Indigenous Pathways into the Professions

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This paper has been commissioned for the Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People.

This version is not for further distribution.

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Executive Summary

This paper was commissioned along with a series of other background papers for the Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People.

It provides a conceptual framework for understanding the relationship between the professions and Indigenous development and social policy, and an overview of Aboriginal participation in the professions and some of the critical pathways issues. The conclusion draws out issues that need to be considered in the development of a higher education strategy.

The development of pathways for Indigenous Australians into the professions is a significant challenge for Indigenous higher education policy. Nonetheless, an increased number of Indigenous Australians in the professions is important for the development of Indigenous social policy and its implementation, and the development of political leadership. It has a direct relationship with Indigenous economic strategy, as this capability is important underpinning of business activity and the penetration of Indigenous Australians into the mainstream economy. Strategies to develop professional pipelines should be conceptualised within a broader framework of Indigenous social and economic development and as a part of a comprehensive Indigenous human capital strategy.

Strategies to improve access for Indigenous Australians into higher education need to be nested within a broader and more robust Indigenous higher education strategy. The interventions that require a particular focus in this context include the development of the:

- **Secondary school pipeline:** Interventions to develop the secondary school pipeline, although building on strategies to increase secondary school retention to Year 12, must also focus on increasing the size of the cohort of Indigenous students transitioning directly from secondary school to higher education and developing strategies that enhance academic outcomes at the top of the distribution curve. It is this cohort of students that needs additional academic development in order to become competitive by the end of Year 12 and to successfully transition into higher education.
- **Aspiration building and leadership**. Educational interventions in the upper secondary school sector need to move beyond a focus on remediation alone. We need strategies to support the development of leadership capabilities and aspirations among Indigenous students with academic and leadership potential, their families and communities, and schools.
- **VET Sector and workforce pipelines:** Pathways from the VET sector and the existing Indigenous workforce into higher education and the professions are important. Indigenous Australians are over-represented in the VET sector and there are existing workforce members across a range of service delivery structures who are trained within this sector, have practice experience and who need professional development opportunities. Aboriginal dental nurses, health workers, teaching assistants and paralegal professionals who are to transition directly into higher education programs are likely to require the development of specific educational transition programs.
- **Math and sciences capabilities:** Academic development strategies need to focus, in particular, on maths and science literacy, as success in these disciplines is critical for access into a cluster of professional fields in which Indigenous Australians are significantly under-represented (accounting and commerce,

engineering, veterinary science etc.). There are three critical elements to the development of the science and maths pathway: interventions that attract and engage more Indigenous students to these fields of study within secondary school; interventions that support the development of capabilities for secondary school students who are engaged with these fields of study but who are not yet achieving the academic outcomes to transition into higher education programs; interventions within the higher education sector to support Indigenous students in these fields of study.

In order to achieve these outcomes Universities need to refocus their approach to Indigenous student recruitment and support to include interventions that build the secondary school cohort (including aspiration and leadership building programs) and the VET and workforce pipelines. This requires partnerships with the schools and VET sector and Indigenous communities. Internally, the organisational arrangements for Indigenous strategy need to support and build leadership at a faculty level. The relationships between the professional faculties, professional bodies (including Indigenous professional bodies) provide the critical components for sustained change.

Professional bodies provide significant external leverage. Leadership within professional bodies create an environment, which supports the re-allocation of resources and priorities within University faculties. The development of an Indigenous focus within accreditation systems provides additional leverage. Indigenous professional bodies also play a significant role both through advocacy and the provision of strategic and technical advice.

Policy settings

In order to create an enabling context, work needs to be undertaken to develop a more coherent policy framework that connects: Indigenous schools strategy and higher education strategy and Indigenous social policy and higher education strategy. The development of workforce strategy within Indigenous social policy provides an important site of intervention in which the needed policy scaffolding can be built to support Indigenous higher education strategy. Strategy in this field could be support through the development of an Indigenous higher education performance measurement framework with performance measures that focussed on the professional pipelines. Funding systems for Indigenous higher education are needed which have the necessary incentives and pricing signals to focus the sector on the development of priority professional pipelines. Consideration should be given to providing the capacity for the sector to retool in order to produce the educational interventions.

Introduction

Indigenous development requires more than a simple focus on financing measures to target the inequality gap. Development also requires social change, institution building and realisation of the capabilities of Indigenous Australia. Development within the context of a contemporary liberal democracy also requires a focus on those capabilities that provide a bridge for Indigenous Australia into the broader and global economic, social and political structures. The professions are a cluster of occupations that provide such bridging capabilities.

An Indigenous higher education strategy necessarily needs to take a broad approach to the development of the Indigenous human capital needed for change. However, it is also important to take a closer look at higher education outcomes and to assess the extent to which Indigenous Australians are accessing the professional pipelines.

The professions have a particular place within the occupational structure of the workforce. With a degree of occupational autonomy and closure that is legislatively conferred, the professions provide a key to critical aspects of social reform. They also provide a pathway into leadership and have a particular role to play in economic development. It is important, in this respect, to consider if there are particular strategies that need to be employed in order to enhance higher education outcomes in relation to the professions.

This paper has been written in response to Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People. It provides a conceptual framework for understanding the relationship between the professions and Indigenous development and social policy, and an overview of Aboriginal participation in the professions and some of the critical pathways issues. The conclusion draws out issues that need to be considered in the development of a higher education strategy.

Where possible I have drawn on data from a range of professional occupations, but the published and available data is more developed with respect to the health professions—hence this bias is reflected in this paper.

The professions

In this section I clarify my approach to the key concepts: the professions and the process of professionalisation. Like many concepts used in the social sciences, they have analytical meanings that are, to a certain extent, distinct from use in everyday language. In everyday language we use the term *professional* to refer to standards of ethical and otherwise appropriate behaviour that we expect in a workplace—particularly within a service occupation. In this context we might apply the term loosely to a broad range of occupations including the trades and semi-skilled workers in the service industry, as well as to university-educated occupations that are accredited (such as lawyers, doctors and accountants).

Social scientists use the concept more narrowly to refer to the cluster of occupations in service and organisational management contexts that have status and that exercise different forms of authority over other occupations and citizens. The status and authority of the professions has evolved socio-historically.

There are some commonly recognised characteristics of professions. First, the professions have agreed qualifications/credentials and professional bodies that regulate membership and the practice of their members. Second, the status and authority of professions has evolved through a complex and contested relationship with governments (and other

institutions of the state). The powers of the professions have been codified through a particular legislative and regulatory framework. In this schema, doctors and managers are categorised as professionals, while tradespersons and unskilled labourers are not.

Although the distinction between professional and non-professional occupations applied in this way might often seem to be obvious, there are many cases where this is perhaps less clear. This is particularly so when the status of the occupational group is undergoing change. Aboriginal health workers, for example, are trained within the skills-focused Vocational Education and Training (VET) sector, but do not as yet have many of the sociological characteristics of a profession, such as a professional body that regulates professional membership. However, as the legislative and regulatory framework for Aboriginal health workers continues to develop, it could be argued that this health occupation is undergoing a process of professionalisation. Such processes are often contested when established occupational groups respond to apparent and real encroachments on their occupational territory (as is evident in some contexts in the contestation between primary care nurses and Aboriginal health workers (Genat, 2006)).

The historical evolution of relations between the professions and other occupational groups is charted by a large sociological literature that characterises the social processes that underpin the legitimation of the professions and the development of their internal structures and external relationships. The legislative framework for professions confers varying degrees of social and political autonomy onto professional bodies, which in effect become the social instruments responsible for professional self-regulation. This legislative framework also structures the relationships between different occupational groups, such as medicine and nursing. However, these arrangements are not fixed, and various attempts by governments to disrupt the power of professional bodies is both resisted and accommodated in different social and historical circumstances. Notwithstanding, professions occupy a social position characterised by varying degrees of social power, prestige, high income, high social status and privileges.

The professionalisation of individuals inculcates norms of conduct and values through the formal processes of learning required for professional registration and accreditation, as well as the informal but equally important processes of socialisation. Broader societal values and political processes also shape professionalisation. Governments and other social institutions influence the behaviour and practice of the professions through legal mechanisms such as criminal or trade practices laws and through funding-related measures such as program grants or subsidy programs or the development of quality and benchmarking systems. Nevertheless, by its nature, the relationship between governments and professionals is mediated by the professional systems and structures distinguishing the professional from other occupation categories.

In these ways, social scientists construe professions as part of an occupational social hierarchy whose architecture is based on the distribution of knowledge authorities. The relationship between professional groups and other occupations is complex and stratified. The process of professionalisation—or the social process by which an occupation is transformed into an elite occupational structure with varying degrees of occupational closure—historically evolves and can be mapped against broader shifts in societal and political relationships.

Indigenous Australians have, over the past few decades, entered into the professions. The premise of this paper—which is expanded in the following section—is that this is an important policy issue for Indigenous development.

The pathway into the professions is nowadays almost invariably through higher education. Many established professional groups, such as nursing, originally had industry or trade-based education, and the social status conferred by a university education socially

demarcated professional relationships, such as those between nursing and medicine. However, not all university graduates enter professions (such as graduates with degrees in the arts or sciences). The question that we need to consider is therefore twofold: what do we need to do to improve Indigenous higher education outcomes, and are there particular strategies or issues that need to be considered in order to improve outcomes in relation to the professions? The later issues are the focus for the final section of this paper.

The professions and Indigenous development

It is the premise of this paper that development of the policy settings, resources and interventions that enable the equitable participation by Indigenous Australians in the professions is needed for Indigenous development. This premise rests in part on the sociological conceptualisation of the professions as presented above.

I personally became interested in this problem some time after I had graduated and following my early career development when I began to become involved in a number of different international bodies in Indigenous health such as the Pacific Region Indigenous Doctors Congress, the International Group for Indigenous Health Measurement and the International Network for Indigenous Health Knowledge and Development. Through involvement in these international networks I was struck by the contributions of Indigenous health professionals to Indigenous policy and social development I their own countries. The remarkable historical depth of their contribution compared to Australia is striking.

Take medicine as an example. Dr Oronhyatekha was the first Mohawk doctor in Canada to graduate from medicine in 1866 from the University of Toronto. The first Maori doctor was Sir Maui Wiremu Pomare (Chicago College, 1899), followed by Te Rangi Hiroa (Sir Peter Henry Buck) who graduated from Otago University in 1904. The first Native American Woman MD was Susan La Flesche Picotte who graduated top of her class from the Women's Medical College of Pennsylvania in 1889. But in Australia, it was 1983 before an Indigenous Australian (Helen Milroy) graduated from medicine from the University of Western Australia. Many of these Indigenous professionals made a significant contribution well beyond their professional fields in the political, social and intellectual development of their communities (Anderson 2008).

Indigenous professionals have the potential to use their social and political positions (combined with their professional knowledge and skills) to support the development and realisation of social policy objectives, Indigenous political leadership and the development of the Indigenous economy. None of these claims is intended to discount the significant contribution of other workers and Indigenous community members more broadly. Rather, professionals can make contributions that deepen and extend those of others through their capabilities, which provide a bridge between Indigenous Australia and broader social, economic and political structures.

Indigenous social policy (such as in the justice, education, housing, health and other sectors) has, in fact, been well advanced in the absence of significant numbers of Indigenous professionals. However, social policy implementation also depends on the reform of professional practice and values and on developing the professional capabilities in Indigenous contexts. Government policy and regulatory interventions, by their very nature, have limited influence on the internal regulation and social reproduction of the professions. Indigenous professionals have the opportunity to provide the leadership needed for these professional reforms.

