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Unlocking skills in hospitals: better jobs, more care

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Overview

Hospitals are under pressure. They face rising demand, a squeeze on funding and skills shortages in key areas. They have to change.

One problem is that too many health professionals squander their valuable skills on work that other people could do. In most cases, it doesn't take 15 years of post-school training to provide light sedation for a stable patient having a simple procedure. Nor does it take a three-year degree to help someone bathe or eat.

But tradition, professional culture and industrial agreements often dictate that highly-trained health professionals spend their time doing straightforward work. This wastes money, makes professional jobs less rewarding and often does not improve care.

There are many ways that hospitals can get a better match between workers and their work. This report looks at three examples. The first is using more nursing assistants to provide basic care to patients. The second is letting specialist nurses do common, low-risk procedures currently done by doctors. The third is employing more assistants to support physiotherapists and occupational therapists.

These changes can maintain or improve the safety and quality of care. They are among the easiest to take up. Hospitals don't have to be reorganised or new professions created. They would save public hospitals $430 million a year. That could fund treatment for more than 85,000 extra people.

These ideas are supported by solid evidence. They have been tried successfully in Australia, with good results for patients. Hospital CEOs we surveyed for this report strongly support them.

Despite all this, progress is painfully slow. Formidable barriers in the form of regulations, culture, tradition and vested interests stand in the way. We need a new mechanism to overcome these barriers – a way to get from isolated trials to broad change.

Creating that mechanism is even more important than the examples in this report. People may disagree with specific examples. But no-one can argue that all hospital work is done by the right person, or that a good way currently exists to get change throughout the system.

Two things are needed. Hospitals, regulators and professional bodies must improve rules and regulations. State governments must invest money and expertise in spreading good practices.

If we don't update workforce roles, there will be a cost. Hospitals already struggle to provide enough care. Waiting lists are long and demand is growing fast. It's hard to keep some hospital workers in their jobs. Government budgets are also under pressure. If action isn't taken to make hospitals more efficient, tougher decisions about who will miss out on care are inevitable.

Current workforce roles were designed in the days of the horse and buggy. The choice to update them should be easy. It means more and better care, more rewarding jobs for hospital professionals and a more sustainable system.

Table of contents

1. Using the skills we have

The most important resource hospitals have is their staff. But too often employees don't get to use their training and skills. Instead, millions of dollars are wasted paying highly-skilled professionals to do work that people with less training could do just as well.

If hospitals use skills better, patients and staff will both benefit. The savings of $430 million from the measures we propose in this report can be reinvested in cutting waiting lists, improving the quality of care, funding primary care to reduce hospital demand, or plugging the ever-widening budget gap.

If workers get to use the full range of their skills more often, their jobs will be more rewarding and satisfying. In turn, they might stay in their jobs longer, reducing the disruption and cost of staff turnover.[1]

It is essential to address this problem now. Demand for care is growing. The population is ageing and people spend more time with health problems at the end of their life.[2] Chronic conditions are also on the rise. By 2025 three million Australians will have diabetes.[3]

As the need for care grows, the workforce will shrink. Relative to the number of older people, the working-age population will fall by around half.[4] Making matters worse, it's already hard to keep some workers in the system. About 15 per cent of Australian nurses report that they intend to leave nursing in the next 12 months.[5] Many physiotherapists leave clinical practice early in their career.[6]

Growing demand and threats to supply have led Health Workforce Australia to predict severe shortages unless staffing models change. Without changes to staffing models, they predict a shortage of 80,000 registered nurses by 2025.[7]

Some hospital services already have long waiting lists. Almost 20,000 Australians wait more than a year for elective surgery.[8] The wait to access a pain management program can be up to three years.[9] These problems will only get worse if the number of health professionals grows more slowly than demand for their skills.

[1] Laschinger and Leiter (2006); Shacklock and Brunetto (2011)
[2] Australian Institute for Health and Welfare (2012a)
[3] Up from about one million cases now, Shaw and Tanamas (2013)
[4] By 2050, the number of working-age people for each person aged 65 and over is projected to fall from 5 to 2.7, Health Workforce Australia (2012a); Health Workforce Australia (2012b)
[5] A typical business might expect staff turnover of four per cent per annum. Holland, *et al.* (2012), p. 4
[6] Health Workforce Australia (2014)
[7] Health Workforce Australia (2012a). In 2012, only 10,635 students completed courses in initial registration to become a registered nurse - Department of Industry (2012), Table 19.
[8] Australian Institute for Health and Welfare (2013b), p. 14
[9] Australian Pain Management Association (2013)

On top of these problems, government budgets are under pressure. Hospital spending is growing faster than spending in any other area.[10] Simply paying for more of the same will become unaffordable.[11] Unless we better use the resources we have, access to health care will ultimately be put at risk.

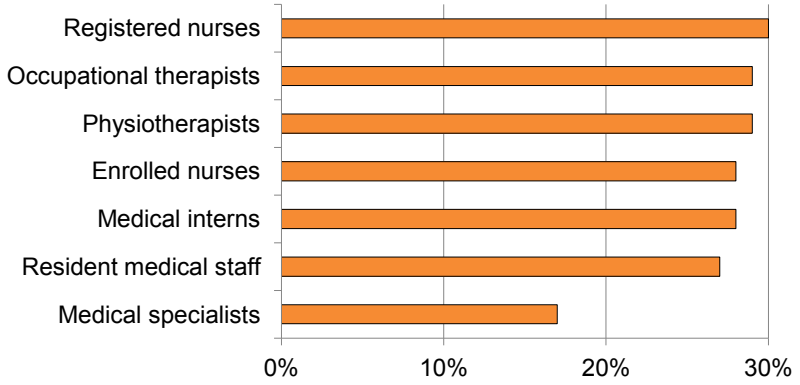
Workforce reform is one good way to solve these problems.[12] About 70 per cent of recurrent hospital expenditure – $25 billion a year – is spent on staff. There are big opportunities to spend this money better without compromising the quality of care.[13]

A previous Grattan Institute report, *Access all areas*, shows how we can improve access to care in rural and remote Australia by using the skills of pharmacists and physician assistants.[14]

This report shows that there are also opportunities in hospitals. We surveyed hospital CEOs and the people who report directly to them.[15] They think that more than a quarter of the work done by nurses and certain allied health professionals could be done by another workforce group (Figure 1).

