Deloitte.
Access Economics

The future of work
Occupational and education trends in nursing in Australia

308,000

Size of Australia's nursing
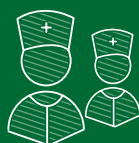workforce in 2016-17

2.8%

Forecast annual growth in nursing
professionals between 2016-17 and 2021-22
(compared to 1.5% p.a. for overall Australian workforce)

Nursing
snapshot

**Demographic and
technological change**

are changing the demands
of the nursing profession

$111,235

Forecast income of nursing professionals
with postgraduate qualification* in 2021-22

* Postgraduate qualification in Nursing field of education.

Population ageing and the rising morbidity of chronic disease means that demand for nursing skills is on the rise.

Australia is currently facing a long-term labour shortage of nurses, with a projected shortfall of approximately 85,000 nurses by 2025.

– Health Workforce Australia, 2014

As an important part of the healthcare system, nurses may need to take on more complex and specialised roles in order to manage patient care, both in hospitals and across broader community settings. The nursing workforce is also being affected by new health technologies that are changing the nature of healthcare provision, enabling real-time patient monitoring and analytics.

In this context, Deloitte Access Economics has been commissioned to examine how occupational and education trends are developing across the nursing workforce in Australia. This report seeks to provide forward looking insights on how the nature of work and study in nursing are evolving as a result of ongoing changes to the economic, business and labour market landscape.

The research presented in this report has been developed through a mix of analysis of publicly available data and information sources, targeted consultations with academics and university program directors, and employment forecasting using Deloitte Access Economics' macroeconomic modelling framework.

How are broader trends specifically affecting the nursing area?

Changing population demographics
Demographic change both in the Australian population and globally is expected to sustain growing demand for nursing skills and qualifications in the future, and factors such as ageing populations and increasing prevalence of chronic diseases and mental illnesses will drive increased demand for nursing care. The demand for nurses arising from this demographic change will also require adaptations in the skill mix of the nursing workforce, as the growing chronic disease burden means that there will be further need for nurses to be better utilised in specialist roles, such as in overseeing patients' chronic disease management programs (Department of Health, 2017). At the same time, nurses will continue to use generalist care capabilities and skills given their role in an increasingly multi-disciplinary healthcare team.

Australia is currently facing a long-term labour shortage of nurses, with a projected shortfall of approximately 85,000 nurses by 2025 (Health Workforce Australia, 2014). Nursing care can be provided both in hospitals and in more generalised community settings, and nurses form the basis of primary healthcare services provision in many rural and remote areas where there is otherwise limited access to health services. This requires nurses to be more independent in their decision making and, as outlined in Box A, may see nurses employed in these areas taking on an expanded set of roles within the healthcare system.

The growing chronic disease burden means that there will be further need for nurses to be better utilised in specialist roles.

Box A: Growing skills requirements in the nursing workforce

The nursing workforce represents a significant component of the broader healthcare system, and population ageing trends will see this workforce continuing to play a critical role in providing health services. As part of our research, Deloitte Access Economics spoke with Dr John Smithson, Senior Lecturer and Deputy Head, Nursing and Midwifery and Nutrition at James Cook University (JCU), in relation to how the skills demanded of nursing professionals are evolving.

John believes that an **adaptation in nursing roles and responsibilities will be required in order to fulfil the needs of an ageing population and other demographic changes.** It may be difficult to meet the expected increase in demand for health-related services due to labour shortages in other segments of the healthcare professional workforce, and the size and comparatively broad knowledge and skill base of the nursing workforce means that they are in a good position to fill this difference between demand and supply of healthcare. The growing demand for healthcare skills and capabilities may also result in a greater hierarchical distribution being established and/or applied in the workforce, such as having less qualified nursing assistants to support the work of enrolled and registered nurses, in order to ensure that patient care tasks are effectively allocated and completed. This trend is already being observed in the disability and aged care sectors, and will require increasing collaboration and teamwork between nurses in different areas.

According to John, **nurses who are trained to deliver advanced practice clinical care also play a critical role in Australia's rural and isolated areas and other potentially underserviced locations** such as metropolitan nursing homes, as they often represent the primary care workforce and therefore assume increased responsibility for managing the daily care needs of patients in these settings. These more independent roles require nursing professionals to have skills and knowledge in advanced care and extended practice, as in such cases where there is reduced availability of other medical services (e.g. shortage of GPs), nurses may provide elements of healthcare that patients may otherwise be unable to access. This can require nurses in rural and more independent practice areas to supplement and/or work in conjunction with the limited medical services that are available. Given the diverse range of care requirements and patient needs that are likely to arise in such contexts, having a mix of generalist and specialist nursing skills is particularly important for these roles.