As an illustration of these processes, we could consider the challenge of providing the high-quality health care services that are needed in order to improve health outcomes for Indigenous chronic diseases. Arguably, the quality of the health care service in part depends

on the availability of a health professional workforce that is both *technically* and *culturally* capable. We should not assume that Indigenous professionals would necessarily have both characteristics, and even if they did, they would, even in an ideal world, only be responsible for a small proportion of the delivery of clinical services to Indigenous Australians. Nevertheless, Indigenous professionals play an important role in the transformation of professional practices and values through their collegial relationships with other professionals, their participation in professional organisations, and their contributions to professional education, health research, service administration and policy development.

One of the failings of Indigenous health policy, in my view, is the unreasonable expectation that we have placed Aboriginal health workers. Despite their lack of role clarity and relative power with respect to other professions we continue to expect that they will carry the burden of responsibility for reshaping Indigenous health care experience. For this to be a reality we need more Aboriginal doctors, nurses and allied health professionals - lots and lots more. And we need Aboriginal specialists and hospital and health department executives. This is a contested view and there are those in the health professions who do not want their control challenged and an older generation of leaders in Indigenous activists who will argue that the view that we need more Indigenous professionals is elitist. The vacillating response of non-Indigenous politicians and bureaucrats creates policy inertia – as people fail to grasp the significance of these issues and fail to extend to Indigenous Australia the same opportunities that their children and communities take for granted.

Professional education and practice also provides the social and political resources, and experience, for political leadership. In Australia there are many examples of Indigenous people with professional training who have made significant contributions to Indigenous development. Consider, for example, nurses such as Lowitja O'Donoghue, Jilpia Jones and Sally Goold; the influential cabal of Indigenous lawyers, including Mick Dodson, Larissa Behrendt, Noel Pearson, Michael Mansell, Pat O'Shane and Sue Gordon; teachers such as Chris Sarra; and social workers such as Tom Calma. Many of these individuals practised and contributed to their professional fields prior to moving on to make significant and enduring political and social contributions more broadly in Indigenous affairs. The professions in part provide a social context for the development of their leadership skills. Others moved more quickly into the leadership space following the completion of their higher education.

Finally, Indigenous professionals have a significant contribution to make to Indigenous economic development through the direct link between their contributions and economic productivity in the business and commercial sectors (such as through a cluster of fields including management and business administration, commerce and financial management). The *Indigenous Economic Development Strategy 2011-2018* identifies education as its second priority. This priority includes objectives to improve school readiness, school attendance and educational outcomes; successful transition from school to work; and improved access to higher education (Australian Government, 2011). The strategies outlined in relation to higher education encompass: supporting success in higher education, attracting and retaining Indigenous students, encouraging students to view higher education as an option, and, the Indigenous higher education workforce Australian Government 2011).

No detail is provided on the potential contribution of Indigenous professionals to Indigenous economic development. The final version broader incorporates a broader (and improved) view of the role of higher education for Indigenous economic development compared with earlier iterations (Australian Government 2010). However, the Indigenous Economic Development Strategy does have a limited conceptualisation of the relationship between Indigenous human capital and economic activity. It is difficult to conceive how, for example, a robust Indigenous business sector could develop with the skill, knowledge and attributes of Indigenous business professionals.

A possibly more contentious argument would link the development of Indigenous professionals to the development of the social and economic capital needed for economic productivity. However, the need to develop a cohort of Indigenous professionals who have the needed capabilities to service Indigenous economic and business activity is equally compelling.

Indigenous people, the professions and social policy

Strategies to develop the Indigenous workforce are detailed to varying degrees across the Indigenous social policy landscape, although the rationale, policy approach and emphasis on access to the professions vary. This section illustrates the different approaches through reference to national Indigenous social policy in education, health, justice and housing.

The relevant strategy in the National Aboriginal and Torres Strait Islander Education Policy (DEEWR 2011) is incorporated within Major Goal 1 (Involvement of Aboriginal and Torres Strait Islander People in Educational Decision-Making) as an objective to:

> increase the number of Aboriginal and Torres Strait Islander people employed as educational administrators, teachers, curriculum advisers, teachers assistants, home-school liaison officers and other education workers, including community people engaged in teaching Aboriginal and Torres Strait Islander culture, history and contemporary society, and Aboriginal and Torres Strait Islander languages.

This priority is further reflected in the Aboriginal and Torres Strait Islander Education Action Plan 2010–2014 developed by the Ministerial Council of Education, Early Childhood Development and Youth Affairs, which also includes as a performance indicator the number of Aboriginal and Torres Strait Islander principals, teachers and education workers and further anticipates the development of a National Aboriginal and Torres Strait Islander Educator Workforce Strategy (MCEEDYA 2010). The action plan anticipates some further work in this space—particularly in relation to the development of a national Aboriginal and Torres Strait Islander health workforce strategy by MCEEDYA. The action plan does not detail the development of strategies to increase the cohort of Indigenous Australians entering higher education, although it does recommend that the Ministerial Council on Tertiary Education and Employment develop a companion document to the Aboriginal and Torres Strait Islander Education Plan to outline action to close the gap in training and university employment outcomes.

The National Indigenous Law and Justice Framework 2009–2015 provides a high-level reference to the development of strategies to 'Increase employment and retention of Aboriginal and Torres Strait Islander peoples in justice and justice-related programs, policy management and service delivery' (Standing Committee of Attorneys-General Working Group on Indigenous Justice 2009). However, this strategy details no specific strategies on the training or education of this workforce or the development of pathways into the legal professions for Aboriginal and Torres Strait Islander people.

The National Aboriginal and Torres Strait Islander Health Strategic Framework (NATSIHC 2003) has a competent health workforce as a Key Result Area, under which it articulates the following objective:

> A competent health workforce with appropriate clinical, management, community development and cultural skills to address the health needs of Aboriginal and Torres Strait Islander peoples supported by appropriate training, supply, recruitment and retention strategies (NATSIHC 2003:19).

This section makes explicit reference to an action priority in relation to 'Increased numbers of Aboriginal and Torres Strait Islander peoples working across all health professions' (NATSIHC 2003:20).

The National Aboriginal and Torres Strait Islander Health Council (NATSIHC) subsequently developed a more detailed strategy in relation to Aboriginal and Torres Strait Islander participation in the health workforce (NATSIHC 2008). The strategy, *A Blue Print for Action: Pathways into the Health Workforce for Aboriginal and Torres Strait Islander People*, included, among other things, a focus on the secondary school pipeline (particularly maths and science literacy, careers guidance and role modelling) and support for higher education institutions, curricula development, a whole-of-university strategy, accreditation, and quality standards in relation to the quality of training delivery for Indigenous Australians. The proposed investment in Aboriginal and Torres Strait Islander participation in the health workforce was argued on the basis that it provided:

- a more effective return on investment from increasing Aboriginal and Torres Strait Islander participation in the health workforce than if current incremental approaches are continued
- the economic benefits of tapping a previously untapped labour market by maximising Aboriginal and Torres Strait Islander workforce participation
- potential administrative savings accrued by aligning health and education sector priorities and strategies
- benefits of higher quality data tracking systems and, critically
- equity of health outcomes (NATSIHC 2008:xi).

The National Indigenous Health Equality Council (NIHEC 2011) undertook further work in relation to Indigenous participation in the health workforce. The analysis was framed by the agenda that had been led by the Rudd Labor government to 'close the gap' in Indigenous inequality and the subsequent Council of Australian Governments reforms of intergovernmental agreements. The priorities identified in the report were derived from an analysis of key outcome data in relation to Indigenous participation in the health workforce and its underlying determinants. Some of the key findings of this report are summarised in later sections of this paper. The report elaborated on the NATSIHC strategy outlined above, with recommendations focused on early childhood development; the schools (and secondary schools) educational pipeline; the vocational education and training sector and the higher education sector; and strategies for attracting and retaining an Indigenous health workforce. The National Indigenous Health Equality Council set a target to reduce the gap in health workforce participation between Indigenous and non-Indigenous Australians in the key priority areas of medicine, nursing and allied health by 20% in 10 years (2011–2021) and 50% in 20 years (2011–2031).

National Indigenous workforce strategy has been reinforced through the development of specific professional strategies led by or engaging the relevant professional bodies. For example, the Indigenous Nursing Education Working Group established by the Department of Health and Ageing and the Australian Congress of Deans of Nursing developed the report *Gettin Em n Keepin Em*, with 32 recommendations focused on the inclusion of Indigenous health in nursing curricula and recruitment and retention of Indigenous nurses in the health workforce (Indigenous Nursing Education Working Group 2002). The Committee of Deans of Australian Medical Schools (CDAMS) developed a national curricula framework for the inclusion of Indigenous health in medical education—which subsequently informed the development of accreditation standards for the accreditation of medical schools by the Australasian Medical Council (CDAMS 2004). The Australian Indigenous Doctors Association (AIDA) developed a strategy for the recruitment and retention of Aboriginal and Torres Strait Islander students into medical education, which AIDA has subsequently used to frame its

collaborative engagement across the health sector and CDAMS (now Medical Deans Australia and New Zealand) (Mackean *et al.* 2007). In this policy landscape the development of Indigenous professional organisations such as AIDA, the Council of Aboriginal and Torres Strait Islander Nurses, and others has proved to be important for the embedding and advocacy of reform within professional system and structures.

What is particularly important in this context is the way in which social policy framework in Indigenous health provides scaffolding for higher education strategy. This scaffolding provides for the development of a range of strategies, which create institutional environments within which Indigenous students can be supported and engaged. Curricula reform provides a learning context, which, although aimed at building the capabilities of students more broadly, also creates a context for the development of a culturally inclusive learning environment. Significantly, the leadership of professional structures—in part supported and led by Indigenous professional bodies—has been a critical element of this broader strategy.

Arguably this is more than just a consequence of good policy scaffolding. The relationship between AIDA, the medical colleges and the medical has provided the basis for a social transformation of the place of Indigenous issues within the medical profession. However, it is the role of Faculties that seem to be important – and Faculty leadership may be a significant reason why some Universities have led the field in terms Indigenous students and others have not. Rather a simple focus on university performance in relation to Indigenous outcomes strategies need to leverage accountabilities and performance at a faculty level.

A focus on Indigenous human capital—and to a lesser extent the development of the Indigenous professional workforce—is present within Indigenous social policy to varying degrees. However, these Indigenous workforce development priorities are not in turn reflected in higher education strategy. Furthermore, there is no mechanism within the higher education sector through which to align institutional activity with these social policy priorities—other than the strategic scaffolding provided by social policy outside the sector.

Indigenous Australians and the professions

This section illustrates the relative under-representation of Indigenous Australians in the professions by drawing on labour force data, an analysis of Department of Education Employment and Workplace Relations (DEEWR) enrolments and completions data by field of study, and an analysis of Indigenous participation in the health workforce that was undertaken by the National Indigenous Health Equality Council.