It's not just hospital CEOs who report a serious mismatch between tasks and skills. More than half of hospital medical specialists believe they "often undertake tasks that somebody less qualified could do".[16] For two of the specialties covered in this report, – anaesthesia and gastroenterology – the proportions are 29 per cent and 64 per cent respectively.[17]

Figure 1: Percentage of work that could be shifted from current workforce group, as reported by hospital managers, 2013



Source: Grattan Institute

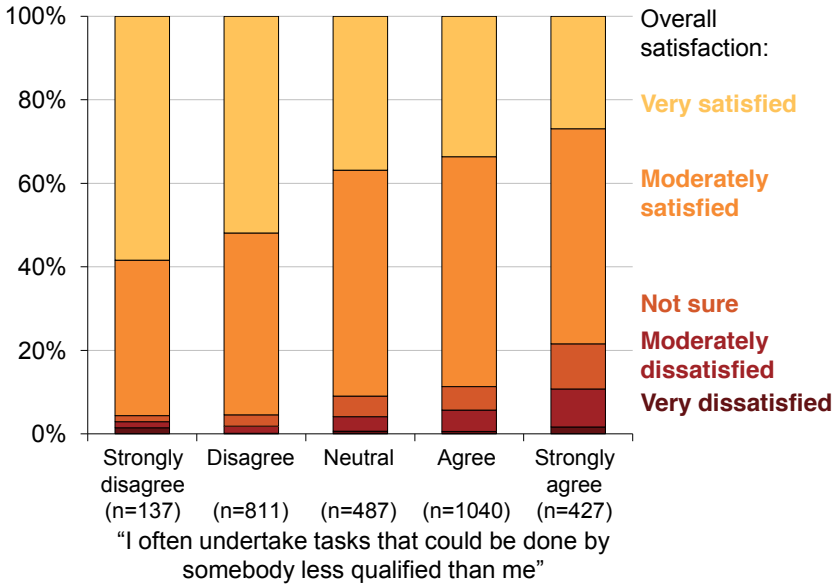
Better using the skills we have won't just save money.[18] It will also mean more rewarding and satisfying jobs.[19] If people are forced to do tasks below their skill level, it can create ambiguity about their

[10] Daley, *et al.* (2013); Duckett and McGannon (2013)
[11] Crettenden, *et al.* (2014)
[12] Health Workforce Australia (2012a); Australian Institute for Health and Welfare (2013d)
[13] Health Workforce Australia (2012a), p. 35
[14] Duckett, *et al.* (2013)
[15] See methodological appendix for more information

[16] 51 per cent agree or strongly agree with the statement "I often undertake tasks that could be done by somebody less qualified than me", MABEL (2013)
[17] Grattan analysis of ibid.
[18] This report uses the language of 'tasks' and 'skills'. We acknowledge that professional roles are more than the aggregation of tasks, and how the tasks are performed (caring, empathy, etc) is critical to patients' quality of care.
[19] Nancarrow, *et al.* (2013)

role, reduce their job satisfaction and increase turnover.[20] As Figure 2, shows, hospital specialists working at a higher skill level are more satisfied in their jobs.[21]

Figure 2: Hospital medical specialists' job satisfaction, 2013



Source: Grattan Institute

[20] Lizarondo, *et al.* (2010); Duffield and O'Brien-Pallas (2003); Holland, *et al.* (2012). Health Workforce Australia raises retention as a particular concern given the likelihood of long-term workforce shortages, Health Workforce Australia (2012a), p. 11; Health Workforce Australia (2012b), p. 10-11

[21] Strongly (dis)agree and (dis)agree are counted together; moderately and very (dis)satisfied are counted together, neutral and 'not sure' responses excluded. $\chi^2 = 27.8$, degrees of freedom =1, $p < 0.001$.

This report explores three examples of workforce reforms that are easy to put in place in the next five years. The first is expanding the use of nursing assistants and clarifying their role. The second is introducing new specialist nursing roles for endoscopies and anaesthesia. The third is expanding the use of allied health assistants.

These reforms are supported by evidence that they won't diminish the quality of care. The changes are only examples – there are many more potential reforms that we haven't examined (Box 1).

Using payroll data from Queensland and Victoria, we identified the savings these changes would create. Conservatively, they would save Australia's public hospital system $430 million a year.[22]

The next chapters explain the three changes we propose and how they can be introduced most safely. In Chapters 5, 6 and 7 we explain the problems that stand in the way of change and how to overcome them.

The analysis in this report was conducted with certain caveats. We don't assess whether current staffing levels should change, only how the mix of staff and roles should change.[23] Further, the report looks at *who* does the work, not the work itself. We don't consider whether the current workload or type of work is right. For example, when looking at endoscopies, we discuss who should do the current endoscopy workload, not whether we need more or fewer endoscopies, or a different procedure.

[22] In 2014 dollars

[23] Given an existing number of FTE, this report looks at the mix of personnel to provide certain tasks.

Box 1: Examples of change

The three examples highlighted in this report are by no means where reform should end. Examples of other potential reforms include broader roles for:

- paramedics in hospital, emergency departments, primary care and clients' homes
- other professionals in emergency departments (for example, physiotherapists, radiographers and nurse practitioners)
- physiotherapists in neurology, radiology and orthopaedics
- radiographers (to read mammograms, for example)
- medical generalists.

For many ideas like this, there is not yet enough evidence that they increase efficiency while maintaining high standards of care. New evidence of successful innovation, particularly in an Australian context, can provide the basis for widespread roll out.

Sources: Health Workforce Australia (2013b); Health Workforce Australia (2013a); Health Workforce Australia (2012c)

2. Nursing assistants

This chapter shows how some work can be shifted to let nurses with degrees spend more time doing what only they can do well.

Based on international literature and our analysis of hospital costs, we found that the number of nursing assistants could be increased to create more satisfying roles for nurses and cut costs while maintaining patient satisfaction and the quality of care. There are risks. To protect patients, nursing assistants must have a clear and limited role as well as appropriate training and supervision.

2.1 What do nurses do?

Nurses play a crucial role in health care.[24] There are more nurses than any other type of hospital worker and they spend more time looking after patients than any other professional group. They provide care 24 hours a day, seven days a week.

Nurses are well-placed to understand a patient's needs, keep an eye on their health, keep their treatment on track and help make sure they leave hospital safely. This involves complex communication with the patient, with their families or carers, and with a range of health professionals. It requires a holistic understanding of how the patient moves through the hospital system. This aspect of nursing is becoming more challenging as patients are increasingly likely to have multiple health problems.

There are two main types of nurse in Australia: registered nurses (RNs) and enrolled nurses (ENs).[25] The first usually complete a three-year nursing degree, sometimes followed by a graduate support period of up to a year.[26] Some do further study to specialise in a specific clinical area.[27] ENs, by contrast, have a vocational education and training diploma.[28] All nurses register with the Nursing and Midwifery Board and re-register annually.[29]

[24] Department of Health (Qld) (2013). Kane*, et al.* (2007) conducted a meta-analysis of literature relating nurse staffing to patient outcomes, finding that an increase by one RN per patient day was associated with lower hospital related mortality in ICUs (odd ratio, 0.91), in surgical patients (OR, 0.84), and in medical patients (OR, 0.94). The same increase was associated with a decreased odds ratio of hospital acquired pneumonia (OR, 0.70), unplanned extubation (OR, 0.49), respiratory failure (OR, 0.40), and cardiac arrest (OR, 0.72) in ICU patients; with a lower risk of failure to rescue (OR, 0.84) in surgical patients. Length of stay was shorter by 24% in ICUs and 31% in surgical patients. However, there were diminishing marginal returns from increasing nursing staffing.