Increased availability of patient and clinician data stored in electronic health and medical records will also require nurses to develop skills in data management.

Technology and innovation

Another trend that is impacting the healthcare sector more broadly is the emergence of health and information technologies. These new digital tools are changing the way that nursing care is delivered to patients, releasing constraints on who can deliver care and where it can be delivered. For example, wearable devices and biometric sensors are allowing patients to practice self managed care at home and receive care outside of hospital settings. These technologies allow health professionals to remotely monitor patient health by collecting data on key metrics such as heart rate, blood pressure, activity level and sleep patterns (Risling, 2016).

The public health system is responding to this digital disruption through its strategic long-term planning. For example, in NSW, the *Telehealth Framework and Implementation Strategy 2016-2021* identifies six priority areas aimed at "embedding sustainable telehealth services into the NSW Health system [which] will support delivery of patient-centred care in the right place, at the right time" (NSW Ministry of Health, 2016). These include building telehealth into clinical practice, identifying and investing in new technologies and infrastructure, and providing training and change management to develop staff capabilities and advise on best practice.

As the healthcare delivery system is transformed by digital disruption, **nurses will need to engage with patients in new ways and through different channels, including by learning how to operate and oversee relevant technologies both for their own use and to educate patient cohorts.** The increased availability of patient and clinician data stored in electronic health and medical records will also require nurses to develop skills in data management, as well as greater collaboration and interoperability between nurses and primary healthcare workers (Risling, 2016). This data may be used in a wide range of health and medical settings, such as predictive analytics to forecast patient demand and support medical decisions including diagnosis, intervention and triaging of care.

The increased use of technology and data in the healthcare sector means that **patient privacy and data security issues could potentially be of increasing concern for nursing professionals in the future.** According to Australian College of Nursing CEO Kylie Ward, this makes the case for digital literacy in health even more pressing: "we'll end up with a divide if we're not careful... we'll leave behind a whole group of our workforce who doesn't have the knowledge [of digital technology and its applications] and the gap will get larger and larger" (Australian Nursing & Midwifery Federation, 2016). Reflecting this growing skills requirement, the Australian Nursing and Midwifery Accreditation Council has revised its accreditation to include informatics education in undergraduate courses, universities have subsequently integrated informatics into their nursing curricula (Australian College of Nursing, Health Informatics Society of Australia, Nursing Informatics Australia, 2017).

Which nursing occupations are relevant for our analysis?

In order to provide a snapshot of the workforce growth potential associated with the nursing area, Deloitte Access Economics has identified a series of occupations that could represent job opportunities for workers with skills and qualifications in the nursing field.[1] Since our research aims to evaluate further study in the nursing area, the specified occupations are targeted towards roles that would be suitable for employees who have completed postgraduate study, rather than entry-level roles with lower skills and qualification requirements.

The following occupations have been identified using the Australian and New Zealand Standard Classification of Occupations (ANZSCO) as representing potential employment opportunities in the nursing area:

- Midwives
- Nurse Educators and Researchers
- Nurse Managers
- Registered Nurses
- General Manager (Health Care and Social Assistance industry).

The analysis that follows on future workforce growth and the benefits of further study in the nursing area are based on this list of occupations. We note that while these occupations have been identified on the basis of being relevant to job opportunities for individuals with nursing skills and qualifications, not every worker employed in these occupations will necessarily have a specific nursing qualification. This list of occupations therefore outlines the broad pool of potential employment opportunities in the nursing area across different parts of the workforce, rather than a one-to-one representation of the jobs that employ nursing graduates.

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1. The occupations have been identified at the 4-digit level based on the Australian Bureau of Statistics' detailed occupation descriptions in the *Australian New Zealand Standard Classification of Occupations: First Edition* (ABS 2006), as well as consultation with university academics and subject matter experts, and research published by relevant industry associations and other publicly available materials.

What is the future growth potential of the nursing workforce?