Indigenous Australians in the labour force

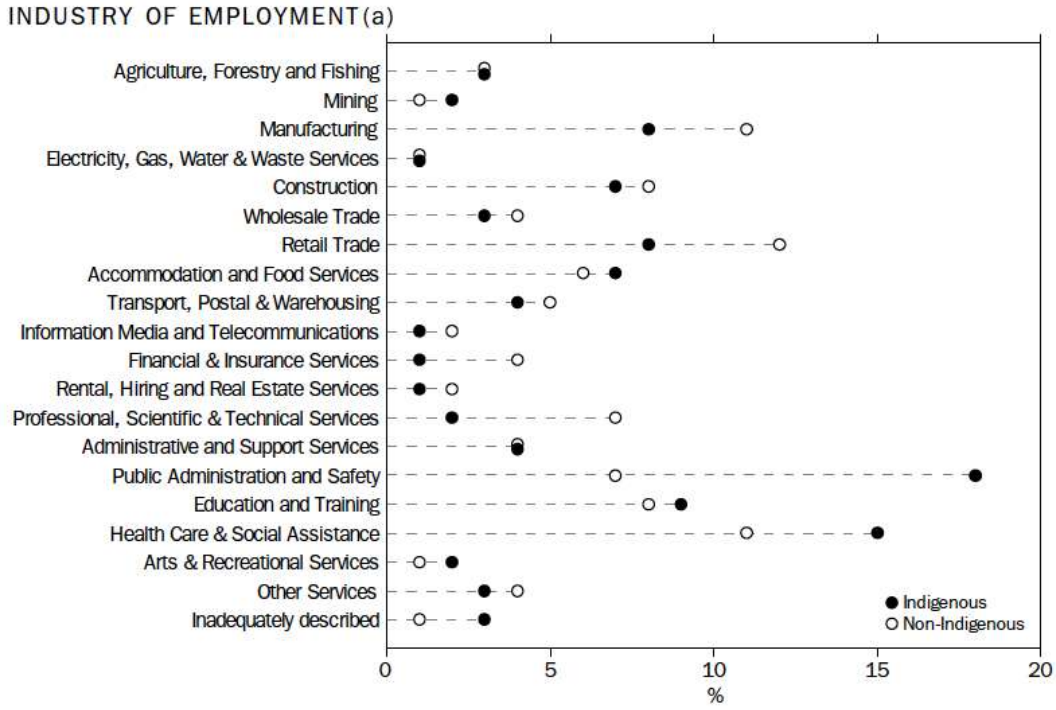
In 2006 Indigenous Australians were less likely to be participating in the labour force compared with non-Indigenous Australians (54% compared with 75%), with Indigenous males more likely than females to be participating in the labour force (63% compared with 51%) (ABS & AIHW 2008). Almost half (45%) of Indigenous people aged 15–64 years were employed and, of those who were employed, half (53%) were employed full-time, compared with 65% of non-Indigenous people. Part-time employment accounted for a greater share of total employment among Indigenous people (37%) than non-Indigenous people (29%) (ABS & AIHW 2008).

Indigenous Australians have quite a different pattern of employment across the industry sectors than non-Indigenous Australians (Figure 1) (ABS 2010). Relative to the total Australian population, Indigenous Australians are proportionally over-represented in the public sector, health care assistance sector, social assistance sector—and to a lesser extent the mining, food and accommodation, arts and recreational services, and education and

training sectors. On the other hand, Indigenous Australians are under-represented in the wholesale and retail trades sectors, professional scientific and technical services, construction services, rental hiring and real estate, information and media telecommunications, and financial and insurances services sector.

The distribution of Indigenous employment is also distinctly patterned (ABS 2010). The Indigenous workforce is found predominantly in low-skilled occupations, with the proportion employed as managers, administrators and professionals being relatively lower by comparison to the non-Indigenous population (Table 1). However, there was a reasonable amount of growth in both moderate and high-skilled occupations between 2001 and 2006, explaining the reduction in occupation segregation (Biddle, Taylor & Yap 2008). The most common occupation group for employed Indigenous people was labourers (24%), followed by community and personal service workers (15%) and clerical and administrative workers (12%). In contrast, the most common occupation group for non-Indigenous people was professionals (20%) (Table 1; ABS 2010).

Figure 1: Industry of employment



Source: ABS 2010: 86.

Table 1: Indigenous and non-Indigenous occupation of employment (Level One Category), 2006 Census

Occupation (ANZSCO) (OCC06P) Level 1	Employment Counts Indigenous	Employment Counts Non-Indigenous	Employment Counts Total	Employment Distribution Indigenous	Employment Distribution Non-Indigenous	Indigenous proportion of known Employment Count	Rank Indigenous (1–9)	Rank Non-Indigenous (1–9)
Professionals	13,842	1,783,181	1,797,023	11.3%	20.0%	0.8%	5	1
Clerical and Administrative Workers	15,243	1,342,551	1,357,794	12.4%	15.1%	1.1%	3	2
Technicians and Trades Workers	14,727	1,282,688	1,297,415	12.0%	14.4%	1.1%	4	3
Managers	6,839	1,187,341	1,194,180	5.6%	13.3%	0.6%	8	4
Labourers	29,131	912,227	941,358	23.7%	10.2%	3.1%	1	5
Sales Workers	8,286	880,525	888,811	6.8%	9.9%	0.9%	7	6
Community and Personal Service Workers	18,711	776,737	795,448	15.2%	8.7%	2.4%	2	7
Machinery Operators and Drivers	10,014	588,237	598,251	8.2%	6.6%	1.7%	6	8
Not stated/Inadequately described	5,956	154,822	160,778	4.9%	1.7%	3.7%	9	9
Grand Total	**122,749**	**8,908,309**	**9,031,058**	**100.0%**	**100.0%**	**1.4%**		

Note: ANZSCO—Australian and New Zealand Standard Classification of Occupations
Source: ABS, 2011

In Appendix I data from the 2006 census is presented at the Level One and Two occupational category level. It provides an analysis of employment counts and the distribution of employment across these categories. In Table 2 the breakdown of the professional category is provided. This data provides the employment count and occupational distribution across the professional category. Within the professional category, the highest proportion of Indigenous Australians is found within the education category and the lowest in the information communications technology category (with the exception of the undefined group). Indigenous Australians are under-represented across all the professional subcategories. These inequalities are further evident in Table 3, which shows data for a small number of select occupational groups.

Table 2: Indigenous and non-Indigenous occupation of employment: Professional Level Two: Counts and distribution, 2006 Census

Occupation 06 (ANZSCO) (OCC06P) Level 2	Employment Count Indigenous	Employment Count Non-Indigenous	Employment Count Total	Employment Count Total plus Indigenous not stated	Employment Distribution Indigenous	Employment Distribution Non-Indigenous	Employment Distribution Total (without Indigenous not stated)	Indigenous as percent of known employment count
Arts and Media Professionals	1,323	66,985	68,308	68,753	1.1%	0.8%	0.8%	1.9%
Business, Human Resource and Marketing Professionals	2,944	440,545	443,489	445,522	2.4%	4.9%	4.9%	0.7%
Design, Engineering, Science and Transport Professionals	1,113	243,564	244,677	245,910	0.9%	2.7%	2.7%	0.5%
Education Professionals	3,649	393,988	397,637	399,662	3.0%	4.4%	4.4%	0.9%
Health Professionals	2,100	343,539	345,639	347,595	1.7%	3.9%	3.8%	0.6%
ICT Professionals	351	144,217	144,568	145,128	0.3%	1.6%	1.6%	0.2%
Legal, Social and Welfare Professionals	2,148	126,488	128,636	129,239	1.7%	1.4%	1.4%	1.7%
Professional, not further defined	214	23,855	24,069	24,197	0.2%	0.3%	0.3%	0.9%

Source: ABS, 2011.

Table 3: Indigenous and non-Indigenous occupation of employment for selected occupations: Counts and distribution, 2006 Census

Occupation	ANZSCO Code	Employment Count Indigenous	Employment Count Non-Indigenous	Employment Count Total	Employment Count Total (incl Indigenous status not stated)	Indigenous as percent of professional category	Non-Indigenous as percent of professional category	Total percent of professional category	Known % of known Employment Count
Accountants	2211	254	122,568	122,822	123,373	8.6%	27.8%	27.7%	0.2%
Architects	2321	25	15,641	15,666	15,750	2.2%	6.4%	6.4%	0.2%
Teachers	24	3,650	393,988	397,638	399,662	100.0%	100.0%	100.0%	0.9%
Doctors	253	102	54,720	54,822	55,063	4.9%	15.9%	15.9%	0.2%
Lawyers	2711 & 2713	149	42,063	42,212	42,383	6.9%	33.3%	32.8%	0.4%
Total across selected occupations		4,180	628,980	633,160	636,231	35%	41%	41%	0.7%

Source: ABS, 2011.

The National Indigenous Health Equality Council analysed participation of Indigenous Australians in the health workforce (see Appendix II for a detailed overview). There are significant issues in the quality of Indigenous health workforce data (for more detail see AIHW 2009), which limited the capacity to undertake a trend analysis at the occupation level. Nevertheless, it was possible to draw some broad conclusions.

Between 1996 and 2006 the number of Indigenous Australians employed in the health workforce increased by 2165 (64%), but Indigenous participation continues to be under-represented in key occupational groups (NIHEC 2011). The occupations with the largest growth in numbers included registered nurses, nursing support and personal care workers, and Aboriginal and Torres Strait Islander health workers. The occupations with a pattern of fast growth included physiotherapists and psychologists (even though absolute numbers remain small). The occupations with the largest number of Indigenous Australians included nursing and Aboriginal and Torres Strait Islander health workers. The occupations with the largest gap between Indigenous and non-Indigenous Australians included registered nurses, medical practitioners and allied health professionals.

Implications

Indigenous Australians are under-represented across the professions and the pattern of under-representation is magnified at the elite end of professional structures. This has a number of implications for the development and implementation of social and economic strategy as indicated above. It is possible that the risk that this represents will be accentuated with the growing investment by Australian governments in Indigenous programs.

There is also a possible relationship between the representation of Indigenous Australians in the professions and their employment distribution across the various industry sectors—although there are a number of other factors that influence this (such as population distribution, employment preferences etc.) and the relative importance of the professions varies across these employment sectors. Opportunities for employment in the financial and insurance services sectors would be significantly enhanced for Indigenous Australians if the proportion of graduates with commerce and accounting degrees were to increase. Similarly, the under-representation of Indigenous Australians in the information media and telecommunications sectors is in part a consequence of the relative under-representation of

Indigenous Australians across the professional employment categories in this sector. However, the extent to which entry into the professions shapes the occupational distribution of Indigenous Australians requires a more detailed analysis of the employment patterns across these sectors. Furthermore, the over-representation of Indigenous Australians across other sectors (such as health care and social assistance) is due primarily to the relatively larger representation in the non-professional component of this sector (as is evident below in relation to the health sector).

Indigenous Australians, higher education and the professions

In this section I describe the available data with respect to higher education. An analysis of DEEWR Indigenous higher education data (2004–2009) has undertaken by the Aurora Project (Aurora Project 2011). This analysis distinguished direct pathway and mature age students (direct pathway students who enrolled in University within a few years of finishing high school were defined as being between 15-24 years for undergraduates and up to 29 years for postgraduates). Outcomes for Indigenous students were compared with age-adjusted population targets that were required to reach parity. The patterns described by this analysis are consistent with other similar studies (for example: (Pechenkina and Anderson 2011)) whilst throwing a more detailed spotlight onto the different outcomes for the direct entry and mature age cohorts.