[25] Other nursing roles existing include Nurse Practitioners (with increased diagnosis and prescribing powers) and Clinical Nurse Specialists (promotional role with increased clinical development or leadership roles). There are only 843 NPs in Australia. (Nursing and Midwifery Board of Australia (2013a), p. 5) Clinical Nurse Specialists are counted as RNs in statistical reports.

[26] Some RNs complete a two year postgraduate entry degree.

[27] e.g. mental health. Australian Nursing and Midwifery Federation (2012)

[28] They may also study to work at a more advanced level, ibid.

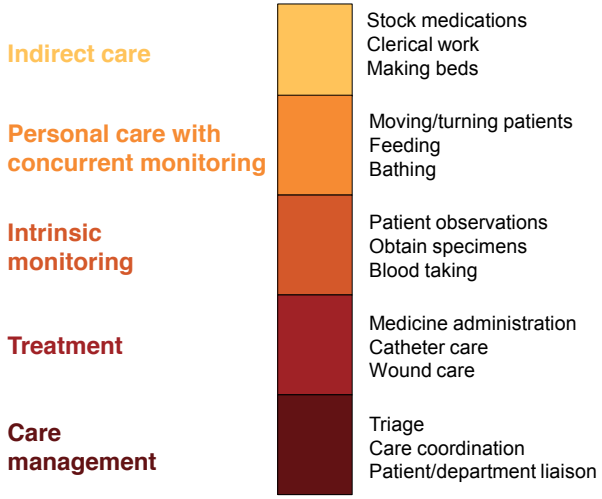
[29] Nurses must provide background check information and language skills, in addition to their professional history, indemnity insurance and a recency of practice standard to ensure their skills are up-to-date. Eligible nurses must also register their endorsement to prescribe scheduled medicines. For more details, see Nursing and Midwifery Board of Australia (2013b).

Nurses provide a variety of direct and indirect patient care (Figure 3).[30] Direct patient care can have different objectives. Sometimes it is to treat or monitor the patient by providing wound care, drug administration or observations, for example. It can also be personal care, such as bathing or feeding, which might also involve monitoring for deterioration or unresolved problems.[31]

Nurses spend a lot of time on personal care, much of which doesn't use their unique skills. When nurses must do both personal care and more complex or urgent work, personal care can be rushed, delayed or left undone.[32] This can reduce the quality of care, leave patients dissatisfied and put their health at risk.[33]

When personal care takes up too much of nurses' time, it can also reduce job satisfaction, making it more likely they will leave the profession.[34] This is particularly troubling because without changes (such as a boost to retention) there could be a shortage of 80,000 RNs by 2025.[35]

Figure 3: Types of nursing work



Source: Based on McCloskey et al. (1990); Bulechek et al. (2008); and Williams (1989) cited in Chang and Twinn (1995).

2.2 What are nursing assistants?

Nursing assistants work in hospitals to support nurses. There are many different terms for assistants around the world, partly reflecting different roles (see Box 2).

[30] Indirect care is work that is necessary for the provision of care to patients, but does not directly involve contact with a patient, such as clerical work, preparing wards and stocking medications and supplies. It can also include more complex tasks such as care coordination and discharge planning. The training and experience required to do care safely is different depending on the nature of the care, from post-graduate qualifications to on-the-job training. See Bulechek, *et al.* (2008)

[31] American Nurses Association and National Council of State Boards of Nursing (2006); Bulechek, *et al.* (2008)

[32] Duffield, *et al.* (2011) found that comforting patients was not done on 40 per cent of shifts, skin care on 24 per cent and oral hygiene on 19 per cent.

[33] Leiter, *et al.* (1998), p. 1615. Patient care improves when nurses feel that they are doing professional tasks, Laschinger and Leiter (2006), p. 265.

[34] Professional practice and accomplishment are linked to reduced nurse burnout and adverse events. Laschinger and Leiter (2006), p. 265

[35] Health Workforce Australia (2012a), p. 144

Box 2: Where in the world are nursing assistants?

A number of health systems have some form of nursing assistant. Systems vary in what they can do – from solely indirect patient care to more complex patient procedures. For example:

- In Victoria nursing assistant programs have been trialled in some hospitals. For example, at Austin Health, health assistants help patients shave, wash hair, and use the shower, and help feed patients while food is still hot.[36]
- In Japan nursing assistants can engage in indirect patient care such as laundry, general cleaning and clerical work.[37]
- In Ontario, nursing assistants undertake routine tasks in patient care, such as feeding, transporting patients, and delivering meals.[38]
- In Brazil nursing assistants and technicians are able to administer medications.[39]
- In the UK, Ireland, and the USA the role of the health care assistant varies, but can include personal care tasks, patient observations, venepuncture, immunisation, ear syringing and wound care.[40]

[36] PwC (2011)
[37] Kudo, *et al.* (2011)
[38] McGillis Hall, *et al.* (2001)
[39] Hoefel and Lautert (2006)
[40] Gould, *et al.* (1996); Needleman, *et al.* (2002); Jack, *et al.* (2004); Keeney, *et al.* (2005); Medical Protection Society (2012)

In some countries they work independently, doing personal and indirect care so that nurses can spend more time on direct patient treatment and monitoring. Work done independently, such as bathing, feeding and stocking medications, is generally less complex. In other countries, assistants work with nurses on less complex clinical duties under the supervision of an RN. These tasks include patient observations, blood taking and catheter care.[41]

As in other countries, nursing assistants in Australia typically focus on less complex work. However, there is no consistent national training for nurse assistants and no consistent definition of their role.