The Australian nursing workforce is forecast to see sound growth in the next five years. Aggregating the nursing occupations identified above, Deloitte Access Economics projects the relevant workforce will grow from 308,000 persons in 2016-17 to 354,000 persons in 2021-22, an increase of around 46,000 workers at an annual average growth rate of 2.8% (Chart 1).[2]
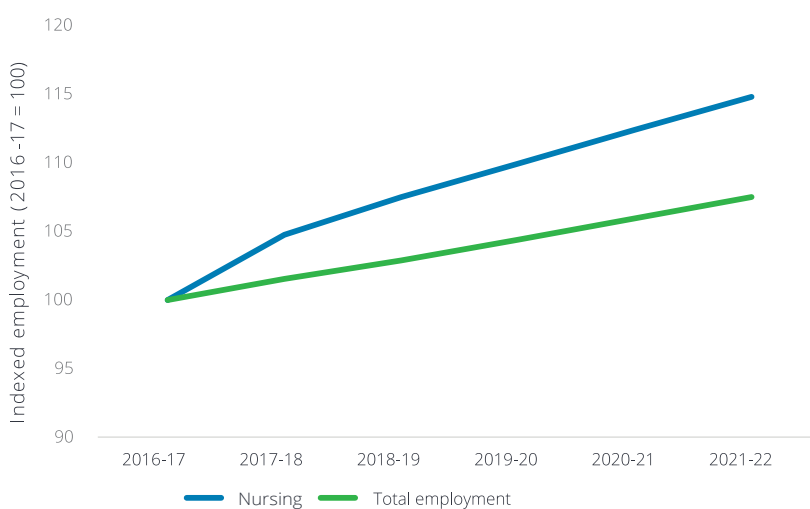
Chart 1: Nursing employment forecasts, 2016-17 to 2021-22
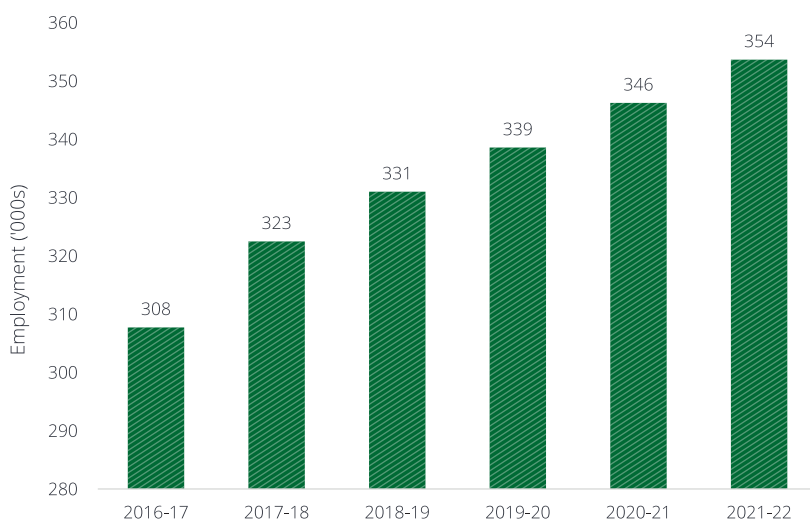
Source: Deloitte Access Economics (2017)

The nursing workforce is expected to see stronger growth than the Australian labour force as a whole, where employment is forecast to grow at an average of 1.5% per annum over the next five years (Chart 2).

Chart 2: Nursing employment and total employment, 2016-17 to 2021-22

Source: Deloitte Access Economics (2017)

2. The nursing workforce forecasts for this report have been produced using the Deloitte Access Economics' Macro (DAEM) modelling framework, a macroeconometric model of the Australian economy. For the purposes of this research, employment projections at the 4-digit ANZSCO level have been smoothed using a three-year moving average, in order to provide workforce forecasts that are more reflective of trend jobs growth.

Table 1 provides a breakdown of Deloitte Access Economics' employment forecasts for the nursing workforce by the component occupations. Demand for registered nurses is expected to grow by 41,000 people over the next five years, at an annual growth rate of 2.9% – which also represents the strongest forecast growth rate across these occupations. The overall positive outlook for labour market demand in these nursing occupations is expected to be supported by the labour intensive nature of economic activity in the healthcare sector and the demographic trend towards an ageing population.

Demand for registered nurses is expected to grow by 41,000 people over the next five years.

Table 1: Nursing employment forecasts by occupation, 2016-17 to 2021-22

Occupation	2016-17 (000s)	2021-22 (000s)	Change in employment (000s)	Average annual growth rate (%)
Midwives	16.4	18.6	2.2	2.6%
Nurse Educators and Researchers	6.8	7.4	0.6	1.7%
Nurse Managers	15.6	17.3	1.7	2.1%
Registered Nurses	265.4	306.4	41.0	2.9%
General Manager (Health industry)	3.6	4.1	0.4	2.3%
Total Nursing	**307.8**	**353.7**	**45.9**	**2.8%**

Source: Deloitte Access Economics (2017)

Additional study in the nursing area can enable workers to develop advanced knowledge and skills which can accelerate their progression to leadership roles.

How can further study benefit workers in nursing occupations?

Increased earning potential

Conventional economic theory suggests that workers who undertake further study are able to realise higher wages in the labour market. From a human capital perspective, education is an important determinant of the overall productivity of labour, which is then reflected in the wages paid to individual workers. The knowledge and skills derived from education represents an increase in human or intellectual capital, leading to more productive workers who are financially rewarded for their increased efficiency. Furthermore, signalling theory suggests that further study can be a means for individuals to 'signal' their capability to employers, as more capable individuals may be more successful in completing their education.