With respect to mature age students this analysis demonstrated that they represented 118 per cent of the parity target for undergraduate studies and 47% for postgraduate studies. By comparison direct pathway student numbers were at 23% of the undergraduate parity targets and 13% of the parity target for postgraduate studies (The Aurora Project 2011). This different in outcomes for the different age cohorts is consistent with the data published by the National Indigenous Health Equality Council in relation to health sciences in the University sector: see below). A similar pattern is evident also in relation to completions data. The analysis of outcomes by fields of study reveals variation relevant to this paper. For example the direct pathways students achieved the following proportion of parity targets for: agriculture, environmental and related fields, 16%; architecture and building, 11%; creative arts 11%; education, 30%; engineering and related technologies, 7%; health, 18%; information technology 6%; management and commerce, 8%; natural and physical sciences, 9%; society and culture, 18% (Aurora Project 2011).

Indigenous Australians, higher education and the health sciences

This section builds on the previous analysis and considers higher education trends in relation to the health sciences. The pattern that emerges is consistent. The section that follows draws on work undertaken for the National Indigenous Health Equality Council (NIHEC 2011).

Enrolment and completion rates for Indigenous students undertaking health-related courses in higher education have increased since 2001, but the gap has widened because non-Indigenous enrolment and completion rates grew at a faster rate. If we were to halve the gap in 2018 there would need to be an additional 2046 enrolments and 510 completions in health-related courses. To close the gap there would need to be an additional 2719 enrolments and 740 completions. See Appendix II for a detailed breakdown of occupational data for 1996, 2001 and 2006.

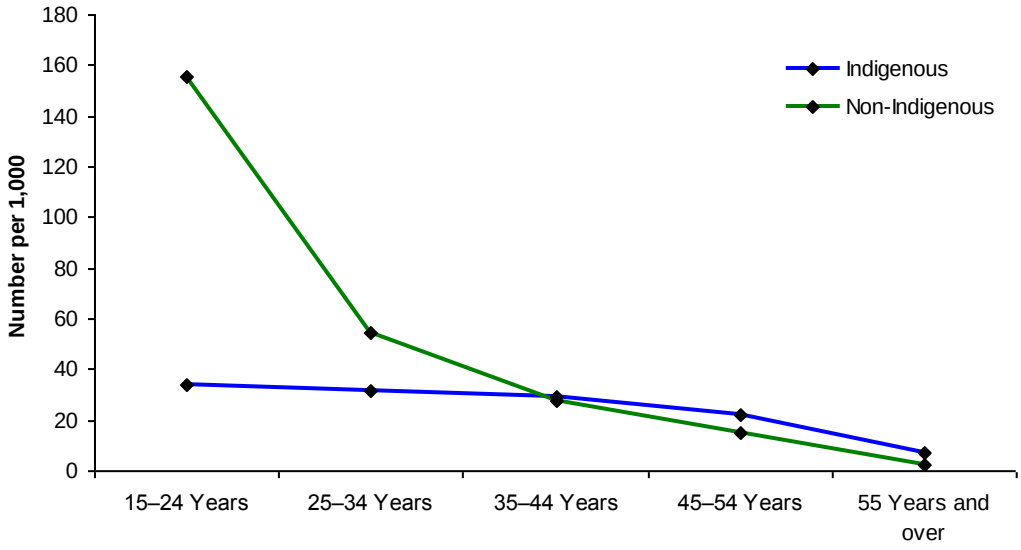
Nursing was the undergraduate program with the highest numbers (with a total of 582 enrolments) (1.8% of all nursing enrolments). Public health ranked second in absolute numbers, representing 7% of all enrolments (298, with the majority of enrolments in specific

Indigenous public health courses). There were 128 Indigenous student undergraduate enrolments in medical studies, representing 1.1% of all medical student enrolments. A number of the health professions continue to have very low enrolments and completions (optical science, pharmacy, radiography, dental studies, rehabilitation therapies).

There were 248 Indigenous student completions in health-related courses in 2008 (of which 152 were for undergraduate courses). Nursing had the highest number of undergraduate completions (71, representing 1% of completions), followed by public health (47, representing 7% of completions) and medical studies (13, representing 0.6% of completions).

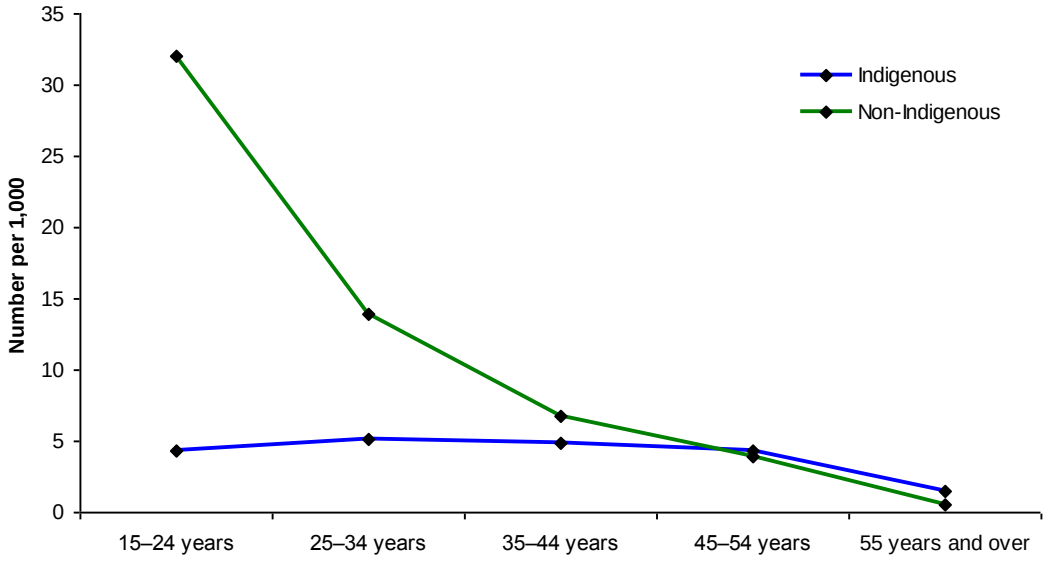
The enrolment and completion outcomes across the age cohorts reflect the more general pattern evident in the Aurora Project analysis. Indigenous Australians reach parity in the 35–44 year old cohort and are over-represented in the older cohorts with respect to enrolments (Figure 2) and for completions they have achieved parity in the 45–54 year old age cohort and above (Figure 3).

Figure 2: Higher education university health-related course enrolment rate by Indigenous status and age group, 2006



Source: NIHEC 2011:27.

Figure 3: Higher education university health-related course completion rate by age group, Indigenous status, 2006



Source: NIHEC 2011:28.

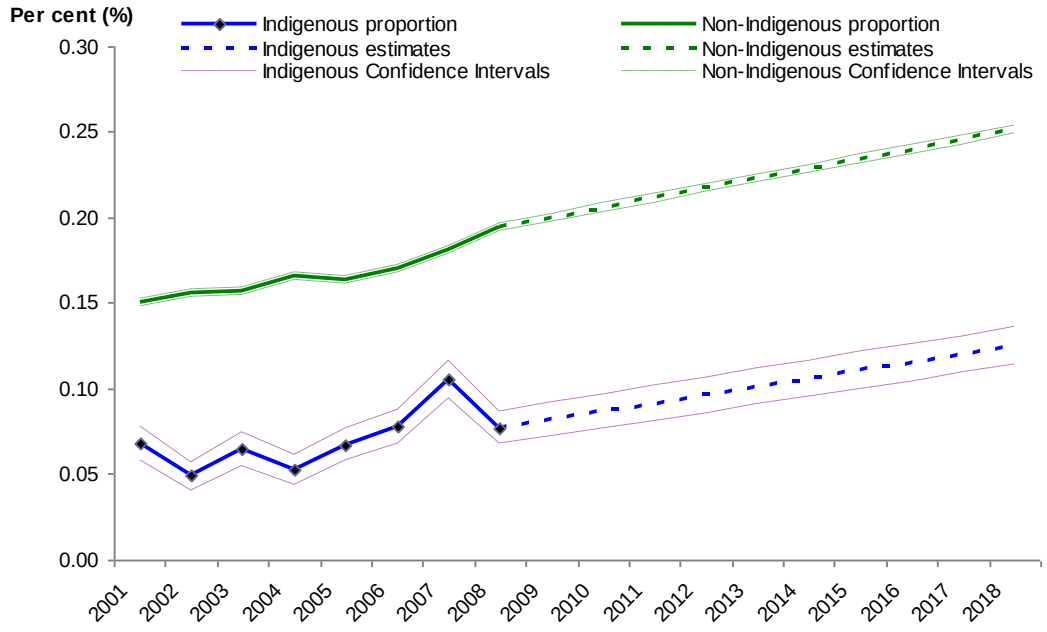
A number of factors impact on the relatively lower completion rates more generally in Indigenous higher education and these deserve close attention (Pechenkina & Anderson 2011). In the health sciences there are high attrition rates during the early years of higher education, particularly during the first year. Between 2002–03 first-year attrition rates for Indigenous higher education students were around 35–39% compared to 22–23% for non-Indigenous students (NIHEC 2011). Another measure of outcomes that is relevant here is the success rates of institutions (which is based on the proportion of units passed within a year compared to the total units enrolled). In 2008 the success rate for Indigenous students studying health-related courses was 74% compared to 93% for non-Indigenous students (NIHEC 2011).

The National Indigenous Health Equality Council undertook a trend analysis (for data sources and assumptions that underpin this analysis see (NIHEC 2011). In its analysis it reports on three scenarios for higher education enrolment in the health sciences:

- the first shows projections based on current trends
- the second shows straight-line trajectories from 2008 onwards to meet the target of halving the gap
- the third shows straight-line trajectories from 2008 onwards to meet the target of closing the gap.

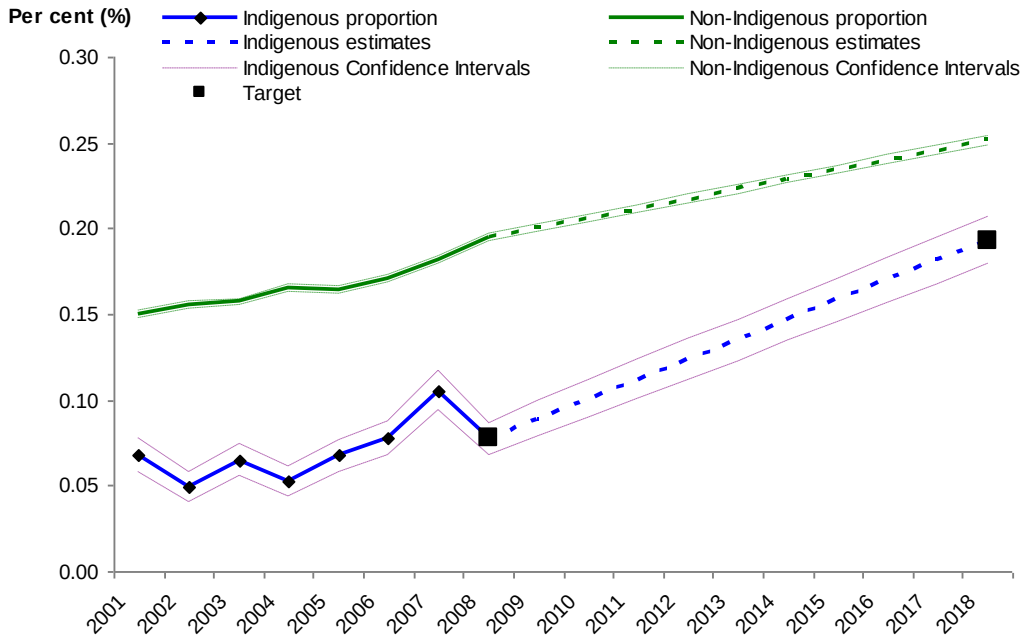
For both enrolments and completions, although the trend analyses based on the continuation of current trends demonstrate an improved rate outcome, the relative gap widens over the period to 2018. In order to halve the gap in enrolments by 2018, an additional 2046 enrolments are required, and to close the gap 2719 enrolments are required. In order to halve the gap in completions by 2018, an additional 510 completions are required above this baseline and in order to close the gap in completions an additional 740 completions are required. In this document I have reproduced the NIHEC trend analysis for completions alone (Figures 4–6; for the complete analysis refer to (NIHEC 2011).