2.3 How do nursing assistants affect care?

Evidence on how nursing assistants affect the quality of care is weak and mixed.[42] Some studies show that nursing assistants can play a positive role.[43] They find that assistants can help meet

[41] McGillis Hall (1997)
[42] There are methodological weaknesses in many studies, which are often cross-sectional, uncontrolled, have small sample sizes, are old (so don't reflect contemporary practice), or poorly define role descriptions for nursing assistants.
[43] For example, McGillis Hall, *et al.* (2001) find an insignificant impact on patient outcomes from four staff models in an Ontario medical/surgical ward. Lengacher, *et al.* (1993) found no significant differences between control and experimental units in falls, medication errors, intravenous infection rates and skin integrity. Tourangeau, *et al.* (1999) studied outcome measures in a Toronto hospital before and after the introduction of assistants, finding no difference in adverse intravenous outcomes, patient fall rates and medication errors. Badovinac, *et al.* (1999) found that fall rates on one ward (n=40 patients) in a US hospital were not statistically significantly different after the introduction of a nurse extender model.

basic needs for personal care.[44] This can avoid patient frustration and risk when calls for assistance are left unanswered.[45]

Nursing assistants also seem to improve patient satisfaction, perhaps because they enable nurses to spend more time in direct patient care.[46] Alternatively, it has been argued that assistants find it easier to deal with difficult patients and seem more available and easier to relate to than nurses do.[47]

Studies which find a negative impact often involve assistants doing work, such as drug administration and wound care, that RNs are specifically trained to do.[48] The poor outcomes could be because assistants are not adequately trained for these tasks.[49]

Another risk is that assistants reduce nurse contact with patients, which has been shown to increase risk.[50]

On balance, it seems clear that nursing assistants can take over some tasks that RNs do without reducing the quality of care. However, there are important conditions. The assistant role must be clear and limited and sufficient nurse contact with patients must be maintained.

2.4 Expanding nursing assistants in Australia

This chapter proposes an increase in the number of nursing assistants, but for this to be safe, the role has to change.

The roles that assistants and nurses play must be clear.[51] Assistants should only do less complex indirect and personal care tasks, such as bathing, feeding and moving patients. They would be supervised by RNs. Expanding the number of assistants would allow nurses to focus on monitoring and treatment (Figure 4). How to ensure a clear and limited assistant role is discussed in Chapters 6 and 7.

Some of the savings from expanding the number of nursing assistants should also be spent on additional, dedicated

[44] For example nursing assistants have been shown to lead to a decline in patient-initiated calls for assistance. Tourangeau *et al.* (1999); Meade, *et al.* (2006); Gardner, *et al.* (2009). van Handel and Krug (1994) find that at least two thirds of patient call lights are about: getting or doing something (like closing curtains or getting tissues); assisting with toileting; questions about care (like "when will the doctor be here?"); food requests; or positioning/transfer (like turning over, repositioning an arm or leg).

[45] Responding to call lights was found to be the most frequently delayed task by nurses (Duffield, *et al.* (2011)). Gardner, *et al.* (2009), p. 4

[46] Ringerman and Ventura (2000); Badovinac, *et al.* (1999); Neidlinger, *et al.* (1993); Gould, *et al.* (1996)

[47] Kessler, *et al.* (2010), p. 15; Keeney, *et al.* (2005)

[48] Neidlinger, *et al.* (1993) found that the incorporation of nursing assistants into the delivery of hospital care in California resulted in a decline in nursing quality on internal audits. Aiken, *et al.* (2003), Duffield, *et al.* (2011) and Cho, *et al.* (2003) found a relationship between the declining ratio of RNs to nursing assistants and higher rates of adverse events. Similarly, Blegen, *et al.* (1998) found that reducing ratios of RNs to nursing assistants increased patient and family complaints. It should be noted that these studies are characterised by the methodological concerns discussed above.

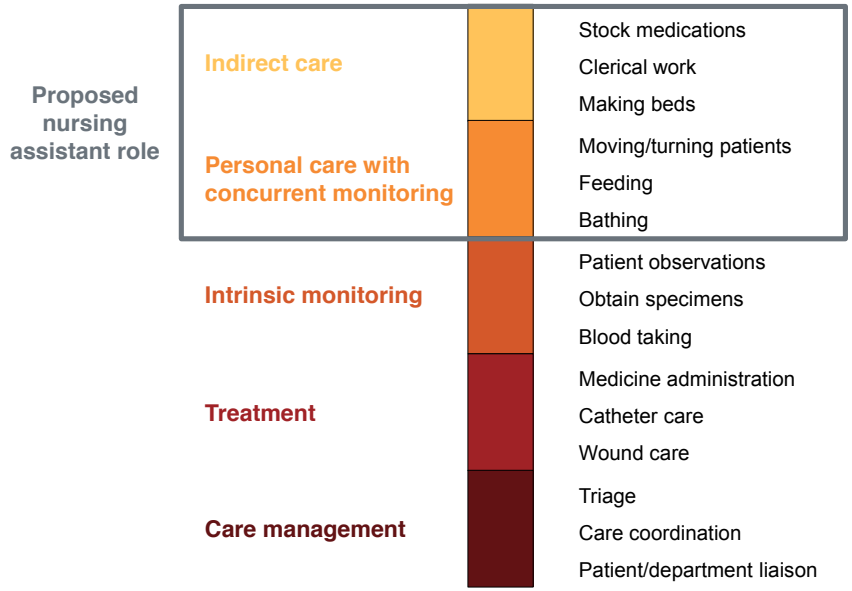
[49] Snell (1998) cited in McKenna, *et al.* (2004)

[50] Twigg, *et al.* (2012); Westbrook, *et al.* (2011)

[51] The report into the Mid Staffordshire care scandal in England identified the importance of differentiating between registered nurses and support workers. It recommended national consistency in registration, education and training and following a code of conduct. See Francis (2013), p. 78. Lack of clarity also has impacts on retention. White, *et al.* (2008) found that "insufficient role differentiation among nurses and between nurses and other healthcare professionals leaves some nurses feeling devalued and not respected for their contribution to nursing."

monitoring by nurses.[52] This will reduce any risk from reduced contact between nurses and patients.

Figure 4: Proposed nursing assistant role



Source: Grattan Institute

Even with strict limitations on their role, there can still be many more nursing assistants. Based on estimates from various studies about how nurse time is spent (see Figure 5), we estimate that 15 per cent of nurse time is spent on indirect or personal care tasks that nursing assistants could do.[53]

Shifting this amount of RN work to nursing assistants would save $360 million a year.[54] Due to growth in demand for hospital care, the change could be made gradually, without an overall decrease in the number of nurses, as Chapter 7 explains. Change would come from hiring, not firing.

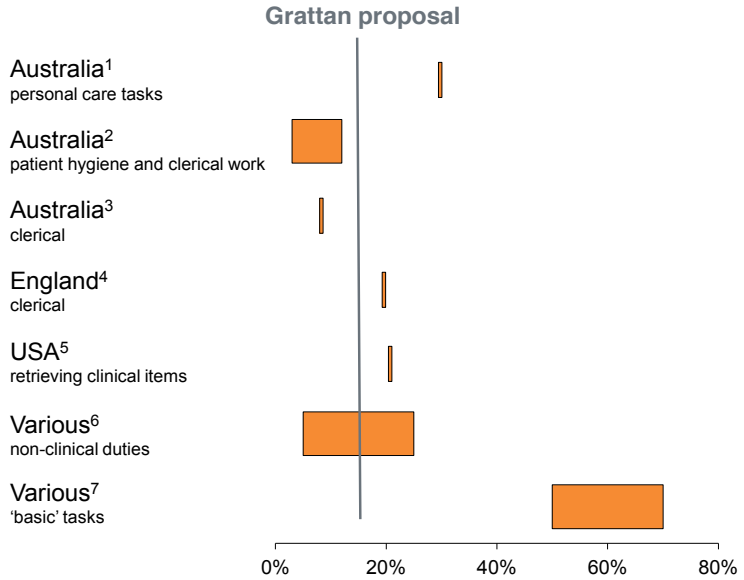
The changes we suggest will both increase and improve the care that patients get. RNs will be able to focus on the nursing work they are trained to do. There will be more than 17,000 nursing assistants to support them, plus an extra 37,000 nurse hours for dedicated monitoring of patients' progress.