Recent Deloitte Access Economics research has estimated the impact of a postgraduate qualification on wages, controlling for other factors which may also contribute to earnings differentials at the individual level (such as demographics and experience). While this study did not specifically examine the wages earned by nursing workers, it found that a significant wage premium is attained by workers who have completed postgraduate study in the overall Nursing field of education.[3] Across all workers who studied Nursing at the postgraduate level, an undiscounted lifetime wage premium of 129% relative to workers with no post-school qualifications was found to be directly attributable to having completed the postgraduate qualification (Deloitte Access Economics, 2016).

Looking specifically at the occupations previously identified in the nursing workforce, data from the latest Census suggests that the average annual income earned by postgraduate-qualified workers who studied Nursing in these occupations was $95,391 in 2016-17. In raw terms – without accounting for other factors such as demographics and experience – this was 45% higher than the average 2016-17 income of workers employed in nursing occupations who have no post-school qualifications. The average annual income of nursing professionals with a postgraduate qualification in Nursing is forecast to increase over the next five years, rising to $111,235 in 2021-22.[4]

Broadening career pathways

Further to the increased earning potential, additional study in the nursing area can enable workers to develop advanced knowledge and skills which can accelerate their progression to leadership roles. The shortage of qualified nursing professionals in the Australian labour market, and the increased teamwork and collaboration required between nurses and other medical professionals, means that there are growing leadership opportunities for workers to progress towards more senior roles in the nursing area, as discussed in Box B.

Recent research on postgraduate study undertaken by nurses and midwives in Victoria has found that more than 90% of workers who had completed such qualifications gained higher levels of knowledge, understanding, skills and confidence. Organisations highlighted a number of direct benefits from employing postgraduate-trained nurses and midwives, including improved critical thinking skills, a greater capacity to manage complex care needs, the ability to guide other staff, and knowledge of evidence-based practice and research and how these can impact patient outcomes (Darcy Associates Consulting Services, 2015).

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3. Nursing has been identified as the most relevant field of education for nursing qualifications. The Nursing field of education is represented at the 4-digit level in the Australian Standard Classification of Education (ASCED).

4. Future income has been estimated using annual Wage Price Index growth forecasts from the September 2017 *Business Outlook* (Deloitte Access Economics, 2017).

Box B: Nursing qualifications and career applications

Our consultation with Dr John Smithson from JCU suggests that further study in the nursing area can enable workers to start taking up leadership opportunities at earlier stages in their careers. With an ageing population placing increased pressure on existing health-related services, nurses who are qualified to deliver advanced care and extended practice – as well as those with leadership and management skills – will be in high demand in order to assist in the delivery of healthcare. While some nurses may acquire the necessary skills through years of experience and on-the-job training, postgraduate study can accelerate the acquisition of high demand skills and attributes in areas such as advanced patient assessment, diagnostic reasoning, pharmacology, therapeutics, financial and human resource management, and leadership. This may have the dual benefit of career advancement and improved retention of mid-career nurses in the profession.

The nursing workforce is also ageing. Leadership and management roles in nursing are typically occupied by more experienced (and by virtue, older) nurses. This may create a gap between the number of nurses with sufficient experience and/or educational preparedness and the demand for nursing leaders and managers. According to John, **the senior nurse labour shortage arising as a result of natural attrition (retirement) may be addressed to some extent by postgraduate courses** that develop the critical skills required for more senior nursing roles. In this context, the development of advanced care skills and management capabilities through further study in nursing management and leadership will be necessary to ensure that there are sufficient numbers of suitably qualified workers required to fill these senior roles in the future.

Postgraduate study can accelerate the acquisition of high demand skills and attributes in areas such as advanced patient assessment, diagnostic reasoning, pharmacology, therapeutics, financial and human resource management, and leadership.

– Dr John Smithson,
James Cook University

What are the key takeaways for current and future nursing professionals?

- Population ageing and the rising morbidity of chronic disease are contributing to growing demand for nursing skills in the healthcare workforce, both in hospital and community settings.

- Technological advances are changing the way that nursing care is delivered to patients, releasing constraints on who can deliver care and where it can be delivered.

- This is expected to drive future growth in the nursing workforce, increasing from 308,000 persons in 2016-17 to 354,000 persons in 2021-22. The average annual growth rate of 2.8% is stronger than the 1.5% per annum growth forecast for the entire Australian labour force.

- The average annual income of nursing workers with a postgraduate qualification in Nursing was $95,391 in 2016-17, and this is forecast to rise to $111,235 in 2021-22.

- Further study in the nursing area can also facilitate the development of advanced care skills in more specialised medical functions, which can enable nurses to take up leadership roles at earlier stages of their career.

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