Figure 4: Higher education university health-related course completion rate trends to 2018 based on current trends



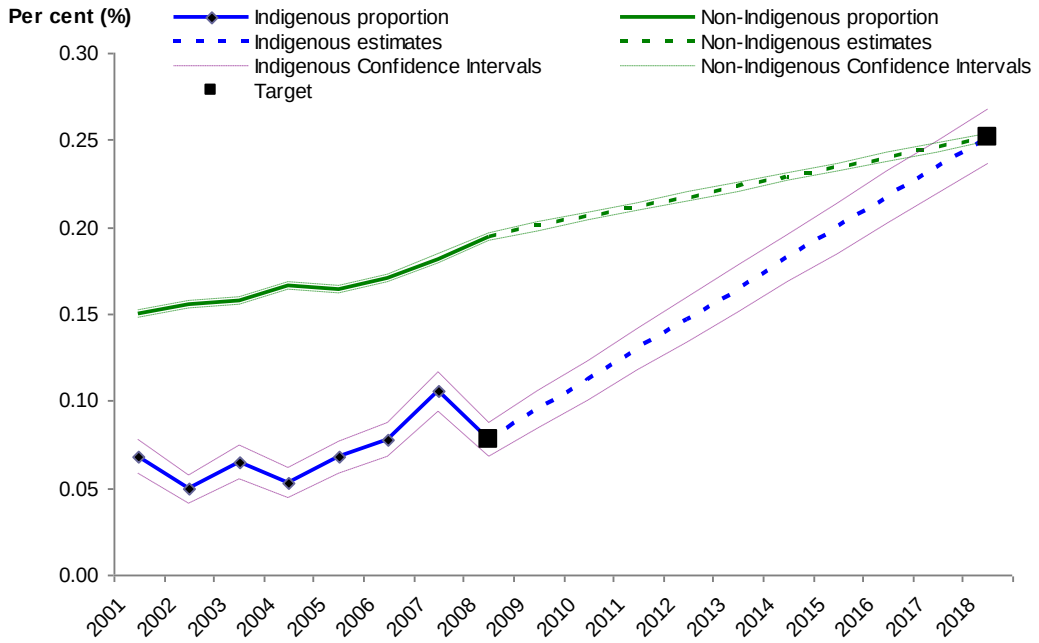
Source: NIHEC 2011:75.

Figure 5: Higher education university health-related course completion rate trends to 2018 based on trend required to halve the gap



Source: NIHEC 2011:76.

Figure 6: Higher education university health-related course completion rate trends to 2018 based on trend required to close the gap

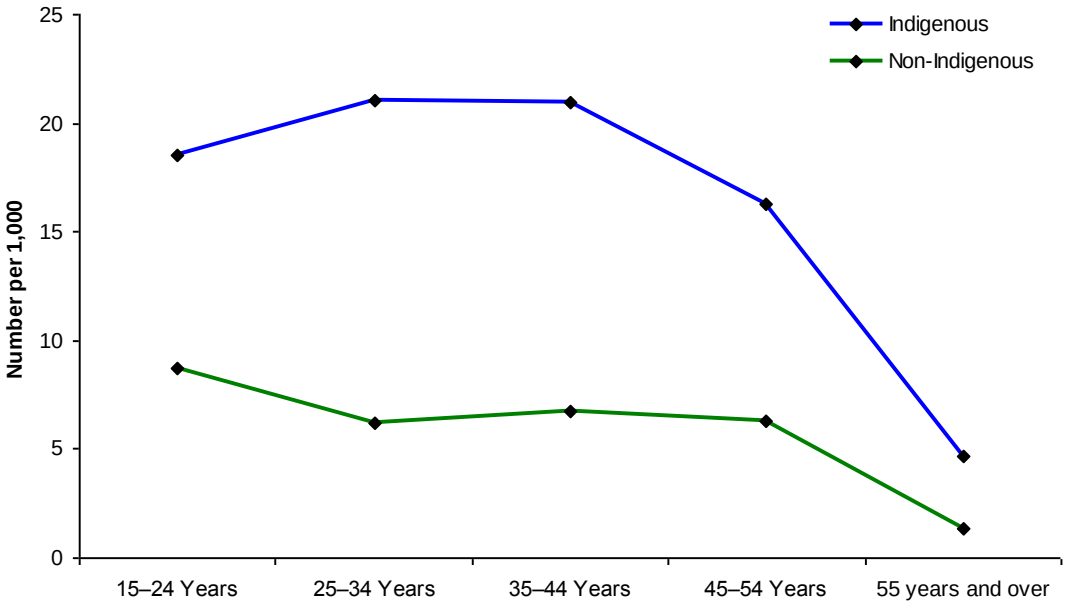


Source: NIHEC 2011:77.

Indigenous Australians, the VET sector and the health sciences

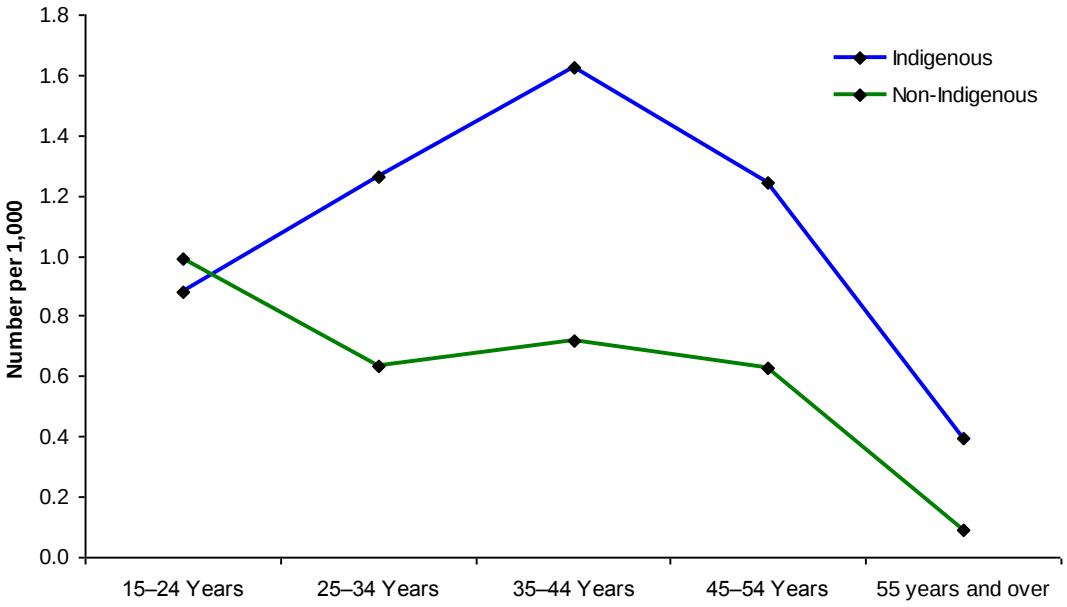
The participation pattern for Indigenous students in the VET sector is very different from the higher education sector. The highest proportions of Indigenous students studying and completing health-related courses are in the VET sector. In 2007 Indigenous students accounted for 6% of enrolments and 3% of health-related completions across the sector (with enrolment rates of 187 per 10,000 compared to 73 per 10,000 and completion rates of 12 per 10,000 compared to 7 per 10,000). In 2007 the most popular health-related course for Indigenous students was public health (3661 enrolments and 223 completions), followed by nursing (405 enrolments and 82 completions). Training for Aboriginal and Torres Strait Islander health workers, the second largest Indigenous occupational group in the sector, is provided with the VET sector. Notwithstanding, the load pass rate (which is a measure of the extent to which students pass assessment in an assessable module or unit of competency) is lower for Indigenous students. In 2006 the VET load pass rate for Indigenous students studying health-related courses was 67%, compared to 80% for non-Indigenous students. The age distribution for enrolments and completions of health-related courses within the VET sector is represented in Figures 7 and 8.

Figure 7: Age-specific health-related course enrolment rates for Indigenous vocational education and training sector students by age group, 2007



Source: NIHEC 2011:22.

Figure 8: Age-specific health-related course completion rates for Indigenous vocational education and training sector students by age group, 2007



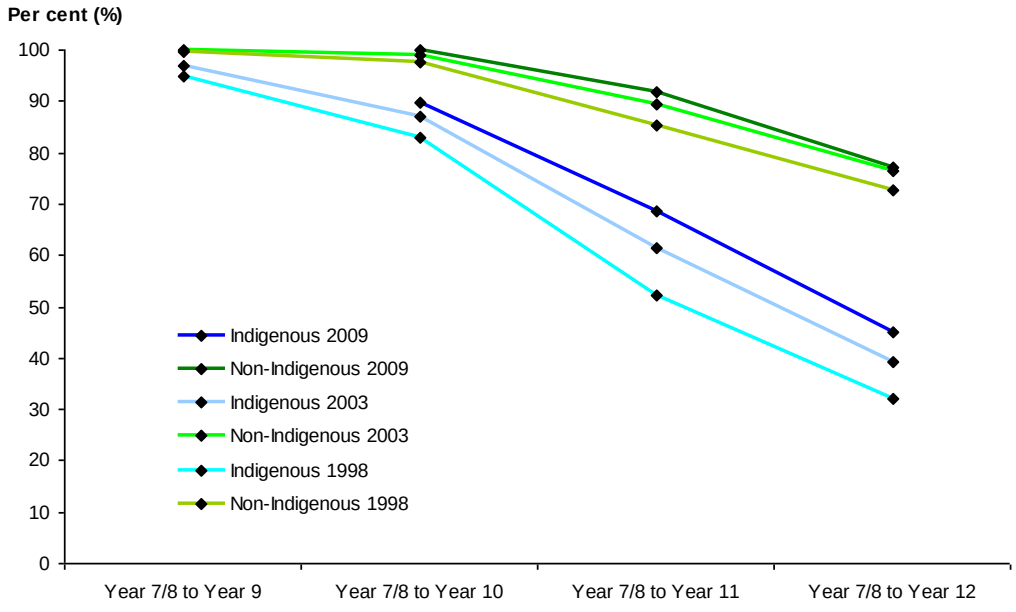
Source: NIHEC 2011:22.