[52] Our savings include a small increase in the number of RNs and ENs for dedicated monitoring, for which nursing assistants are not trained.

[53] There may be scope for a broader role for assistants than proposed in this chapter, but we limit the scope of the role given the best evidence on role clarity and the quality and safety of patient care.

[54] This is not intended to be a mandated ratio, but a target based on evidence and used for our costings, as explained in detail in the methodological appendix. Few studies have looked at cost savings from introducing nursing assistants, even fewer looking beyond basic labour costs, Krapohl (1996). Studies generally find neutral or positive impacts: Davis (1994); Bostrom and Zimmerman (1993); Lengacher, *et al.* (1993) Some studies raise concerns about cost-effectiveness, especially due to high drop-out rates, but these problems could be addressed through good implementation, Garfink, *et al* (1999) cited in Krapohl (1996) find that poor nursing assistant selection criteria led to very high turnover. Neidlinger, *et al.* (1993) found introduction of nursing assistants along with broader staffing changes made it difficult to establish why implementation was not as successful as expected.

Figure 5: Estimates of the proportion of nurses' time spent on proposed nursing assistant tasks in various health systems



Note: Studies used different classifications of time use, as noted in the figure.
Sources: 1 Grattan Institute Delphi survey; 2 Duffield et al. (2005); 3 Westbrook et al. (2011); 4 Harrison and Nixon (2002); 5 Hendrich et al. (2008); 6 DeLucia et al. (2009); 7 McKenna, H. P. et al. (2004).

2.5 Impact of expanding the number of nursing assistants

The savings could allow more than 70,000 additional public hospital admissions at the current level of spending, an increase of one per cent.

Health Workforce Australia has forecast a shortage of 80,000 RNs in 2025, based on current workforce recruitment and retention. Nursing assistants can help close this gap. Importantly, nursing assistants are likely to be recruited from groups with low participation in the workforce. With appropriate career ladders and training opportunities, nursing assistants could provide new opportunities for RN recruitment. In a similar way, the changes discussed in the next chapter can create new opportunities for RNs.

3. Nurses in specialist roles

This chapter looks at tasks that are traditionally reserved for doctors but that could be done by specialised nurses. Often it is only doctors who perform broader, less structured tasks such as diagnosis or surgical procedures on unstable patients. In these cases, years of training and experience are needed to respond to the complexity, uncertainty and risks involved.

But people can quickly master many less complicated medical tasks. They don't need the 15 or so years of training that specialist doctors have. Despite this, tradition, not the evidence, often dictates who can do a procedure. Yet with appropriate training, monitoring and supervision, nurses can do many procedures just as well as doctors. This happens in other countries and we can learn from them.

This chapter looks at two areas in which nurses can have a greater role: endoscopies and anaesthesia. They are among the most common procedures in Australian hospitals. In routine cases, there is good evidence that nurses can do them as well as doctors. Again, these are just examples. Other opportunities may be available: some evidence shows that nurses can safely take on a range of other less complex clinical tasks, such as managing upper respiratory infections, urinary tract infections and lower back pain.[55]

'Nurse practitioner' is an extended role that already exists in Australia. Nurse practitioners are extended RNs who have training in the broader skills of diagnosis and prescribing. However, this chapter focuses on extending the RN role to specific procedures. RNS can clearly do these procedures quickly and safely with the right training, practice and supervision. We do not look at nurse practitioners specifically, but there may be scope for them to play a greater role.

3.1 Endoscopy nurses

Endoscopy describes looking inside part of the body through a flexible tube with a light and a camera on the end. It is most commonly used in the respiratory or gastrointestinal system (bronchoscopies or colonoscopies, for example), or the urinary tract (called a cystoscopy). Endoscopies are typically used for diagnosis, including taking tissue samples for testing.

In Australia, endoscopies are performed by specialist doctors including surgeons, gastroenterologists and respiratory physicians. In other countries – especially the UK and the USA – endoscopies are often done by nurses.

In the US, endoscopy nurses have practised since the 1970s. In the UK,[56] there are now more than 300 endoscopy nurses, working in almost all acute hospitals.[57] Even six years ago, they

[55] Bodenheimer and Smith (2013), p. 1883

[56] Spencer and Ready (1977)

[57] A 2007 report found that 85% of acute hospital trusts in the UK employed endoscopy nurses, Health Care Commission (UK) (2007), and endoscopy nurses have become more common since then National Health Service (UK) (2011).

were providing almost one in seven endoscopies.[58] Endoscopy nurses have also been introduced in Canada recently.[59]

Many studies show that appropriately trained nurses can provide endoscopies to at least the same level of safety, quality and patient satisfaction as doctors.[60] This can free up specialists to spend more time on complex cases and other procedures.

Endoscopy nurses are starting to be used on a very small scale in Australia. Health Workforce Australia has funded eight sites in Victoria and Queensland to develop and introduce nurse endoscopy.[61] Following successful trials that involved 18 months of training, the Austin Hospital in Melbourne employed its first endoscopy nurse in 2012.[62] Nurse practitioners performed endoscopies in one 2004 Australian study, and met the standard of care provided by doctors, with extremely high patient satisfaction (see Box 3).

[58] Health Care Commission (UK) (2007)
[59] Warburton and Smith (2010)
[60] See Maule (1994); Dorn (2010); Maslekar, *et al.* (2010); Lee, *et al.* (2012). Richardson, *et al.* (2009) found UK nurse endoscopies had lower primary and secondary care costs. However, they also found a very small reduction in the quality outcomes after one year (adjusted for baseline characteristics, a difference of 1.5%). They acknowledge the difference would not usually be seen as statistically significant, but unlike most other studies, concluded doctors may be more cost-effective than nurses. Some studies found nurses were more thorough and had more satisfied patients than doctors, Morcom, *et al.* (2005); Williams, *et al.* (2009). It is important to note that studies of nurse endoscopy often look at different procedures of varying complexity.
[61] The Victoria and Queensland Governments have funded training for more endoscopy nurses, including a new national training centre at Austin Hospital.
[62] Medew (2013)

Box 3: Results of an Australian nurse practitioner-led endoscopy trial, 2004

Patient survey results

	Yes
Adequate explanations beforehand	100%
Privacy maintained	100%
Adequate information afterwards	100%
Would have another flexible sigmoidoscopy in 5 years	99%
Would have another by a nurse practitioner	99%*

Note: one respondent would not have the procedure performed by a doctor or nurse practitioner

Patient quotes

"The service was informative, friendly, and non-scary."

