Appendix E: Top destination occupations

Appendix E provides data from the Student Outcomes Survey. Data are shown for the top destination occupations for vocational graduates who completed training intended for community services and health occupations.

Table E1 Top six destination occupations (ANZSCO) and percentage reporting that training was highly or somewhat relevant for intended occupations, by selected occupations, 2007

Intended occupation: 4114 Enrolled and mothercraft nurses

Destination occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Enrolled and mothercraft nurses	61.1	61.1	98.8
Registered nurses	20.9	81.9	97.3
Nursing support and personal care workers	6.0	88.0	97.5
Aged and disabled carers	2.1	90.1	100.0
Welfare support workers	1.6	91.7	67.8**
Medical technicians	1.6	93.3	35.4

Note: ** Fewer than five respondents in cell.
Source: NCVER Student Outcomes Survey (2007).

Intended occupation: 4117 Welfare support workers

Destination occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Welfare support workers	25.0	25.0	95.2
Aged and disabled carers	15.4	40.4	93.1
Nursing support and personal care workers	5.7	46.1	95.5
Welfare, recreation and community arts workers	5.1	51.2	98.0
Sales assistants (general)	4.2	55.4	14.1
Diversional therapists	3.6	59.0	87.7

Source: NCVER Student Outcomes Survey (2007).

Intended occupation: 4211 Child carers

Destination occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Child carers	72.7	72.7	97.9
Sales assistants (general)	4.4	77.1	5.6**
Education aides	3.1	80.2	92.0
Child care centre managers	2.6	82.8	100.0
General clerks	1.5	84.3	19.8**
Checkout operators and office cashiers	1.5	85.8	0.0

Note: ** Fewer than five respondents in cell.
Source: NCVER Student Outcomes Survey (2007).

Intended occupation: 4231 Aged and disabled carers

Destination occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Nursing support and personal care workers	39.7	39.7	97.7
Aged and disabled carers	34.2	73.8	98.5
Welfare support workers	5.4	79.3	98.9
Enrolled and mothercraft nurses	2.3	81.5	100.0
Sales assistants (general)	1.6	83.1	4.5**
General clerks	1.1	84.3	44.1

Note: ** Fewer than five respondents in cell
Source: NCVER Student Outcomes Survey (2007).

Intended occupation: 4233 Nursing support and personal care workers

Destination occupation	%	Cumulative %	% reporting training was highly or somewhat relevant
Nursing support and personal care workers	33.9	33.9	98.3
Aged and disabled carers	19.7	53.6	93.2
Commercial cleaners	6.6	60.2	70.6
Kitchenhands	5.2	65.3	93.7
Other machine operators	5.0	70.3	97.7
Other cleaners	4.4	74.7	87.8

Source: NCVER Student Outcomes Survey (2007).

Appendix F: Top intended occupations

Appendix F provides data from the Student Outcomes Survey. Data are shown for the top intended occupations for vocational graduates who were employed in selected community services and health occupations after training. The analysis is shown for graduates who were not employed before training and for graduates who were employed before training but not in the destination occupation.

Table F1 Top intended occupations (ANZSCO) and percentage reporting that training was highly or somewhat relevant for destination occupations, by selected destination occupations, 2007

Destination occupation: 4114 Enrolled and mothercraft nurses

Intended occupation	Graduates not employed before		Graduates employed before but not in destination occupation	
	%	Cumulative %	%	Cumulative %
Enrolled and mothercraft nurses	71.1	71.1	88.9	88.9
Aged and disabled carers	27.0	98.1	7.8	96.7

Source: NCVER Student Outcomes Survey (2007).

Destination occupation: 4117 Welfare support workers

Intended occupation	Graduates not employed before		Graduates employed before but not in destination occupation	
	%	Cumulative %	%	Cumulative %
Welfare support workers	66.6	66.6	54.4	54.4
Aged and disabled carers	14.9	81.5	11.5	65.9

Source: NCVER Student Outcomes Survey (2007).

Destination occupation: 4211 Child carers

Intended occupation	Graduates not employed before		Graduates employed before but not in destination occupation	
	%	Cumulative %	%	Cumulative %
Child carers	67.0	67.0	61.0	61.0
Child care centre managers	12.7	79.7	17.8	78.8

Source: NCVER Student Outcomes Survey (2007).

Destination occupation: 4231 Aged and disabled carers

Intended occupation	Graduates not employed before		Graduates employed before but not in destination occupation	
	%	Cumulative %	%	Cumulative %
Aged and disabled carers	73.3	73.3	64.0	64.0
Welfare support workers	8.1	81.4	13.5	77.5
Nursing support and personal care workers	9.8	91.2	8.5	86.0

Source: NCVER Student Outcomes Survey (2007).

Destination occupation: 4233 Nursing support and personal care workers

Intended occupation	Graduates not employed before		Graduates employed before but not in destination occupation	
	%	Cumulative %	%	Cumulative %
Aged and disabled carers	69.6	69.6	67.6	67.6
Nursing support and personal care workers	10.4	80.0	12.2	79.8

Source: NCVER Student Outcomes Survey (2007).

Destination occupation: 3112 Medical technicians

Intended occupation	Graduates not employed before		Graduates employed before but not in destination occupation	
	%	Cumulative %	%	Cumulative %
Medical technicians	34.0	34.0	39.8	39.8
Agricultural, medical and science technicians – nfd	35.1	69.1	27.4	67.2

Source: NCVER Student Outcomes Survey (2007).