Indigenous Australians, higher education and the secondary school pipeline

The relative disadvantage for Indigenous secondary school students is well documented. In 2007 national data indicated the apparent retention rate was 42.9% for Indigenous students in Years 7/8, having increased from 40.6% in 2006 and 32.1% in 1998 (ABS & AIHW 2008). The apparent retention rate is the percentage of full-time students of a given cohort group who continue from the first year of secondary schooling to a specified year level. The gap widens in the senior years (with a 9.2% point difference at Year 10 and a 32.7% point difference by Year 12 in 2007). Data published by the National Indigenous Health Equality Council demonstrate the improvement in secondary school retention (Figure 9).

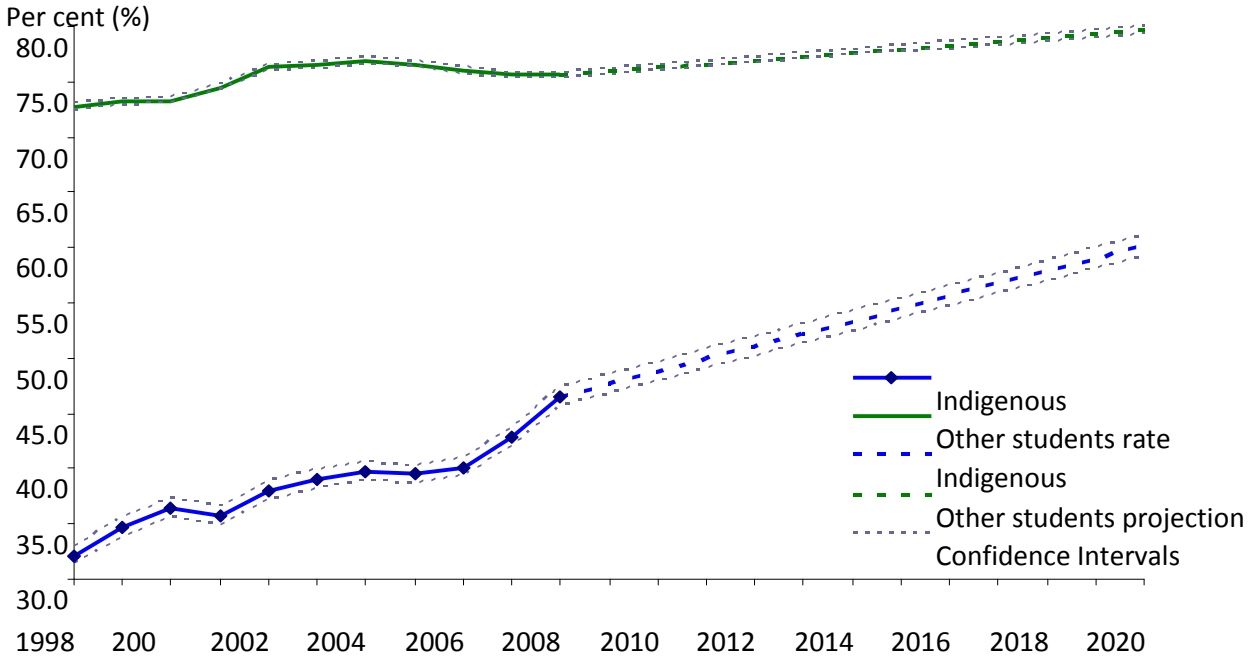
The retention of Indigenous students until Year 10 from Years 7/8 has been improving, although it continues to remain below that of the total student populations in 2008 (89% compared to 99.8% in 2008). The analysis of schools retention data produced by NIHEC suggests that if the current trend continues, the gap between Indigenous and other Year 10 students' retention rates would narrow and almost close by 2020 (0.5%). However, although the apparent retention rate from Year 7/8 to Year 12 for Indigenous students has also been improving, a significant gap (20 percentage points) would remain if the current trend continues to 2020 (with apparent retention rates of 60% compared to 80%). The NIHEC analysis illustrates the difference between the outcomes based on current trends and the trend that would be required to close the gap by half (Figure 10 compared with Figure 11). Figure 12 shows the trend that would be required to close the gap.

Figure 9: Year 7/8 apparent retention rates by Indigenous status, 1998, 2003 and 2009



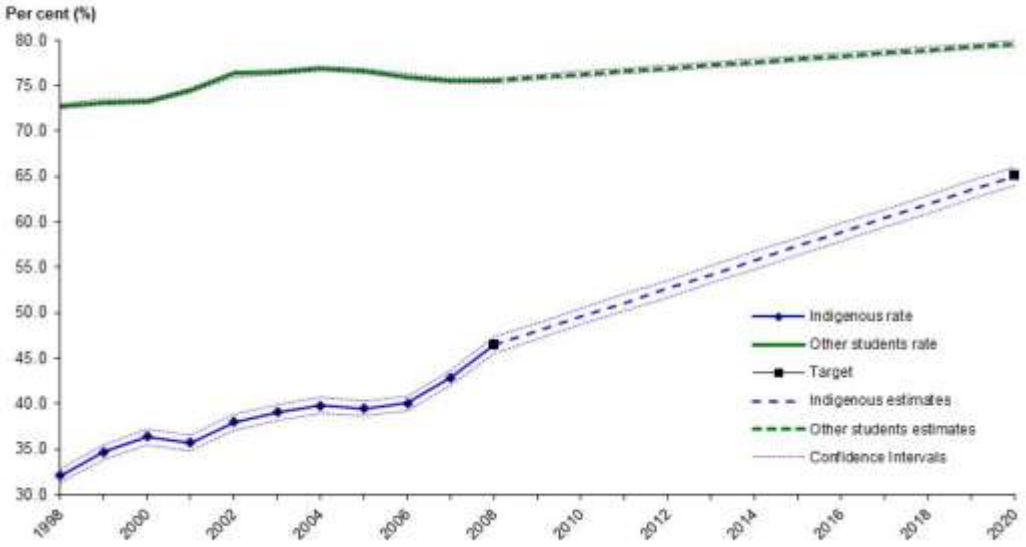
Source: NIHEC 2011:18.

Figure 10: Year 12 apparent retention rates (Indigenous and non-Indigenous) 1998 to 2008 with projections for 2009 to 2020



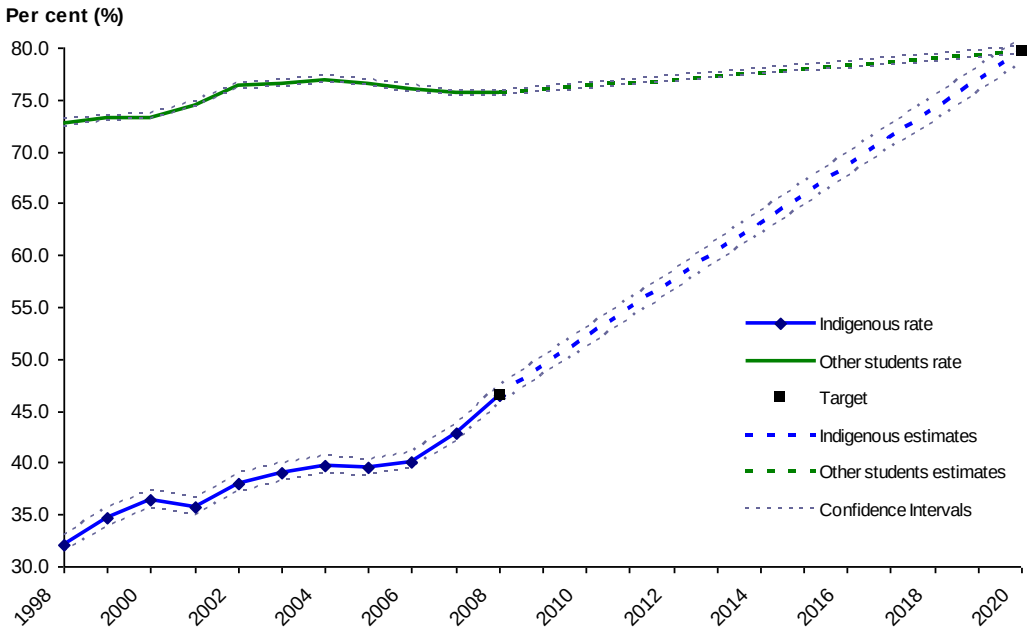
Source: NIHEC 2011:65.

Figure 11: Year 12 apparent retention rates (Indigenous and non-Indigenous) 1998 to 2008 with projections for 2009 to 2020 to halve the gap



Source: NIHEC 2011:66.

Figure 12: Year 12 apparent retention rates (Indigenous and non-Indigenous) 1998 to 2008 with projections for 2009 to 2020 to close the gap



Source: NIHEC 2011:67.

Transition between secondary school and higher education

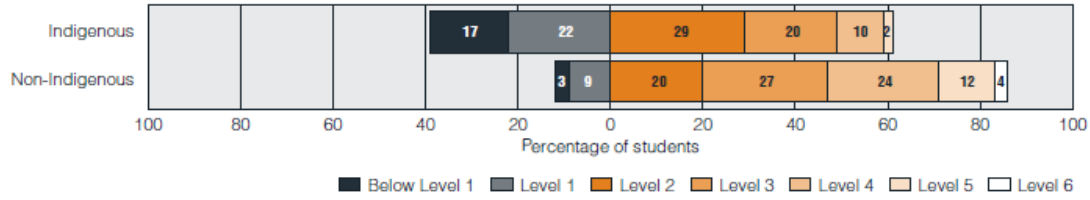
The entry into higher education, and subsequent development of professional pathways, requires a focus on increasing retention into Year 12. However, this is not in itself sufficient to ensure a transition into higher education, nor indeed entry into the professions. One analysis of the educational transition of a cohort of Indigenous students who were 15 years old in 2003 demonstrated that of the 30% of Indigenous students who completed Year 12, only one-sixth made the transition to higher education by the age of 18 (compared with 50% of non-Indigenous Australians who completed Year 12) (Centre for the Study of Higher Education 2008). By comparison, a relatively higher proportion of Indigenous Australian students transition into the VET sector. By the of age 17, when the school participation rate had dropped to 40%, there were more Indigenous students enrolled in VET than in school (Centre for the Study of Higher Education 2008). The pool of Indigenous students transitioning from secondary school to higher education is still relatively small.

A number of factors need to be considered in this regard. Aspirations and knowledge about career options are a significant factor. In a study of Aboriginal secondary school students in New South Wales, Craven *et al.* (2005) demonstrated that significantly more Indigenous students aspire to leave school early and participate in technical education; significantly more non-Indigenous students want to go to university (although Craven *et al.* (2005) also demonstrated that Indigenous students are significantly more likely to value school attendance and get good grades). The data also demonstrated that Indigenous students lacked knowledge of career pathways. Qualitative work that was undertaken as a part of this study with a small group of high-achieving Indigenous secondary school students also suggested that this group of students was not getting accurate career information about educational pathways and prerequisites.