"The nurse was easy to follow and her explanations made the experience less difficult."

"I found it less embarrassing to have a nurse perform this procedure."

"Very caring nature, much more gentle than procedures I've had in the past."

"I felt relaxed and had complete confidence in the nurse."

"I felt like a special person and not just another patient being pushed through the motions"

Source: Morcom et al. (2005)

Endoscopy nurses could do much more. Over one million endoscopies, including 170,000 'less complex' procedures, were provided in Australian hospitals in 2011-12. [63] This number will only increase as the population ages and as screening for bowel cancer becomes more common.[64]

3.1.1 Adequate training and supervision

Drawing on the US and UK, we suggest that nurses should go through three stages of assessment and supervision to prove that they can deliver safe, accurate and efficient endoscopies.

They would have to pass a test to show they have understood the theoretical aspects of the endoscopy. Then they would need to practise and pass tests using a simulation device (these are becoming increasingly sophisticated).

Finally, they would receive hands-on supervision and training from gastroenterologists or other specialist doctors, with gradually increasing responsibility and declining supervision. To be on the safe side, nurses should have to do at least 150 supervised procedures before they can provide endoscopies independently.[65]

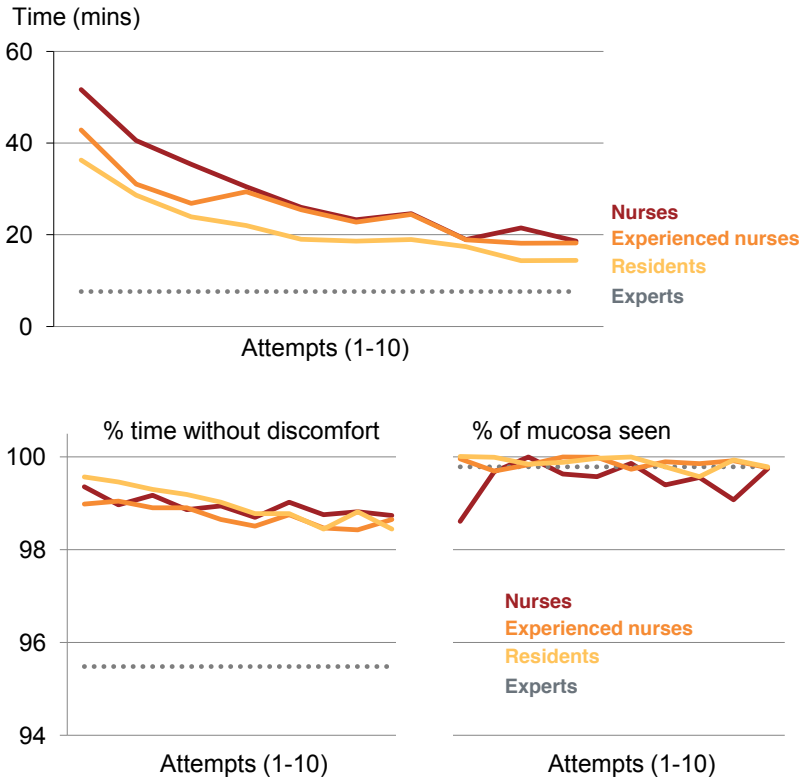
Figure 6 shows how, even in their first 10 attempts at simulated colonoscopies, nurses can achieve similar levels of speed and quality as doctors who are learning the procedure for the first time. Their performance also rapidly approaches the speed and quality achieved by experienced doctors. Another study suggests that quality and speed keep improving well beyond the first 10 attempts.[66]

Once they are through all three stages, endoscopy nurses would work as part of a team with doctors. To reinforce 'team working', endoscopy nurses should be accountable to the relevant medical practitioner. As a result, our analysis limits nurse endoscopies to metropolitan areas, where there is a bigger medical endoscopy workforce.

The quality of nurse endoscopies can easily be monitored by video recordings (a standard feature of the procedure). These recordings should be evaluated on an ongoing basis – at least every two years – as part of re-accreditation that ensures nurses are providing safe, high-quality procedures.[67]

[63] Endoscopies without biopsies or treatment. We do not expect that all statistically included 'less complex' procedures would be done by nurse anaesthetists. Patients would be subject to a health risk assessment before the procedure. Australian Institute for Health and Welfare (2013g)
[64] Fernando, *et al.* (2007)
[65] Successful training in the US required only 100, Wallace, *et al.* (1999); Horton, *et al.* (2001).
[66] Koornstra, *et al.* (2009). This Dutch study only assessed two nurses and one gastroenterology fellow. They showed similar performance, with improvement in a quality measure (caecal intubation rate) and speed continuing to 100 colonoscopies and 150 colonoscopies respectively. Patient satisfaction and comfort were comparable and the study included both simulated and actual flexible sigmoidoscopies and colonoscopies.
[67] See Rex et al (2010).

Figure 6: Colonoscopy learning curves, first 10 attempts, 2008



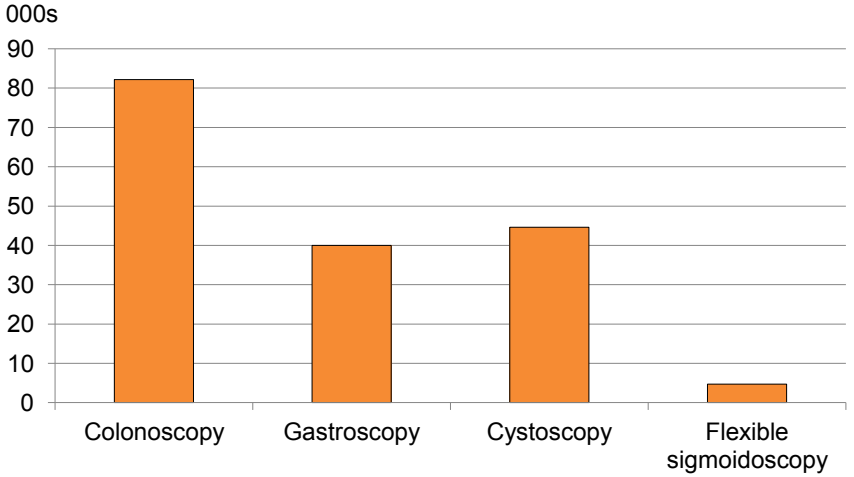
Notes: Ten members in each group (eight medical colonoscopist 'experts' did three attempts – average shown above). 'Experienced nurses' had assisted at a median 450 colonoscopies (3000 endoscopies). The other nurse group had no previous endoscopy experience. Percentage of time without discomfort and mucosa seen are quality indicators of endoscopy.
Source: Kruglikova et al. (2010)

3.1.2 The impact of introducing endoscopy nurses

In 2011-12 specialists in Australian hospitals performed 170,000 'less complex' endoscopies (see Figure 7). Many of these could be performed by endoscopy nurses with adequate training.

Nurses would only do these endoscopies when the patient had been referred to them by a doctor, or when it was a routine screening for a stable patient who had no serious complications.

Figure 7: Volume of the most common endoscopy procedures, public hospitals, 2011-12



Notes: Scopes without biopsies or treatment.
Source: Australian Institute for Health and Welfare (2013g)

We estimate that the volume of metropolitan endoscopies requires the equivalent of 729 full-time gastroenterology and

urology specialists.[68] On average, endoscopy nurses would be paid the top salary given to the most experienced clinical nurses, $86,000.[69]

As a result, introducing endoscopy nurses for less complex endoscopies would save public hospitals $12 million a year.

3.2 Nurses providing anaesthesia and sedation

In Australia doctors and dentists are the only professionals certified to administer anaesthetic drugs. Specialist medical anaesthetists provide a wide variety of services to ensure adequate sedation and prevent pain during medical procedures.

They assess patients and administer general anaesthesia, regional anaesthesia and light sedation depending on the procedure. During the procedure, anaesthetists monitor the patient's heart and breathing and then help the patient wake safely.[70] They also resuscitate critical patients, work in trauma and intensive care units and manage chronic pain.

About 3400 anaesthetists practise in Australia.[71] There were more than 1 million procedures involving an anaesthetic in Australia in 2012.[72]

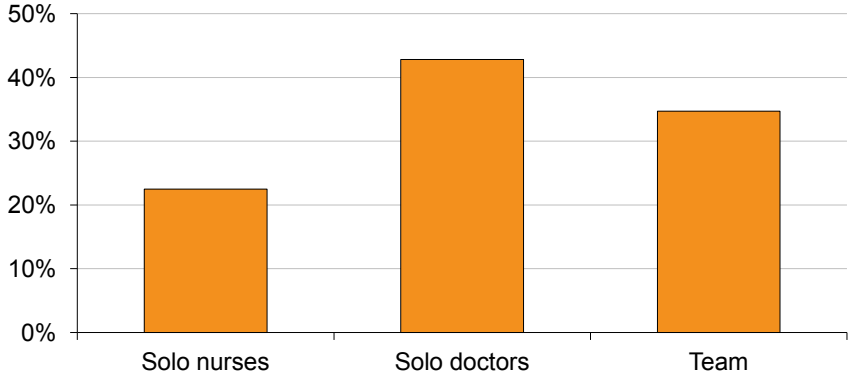
The central role that nurses can play in anaesthesia has been known for decades in the USA. On average, there is one nurse anaesthetist working for every specialist anaesthetist and they can provide any anaesthetic given by a specialist.[73] Nurse anaesthetists need a nursing degree, one or two years of critical care experience and a two-year master's degree in anaesthetics. Every two years nurse anaesthetists must then be reaccredited.[74]

Supervision of nurse anaesthetists in the USA varies by state. Most nurse anaesthetists work in hospitals with many operating rooms, where a supervising doctor is available to offer advice or assistance during difficult parts of the anaesthesia.[75]

Since 2001, US states have been allowed to provide Medicare payments to nurse anaesthetists working without the supervision of an anaesthetist. To date 17 states have taken up this option.[76] In these states, solo nurse anaesthetists provide more than a fifth of all surgical anaesthesia. Nurse anaesthetists work with specialist anaesthetists to provide another third (see Figure 8).

[68] See methodological appendix for calculation process.
[69] Based on Queensland and Victoria payroll data weighted for population.
[70] Australian and New Zealand College of Anaesthetists (2013)
[71] Australian Institute for Health and Welfare (2013e)
[72] Australian Institute for Health and Welfare (2013f)
[73] Anesthesia Quality Institute (2013); American Association of Nurse Anesthetists (2010). Nurses have even worked in teams to safely anaesthetise premature infants undergoing difficult heart operations.
[74] American Association of Nurse Anesthetists (2013a)
[75] Matsusaki and Sakai (2011)
[76] American Association of Nurse Anesthetists (2013b)

Figure 8: Operations performed in American states where nurse anaesthetists can work without doctor supervision, 2005



Source: Dulisse and Cromwell (2010),

A 2010 study commissioned by the American Association of Nurse Anaesthetists confirmed that the quality of care provided by nurse anaesthetists is just the same as care by doctors. It looked at the likelihood of death and complications by anaesthesia provider and found mixed results, but little to indicate that independent nurse anaesthetists were less safe than medical anaesthetists.[77] Studies on caesarean sections and paediatric ear operations also found that nurse anaesthetists are no less safe than medical anaesthetists.[78] Despite widespread use of nurse anaesthetists in the USA, anaesthesia is extremely safe there, as it is in Australia.[79]

Overall, the evidence on safety is strong, even leading an executive of a US medical society to say that "the nurse anaesthetists have data… but we don't have any data showing that physician outcomes are better."[80]

There is no good reason that nurse anaesthetists can't take on some of the work usually done by anaesthetists. There is good evidence that nurse anaesthetists provide safe, high quality care. All the same, we recommend a cautious introduction with sufficient training and supervision, starting with a limited role providing sedation.

[77] Dulisse and Cromwell (2010). Patients were significantly less likely to die under a solo nurse anaesthetist or anaesthesia team than a solo medical anaesthetist (statistically significant). Complications were less likely under a solo nurse anaesthetist than a medical anaesthetist, but both of these were less likely to experience complications than team anaesthesia (only significant in non-opt out Medicare states). See also Pine, *et al.* (2003), who analysed over 400,000 surgical procedures and found that risk-adjusted mortality rates for independent medical and nurse anaesthetists were similar.

[78] Hoffmann, *et al.* (2002) found that, for a sample size of almost 4000 paediatric ear procedures, provider type had a p value of only 0.06. Simonson, *et al.* (2007) found no statistically significant difference between the rate of complications for over 130,000 patients receiving caesarean sections with a medical or nurse anaesthetist.

[79] It is difficult to find comparable statistics but anaesthesia has very low rates of morbidity and mortality in both countries. Li, *et al.* (2009) estimated 1.1 deaths per million population per year in the USA. Gibbs (2012) estimated 2.79 per million in Australia, a figured labelled by the Australian New Zealand College of Anaesthetists (Australian and New Zealand College of Anaesthetists (2012)) as "extremely safe".