It is also significant that Indigenous Australian students continue to have poorer educational outcomes in secondary school—limiting options in terms of transitioning into higher

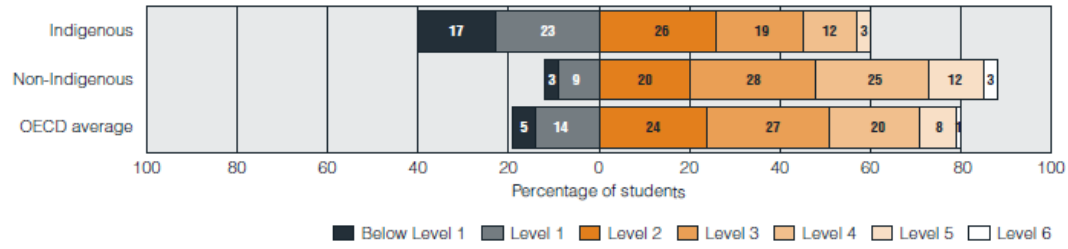
education. The Programme for International Student Assessment (PISA) provides a benchmark for these outcomes. In 2006 the mean PISA score for Indigenous students for reading literacy was 448 (compared with 531 for non-Indigenous students); for mathematical literary it was 440 (compared with 526 for non-Indigenous students); and for science literacy it was 434 (compared with 527 for non-Indigenous students) (Craven *et al.* 2005). However, it is not the mean that is most relevant in this context but the relative spread of outcomes compared with non-Indigenous students. So although a significant number of Indigenous Australian students actually achieved a high proficiency in reading, mathematical and scientific literacy, there is a significant gap between the best performing Indigenous students and non-Indigenous students at the top end of the distribution curve. Although we need to continue our focus on strategies to address under-performance, the development of the higher education pathway also requires a focus on supporting those students at the top end of the distribution curve to excel. In reading and mathematics literacy, almost two-thirds (61%) of Indigenous students performed at or above base level compared to 87% of non-Indigenous students (NIHEC 2011). This is illustrated in the following distribution curves for the PISA outcome in mathematics and science literacy (Figures 13 and 14, reproduced from NIHEC 2011).

Figure 13: Maths literacy distribution curve PISA 2006



Source: NIHEC 2011:17.

Figure 14: Science literacy distribution curve PISA 2006



Source: NIHEC 2011:17.

Conclusion: implications for policy

There is a significant challenge for Indigenous higher education policy in relation to the development of pathways into the professions. This has a significant implication for the structure of the Indigenous workforce and its composition relative to the total Australian population. It is arguably one of the factors that impacts on the relative distribution of the Indigenous workforce across the different industry sectors. It is arguably also a factor that impacts on the development of Indigenous social policy and its implementation, and the development of political leadership. It has a direct relationship with Indigenous economic strategy insomuch that the success of Indigenous strategy depends on the development of a

cohort of Indigenous professionals. It should be conceptualised within a broader framework of Indigenous social and economic development and as a part of a comprehensive Indigenous human capital strategy.

Significantly, the analysis of the available trend data suggests that increased effort is needed if we are to achieve the targets set by the Council of Australian Governments (to halve the gap for Indigenous students in year 12 attainment or equivalent attainment rates by 2020) and other workforce targets such as those set by NIHEC in relation to Indigenous participation in the health professions.

Strategies to improve access for Indigenous Australians into higher education need to be nested within a broader and more robust Indigenous higher education strategy. There are many elements of this broader strategy that do not need to be detailed in this context, such as the need to focus at an institutional level on improving completion rates for Indigenous Australians across all disciplines. There are, however, two significant pipelines that require development in relation to the professions: the secondary school pipeline and the workforce pipeline (through the VET sector). The approach to the development of these pipelines needs a particular contextualisation with respect to professional pathways.

Interventions

The Secondary School Pipeline

The secondary school pipeline is important in relation to the professions because the ability to progress through the professions is cumulative—building on both the graduate professional experience and the opportunities provided for new graduates in terms of graduate training programs. These opportunities build over the career lifecycle—and the longer the career lifecycle, the more likely it is that Indigenous Australians will be able to develop leaders within their professions. It is imperative that the transition from Year 12 to higher education and professional education is improved in order to optimise the outcomes offered by having a robust Indigenous professional class.

Interventions to develop the secondary school pipeline, although building on strategies to increase secondary school retention to Year 12, must also focus on increasing the size of the cohort of Indigenous students transitioning directly from secondary school to higher education and developing strategies that enhance academic outcomes at the top of the distribution curve. It is this cohort of students that needs additional academic development in order to become competitive by the end of Year 12 and to successfully transition into higher education.

Aspiration building and leadership

Educational interventions in the upper secondary school sector need to move beyond a focus on remediation alone. We need strategies to support the development of leadership capabilities and aspirations among Indigenous students with academic potential, their families and communities, and schools. This is also likely to involve the development of interventions to bring the university into the lives of many people who have not had this experience within their extended families. It may also involve the development of interventions in order to transform the impact of careers counselling and other schools-based support on outcomes for Indigenous students. These interventions should be conceived as a part of series of structured engagements that strengthen the career development and advancement of a cohort of emerging Indigenous leaders from school and in early to mid career, with mentors from the professions and others in leadership positions. There may also be some value in investing in the development of learning and leadership cohorts that bring Indigenous students together at a regional and jurisdictional level.

Universities have a pivotal role to play in this educational space. Aspiration building requires some form of university presence in the lives of Indigenous students who are considering options about post-secondary pathways. This is particularly the case for students who are the first in their families to enter university. Universities also have access to specialist expertise that can be brought to bear on the development of innovative programs and are also able to engage, where appropriate, Indigenous students and alumni in program delivery. However, these initiatives also require a collaborative framework and partnership structure that effectively links university, community structures and secondary school education providers.

VET Sector and Workforce Pipelines

Notwithstanding the importance of the secondary school pipeline, the VET sector connection and the pathways for the existing Indigenous workforce into higher education and the professions continue to be important. Indigenous Australians are over-represented in the VET sector and there are existing workforce members across a range of service delivery structures who are trained within this sector, have practice experience and who need professional development opportunities. Aboriginal dental nurses, health workers, teaching assistants and paralegal professionals who are to transition directly into higher education programs are likely to require the development of specific educational transition programs. The feasibility of the development of these interventions would need investigation, as would the resourcing of these programs. These programs need to be developed within universities and require an investment in resources outside the scope of current existing program structures.

The development of this pipeline requires Universities to identify possible pipeline interventions, undertake the feasibility work and market testing and develop tailored educational programs that enable the transition into the relevant professional programs. The market analysis and priority setting processes to support these interventions could be more effectively undertaken at a regional or national level. It is unlikely that these programs will be developed and implemented within the current funding envelope for the higher education sector.

Math and Sciences Capabilities

- Academic development strategies need to focus, in particular, on maths and science literacy, as success in these disciplines is critical for access into a cluster of professional fields in which Indigenous Australians are significantly under-represented (accounting and commerce, engineering, veterinary science etc.). There are three critical elements to the development of the science and maths pathway.
- These are fields of study that need to be more attractive for Indigenous students. Interventions are needed which engage students in these study fields. There are a number of programs that have been designed with these aims for the broader student population. More should be done to ensure that these programs are appropriately reconfigured in order to reach or target Indigenous students.
- Interventions are required which support the development of maths and science capabilities for those Indigenous students who are engaged with these fields of study but who are not yet achieving the academic outcomes to transition into higher education programs that require these fields of study as prerequisites. The development of these require additional work in order to test the feasibility of such programs, their educational strategy and the organisational model required for their delivery.
- Interventions are required that support the development of maths and science capabilities for those secondary school student and adults who transition into higher education but who require additional development of these capabilities in order to succeed in the program in which they are enrolled. The relevance or adequacy of existing models, such as the Indigenous Tutorial Assistance Scheme, for these fields of study needs to be investigated.

Institutional Arrangements

The development of professional pipelines for Indigenous Australian requires the development of a set of enabling institutional arrangements. This includes:

- **Universities:** Will need to refocus their approach to Indigenous student recruitment and support to include interventions that build the secondary school cohort (including aspiration and leadership building programs) and the VET and workforce pipelines. This requires partnerships with the schools and VET sector and Indigenous communities. Internally, the organisational arrangements for Indigenous strategy need to support and build leadership at a Faculty level. The relationships between the professional Faculties, professional bodies (including Indigenous professional bodies) provide the critical components for sustained change.
- **Professional bodies:** Provide significant external leverage. Leadership within professional bodies create an environment, which supports the re-allocation of resources and priorities within University faculties. The development of an Indigenous focus within accreditation systems provides additional leverage. Indigenous professional bodies also play a significant role both through advocacy and the provision of strategic and technical advice.

Policy settings

In order to create an enabling context, work needs to be undertaken to develop a more coherent policy framework that connects:

- **Indigenous schools strategy and higher education strategy**. There is an absence of national agreed strategies that focus on the upper secondary pipeline beyond broad reference to improving retention to Year 12. These are needed in order to establish the institutional priorities and interventions outlined above and to create the necessary collaborative environment.
- **Indigenous social policy and higher education strategy**. Indigenous social policy, to varying degrees, elaborates strategies to develop relevant components of the Indigenous workforce in general and the Indigenous professional workforce in some instances. However, these social policy priorities are not reflected in higher education strategy. More significantly, there is no mechanism for institutionalising these priorities in the university sector. The consequences of this are significant because they create a significant risk for Indigenous social policy through the relative under-investment in Indigenous human capital. The bigger the investment in Indigenous development, the more this risk grows.
- The development of **workforce strategy within Indigenous social policy** to provide scaffolding for those elements of higher education strategy that relate to the professions. This is critical because there is a synergistic relationship between social policy in relation to professional accreditation requirements, service quality and standards systems, curricula reform, leadership within professional structures and Indigenous professional bodies, and higher education policy. However, these synergies are not possible if the Indigenous higher education system does not engage with social policy priorities.
- **An Indigenous higher education performance measurement framework**. The development of a robust system-level performance measurement framework for Indigenous higher education is needed in order to monitor progress, refine strategy and signal priorities across the sector. This framework should also align with the broader social policy workforce objectives and should include the routine reporting of occupational data, including data on priority professions. Data should also be included on system-level enrolments, completions, attrition rates and success rates by fields of study and also for priority disciplines and professions.
- **Funding systems for Indigenous higher education**, which should provide for the necessary incentives and pricing signals to focus the sector on the development of priority professional pipelines. Consideration should be given to providing the capacity for the sector to retool in order to produce the educational interventions.

Appendix I: Occupational distribution of Aboriginal and Torres Strait Islander people 2006

Occupation 06 (ANZSCO) (OCC06P) Level 1	Occupation 06 (ANZSCO) (OCC06P) Level 2	Employment Counts Indigenous	Employment Counts Non-Indigenous	Employment Counts Total	Employment Counts Total (plus Indigenous status not stated)	Employment Distribution Indigenous	Employment Distribution Non-Indigenous	Employment Distribution Total	Percent of Employment
Professionals	Arts and Media Professionals	1,323	66,985	68,308	68,753	1.1%	0.8%	0.8%	1.9%
	Business, Human Resource and Marketing Professionals	2,944	440,545	443,489	445,522	2.4%	4.9%	4.9%	0.7%
	Design, Engineering, Science and Transport Professionals	1,113	243,564	244,677	245,910	0.9%	2.7%	2.7%	0.5%
	Education Professionals	3,649	393,988	397,637	399,662	3.0%	4.4%	4.4%	0.9%
	Health Professionals	2,100	343,539	345,639	347,595	1.7%	3.9%	3.8%	0.6%
	ICT Professionals	351	144,217	144,568	145,128	0.3%	1.6%	1.6%	0.2%
	Legal, Social and Welfare Professionals	2,148	126,488	128,636	129,239	1.7%	1.4%	1.4%	1.7%
	Professionals, nfd	214	23,855	24,069	24,197	0.2%	0.3%	0.3%	0.9%
Clerical and Administrative Workers	Clerical and Administrative Workers, nfd	43	4,123	4,166	4,198	0.0%	0.0%	0.0%	1.0%
	Clerical and Office Support Workers	1,701	90,475	92,176	92,822	1.4%	1.0%	1.0%	1.8%
	General Clerical Workers	3,572	254,680	258,252	259,999	2.9%	2.9%	2.9%	1.4%
	Inquiry Clerks and Receptionists	2,535	199,033	201,568	202,858	2.1%	2.2%	2.2%	1.3%
	Numerical Clerks	1,856	289,341	291,197	292,745	1.5%	3.2%	3.2%	0.6%
	Office Managers and Program Administrators	2,408	184,825	187,233	188,100	2.0%	2.1%	2.1%	1.3%
	Other Clerical and Administrative Workers	2,223	183,225	185,448	186,503	1.8%	2.1%	2.1%	1.2%
	Personal Assistants and Secretaries	905	136,849	137,754	138,579	0.7%	1.5%	1.5%	0.7%
Technicians and Trades Workers	Automotive and Engineering Trades Workers	3,451	291,945	295,396	298,088	2.8%	3.3%	3.3%	1.2%
	Construction Trades Workers	3,624	267,612	271,236	274,098	3.0%	3.0%	3.0%	1.3%
	Electrotechnology and Telecommunications Trades Workers	1,359	161,307	162,666	163,916	1.1%	1.8%	1.8%	0.8%
	Engineering, ICT and Science Technicians	1,155	168,387	169,542	170,535	0.9%	1.9%	1.9%	0.7%
	Food Trades Workers	1,746	125,751	127,497	129,082	1.4%	1.4%	1.4%	1.4%

	Other Technicians & Trades Workers	1,402	165,815	167,217	168,770	1.1%	1.9%	1.9%	0.8%
	Skilled Animal and Horticultural Workers	1,787	84,381	86,168	86,920	1.5%	0.9%	1.0%	2.1%
	Technicians and Trades Workers, nfd	203	17,490	17,693	17,857	0.2%	0.2%	0.2%	1.1%
Managers	Chief Executives, General Managers and Legislators	689	85,305	85,994	86,460	0.6%	1.0%	1.0%	0.8%
	Farmers and Farm Managers	818	174,211	175,029	176,861	0.7%	2.0%	1.9%	0.5%
	Hospitality, Retail and Service Managers	2,241	369,013	371,254	373,927	1.8%	4.1%	4.1%	0.6%
	Managers, nfd	333	48,548	48,881	49,363	0.3%	0.5%	0.5%	0.7%
	Specialist Managers	2,758	510,264	513,022	515,656	2.2%	5.7%	5.7%	0.5%
Labourers	Cleaners and Laundry Workers	6,600	205,719	212,319	215,091	5.4%	2.3%	2.4%	3.1%
	Construction and Mining Labourers	3,948	114,149	118,097	119,306	3.2%	1.3%	1.3%	3.3%
	Factory Process Workers	3,858	200,691	204,549	207,284	3.1%	2.3%	2.3%	1.9%
	Farm, Forestry and Garden Workers	4,642	90,380	95,022	96,091	3.8%	1.0%	1.1%	4.9%
	Food Preparation Assistants	1,977	112,731	114,708	116,031	1.6%	1.3%	1.3%	1.7%
	Labourers, nfd	2,504	19,539	22,043	22,480	2.0%	0.2%	0.2%	11.4%
	Other Labourers	5,602	169,018	174,620	176,245	4.6%	1.9%	1.9%	3.2%
Sales Workers	Sales Assistants and Salespersons	5,916	572,376	578,292	583,465	4.8%	6.4%	6.4%	1.0%
	Sales Representatives and Agents	767	168,633	169,400	170,485	0.6%	1.9%	1.9%	0.5%
	Sales Support Workers	1,582	136,879	138,461	139,559	1.3%	1.5%	1.5%	1.1%
	Sales Workers, nfd	21	2,637	2,658	2,695	0.0%	0.0%	0.0%	0.8%
Community and Personal Service Workers	Carers and Aides	9,031	290,392	299,423	302,093	7.4%	3.3%	3.3%	3.0%
	Community and Personal Service Workers, nfd	56	748	804	814	0.0%	0.0%	0.0%	7.0%
	Health and Welfare Support Workers	3,979	83,408	87,387	87,931	3.2%	0.9%	1.0%	4.6%
	Hospitality Workers	2,344	178,460	180,804	182,439	1.9%	2.0%	2.0%	1.3%
	Protective Service Workers	2,143	114,349	116,492	117,325	1.7%	1.3%	1.3%	1.8%
	Sports and Personal Service Workers	1,158	109,380	110,538	111,301	0.9%	1.2%	1.2%	1.0%
Machinery Operators and Drivers	Machine and Stationary Plant Operators	2,972	160,133	163,105	164,995	2.4%	1.8%	1.8%	1.8%
	Machinery Operators and Drivers, nfd	223	9,918	10,141	10,282	0.2%	0.1%	0.1%	2.2%
	Mobile Plant Operators	1,885	91,322	93,207	94,141	1.5%	1.0%	1.0%	2.0%
	Road and Rail Drivers	3,753	232,115	235,868	238,353	3.1%	2.6%	2.6%	1.6%
	Storepersons	1,181	94,749	95,930	96,846	1.0%	1.1%	1.1%	1.2%
Not stated or Inadequately described	Inadequately described	3,466	85,634	89,100	90,682	2.8%	1.0%	1.0%	3.9%

	Not stated	2,490	69,188	71,678	74,910	2.0%	0.8%	0.8%	3.5%
Total		122,749	8,908,309	9,031,058	9,104,187	100.0%	100.0%	100.0%	

Notes: ICT—Information and communications technology; nfd—not further defined
Source: ABS, 2011.

Appendix II: Aboriginal and Torres Strait Islander people employed in selected health-related occupations, 1996, 2001 and 2006

Occupation (a)	1996	2001	2006	Period linear % change(b)	Rate per 10,000 2006(c)		Rate difference (per 10,000)(d)
					Indigenous	Non-Indigenous	
Aboriginal and Torres Strait Islander Health Worker	667	853	966	44.8*	21.5	n.a.	n.a.
Nurses	1,258	1,123	1,449	15.2*	32.3	121.1	88.8
Registered Nurses[(e)]	640	832	1,111	73.6*	24.7	94.5	69.8
Nurse Managers and Nursing Clinical Directors	20	38	56	180.0*	1.2	7.2	6.0
Midwives	27	40	50	85.2*	1.1	6.7	5.6
Enrolled and mothercraft nurses	564	202	215	–61.9*	4.8	10.5	5.7
Nurse Educators and Researchers	7	11	17	142.9*	0.4	2.1	1.7
Medical practitioners	61	90	101	65.6*	2.2	30.2	28.0
Generalist medical practitioners	41	57	82	100*	1.8	19.7	17.9
General medical practitioner[(f)]	29	47	61	110.3*	1.4	16.4	15.0
Resident medical officer	12	10	21	75.0*	0.5	3.3	2.8
Other medical practitioners[(g)(h)]	20	33	19	–0.5	0.4	10.5	10.1
Allied health professionals	179	274	441	146.4*	9.8	36.0	26.2
Dietitians	n.p.	18	7	n.p.	0.2	1.4	1.3
Optometrists	n.p.	n.p.	8	n.p.*	0.2	1.7	1.5
Psychologists[(i)]	13	19	43	230.8*	1.0	7.4	6.4
Physiotherapist	16	29	54	237.5*	1.2	6.7	5.5
Podiatrist	6	8	6	0	0.1	1.1	1.0
Speech professionals and audiologists	7	10	17	142.9*	0.4	2.7	2.3
Occupational therapist	n.p.	n.p.	13	160.0*	0.3	3.8	3.5
Social Worker	113	166	269	138.1*	6.0	6.7	0.7
Other health therapy professionals[(h)]	12	12	24	143.4*	0.5	4.6	4.0
Dental and dental allied workforce	147	155	205	39.5*	4.6	16.1	11.6
Dental practitioner	12	13	15	25.0*	0.3	4.5	4.2
Dental hygienists, technicians and therapists	18	17	19	5.6	0.4	3.3	2.9
Dental assistant	117	125	171	46.2*	3.8	8.3	4.5
Health diagnostic and promotion professionals	164	185	638	289.0*	14.2	22.4	8.2
Medical Imaging Professionals	7	14	19	171.4*	0.4	5.6	5.2
Pharmacists	6	10	9	50.0*	0.2	8.4	8.2
Occupational Health and Safety Adviser	22	25	50	127.3*	1.1	3.7	2.6
Health promotion officers[(j)]	n.a.	n.a.	438	n.a.	9.8	1.9	–7.9
Environmental health officer	122	114	98	–19.7*	2.2	2.1	–0.1
Other health diagnostic and promotion professionals[(h)]	7	22	24	242.9*	0.5	0.7	0.2
Other	895	1324	1736	94.0*	38.7	71.9	33.3
Health service managers	21	n.p.	17	19.0*	2.9	4.6	1.6

Nursing support worker and personal care workers[(k)]	579	808	974	68.2*	21.7	31.0	9.3
Ambulance officers and paramedics	49	83	153	212.2*	3.4	4.6	1.2
Drug and alcohol counsellor	80	96	117	46.3*	2.6	0.7	–1.9
Other[(h)]	166	n.p.	475	186.1*	8.0	31.0	23.0
Total health occupations[l]	**3,371**	**4,004**	**5,536**	**64.2***	**123.3**	**297.8**	**174.6**

* represents results that are statistically significant

n.a. not available

n.p. not published (data cannot be released due to quality issues and confidentiality)

Numbers less than 5 are considered too unreliable for general use due to the impact of randomisation of small cell values to avoid the release of confidential data.

(a) Occupation classification is based on 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO) codes. Classification codes for 1996 and 2001 were mapped to fit that of 2006 and may not be directly comparable across the three census years. Table 11 includes a detailed breakdown of occupations.

(b) Per cent change between the reporting periods 1996 and 2006 based on the average annual change over the period.

(c) Rate per 10,000 measures the health workforce available (numerator) to service the population (denominator). Denominator used in rates is the 2006 total population by Indigenous status minus those where occupation is not stated.

(d) Rate difference is non-Indigenous rate minus the Indigenous rate.

(e) Data for 2001 and 2006 include Midwifery and Nursing Professionals not further defined.

(f) Data for 2001 includes Specialist physician (general medicine).

(g) Includes specialists and surgeons—see Table 11.

(h) See Table 11 for detailed breakdown.

(i) Data for 1996 and 2001 are for Clinical psychologist and Psychotherapist. Data for 2006 includes Clinical psychologist, Psychotherapist, Educational psychologist, Organisational psychologist, Psychologist nfd and Psychologist nec.

(j) Health Promotion Officers could not be identified separately in 2001 and 1996 due to different occupation classifications. These were included in Community Workers in 2001 and 1996 and not included in the table.

(k) Includes Therapy aide

(l) For some occupations, such as Nurses, Medical Practitioners, and Pharmacists, there are slight differences between the 2006 figures in this table and those in the Health and Community Services Labour Force 2006, and the Aboriginal and Torres Strait Islander Health Labour Force Statistics and Data Quality Assessment reports. These discrepancies are due to the impact of aggregating randomised data from data sets with different small cell distributions and the use of different occupation classifications (in the case of the second report).

Source: AIHW analysis of the ABS census data.

Source: NIHEC 2011:10–11.

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