[80] Isaacs and Jellinek (2012) p. 15. One study did find that nurse anaesthetists increase patient risk, but not after relevant factors were taken into account. Silber, *et al.* (2000) studied over 200,000 general and orthopaedic surgical patients aged 65 years or older finding that the likelihood of death was less when anaesthesia was directed by a medical anaesthetist (unadjusted odds ratio for death = 1.35). This likelihood reduced when adjusted for diagnosis related group (DRG) and hospital (adjusted odds ratio for death = 1.08). Adjusted complication rates were not statistically different.

3.2.1 Introducing anaesthesia by nurses

As a start, nurses should be able to provide sedation. Once this is established, nurses could do more types of anaesthesia, but with more training and stricter restrictions on whom they can treat.

3.2.2 Sedation nurses

During sedation, the patient remains conscious. Their experience of pain is reduced, but they are still able to breathe and respond when spoken to. Sedation nurses only provide this relatively straightforward, low-risk type of anaesthesia. They would not provide general anaesthesia, where patients are unconscious and cannot breathe independently.

There are sedation nurses in the UK, several European countries and the USA.[81] In South Australia, nurses provided sedation in a 2006 trial. Experienced nurses trained for 12 weeks before giving light sedation to healthy patients undergoing simple procedures such as colonoscopies. No adverse incidents were recorded during the trial period and patients were satisfied with the treatment they received.[82]

Sedation nurses should be experienced hospital nurses with a similar type of training as endoscopy nurses. They should demonstrate that they have the knowledge and capability to safely provide sedation. Then their early attempts should be supervised by anaesthetists. As with the other specialised nurse roles we propose, they should work only in metropolitan hospitals where specialists are available if needed. Finally, they should only work on non-emergency, low-risk patients in lower-risk age groups.[83]

3.2.3 Nurse anaesthetists

As experience in the USA shows, a broader anaesthesia role for nurses can be safe. However, it will require more training. In addition, we propose even stricter limits on the type of patients that nurses can treat. Also, this new role should only be considered once sedation nurses have been introduced.

If nurse anaesthetists were introduced here, like those in the USA, they should have a minimum of at least two years of experience in an operating theatre or intensive care unit.[84] Training should include a two-year postgraduate degree, again in line with US training requirements.[85]

3.2.4 What a nurse anaesthetist should do

In the USA, nurses can perform anaesthesia on even the most complex patients. Because nurse anaesthetists would be a new workforce group in Australia, however, they should only work in a limited range of cases. We expect that their managers would allocate medical and nurse anaesthetists to cases based on experience and expertise.

[81] Jones, *et al.* (2011)
[82] Ibid. 90 per cent of patients surveyed identified their overall care as very good or excellent. The remaining patients all scored their care as above average. 94 per cent of patients believed their care matched their pre-procedure discussion with the sedation nurse. Anaesthesia related deaths in Australia are very rare, with only one death for every 55,000 procedures performed. Gibbs (2012) p. 11
[83] See the methodological appendix for more definitions and methodology.
[84] In the USA, nurse anaesthetists must have at least one year's experience in an acute care setting, American Association of Nurse Anesthetists (2011).
[85] Ibid.

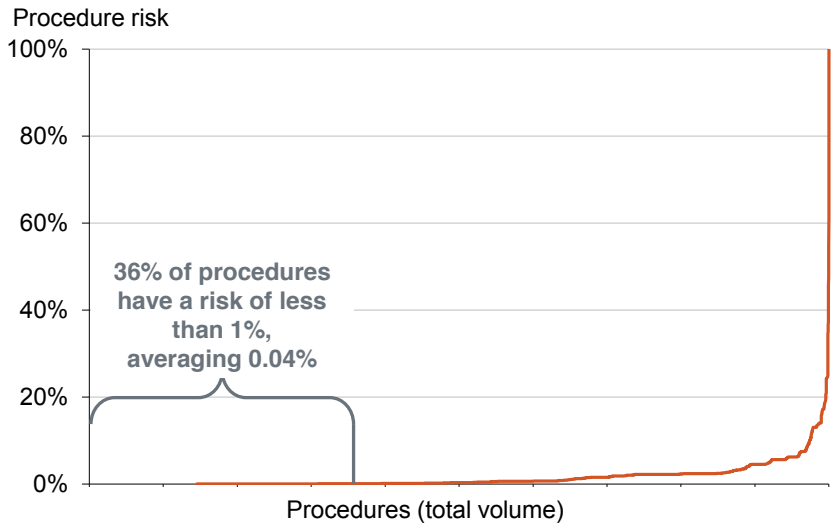
We analysed almost four million procedures where anaesthesia was performed to find which cases have a high risk of death.[86] The vast majority of deaths in surgery are not due to anaesthesia, but those with the greatest risk of death require the most anaesthetic skill to manage.[87]

We found that most procedures have no, or very low, death risk (see Figure 9). While several procedures are very high risk, such as those to repair veins and arteries, most procedures have a risk of less than one per cent.[88] Many low-risk procedures such as colonoscopies, cataract operations, tonsillectomies, gall bladder removals and elective caesareans are very common.

If nurse anaesthetists were introduced, they should work on less complex cases with a low risk of death.[89] These are where:

- the patient is aged between 16 and 75[90]
- the patient has been assigned a lower anaesthesia risk[91]
- the procedure has a death risk of less than one per cent[92]
- the procedure is non-emergency.

Figure 9: Distribution of death risk by procedure, 2010-11



Source: Grattan Institute

When these restrictions are combined, nurse anaesthetists could still work on more than a quarter of cases. More detail on this analysis, including how the criteria were chosen, is in the methodological appendix.

[86] in Australia, 2010-11. The NHCDC dataset covers approximately 83 per cent of admissions, excluding small hospitals. Independent Hospital Pricing Authority (2013b); Australian Institute for Health and Welfare (2013f)
[87] Patients having risky surgery are more likely to have problems with maintaining blood flow to their brain, heart and lungs and require more anaesthetic experience to manage. See Queensland Health (2013)
[88] Replacement of thoraco-abdominal aneurysm with graft carries a 47 per cent risk of death, while several single-frequency vein and artery grafts have resulted in death, leading to a 100 per cent death risk.
[89] Risk of death is calculated when anaesthetists only are providing the care
[90] The analysis found a small risk for paediatric cases over the age of one that was comparable to that in young adults. However, after consultation with practitioners, all paediatric anaesthesia was excluded.
[91] Lower anaesthesia risk refers to patients with an ASA risk classification of one to three.
[92] As calculated by Grattan analysis.

Solo nurse anaesthesia is common in rural parts of the USA where there is a shortage of anaesthetists.[93] However, we emphasise expanding the role of nurses as part of a team, accountable to the hospital's medical anaesthetists. If nurse anaesthetists are introduced, like the other specialised nurse roles, they should be restricted to metropolitan hospitals where enough medical specialists are available.

3.2.5 Impact of introducing nurse anaesthetists

Under our assumptions, sedation nurses would do 68 per cent of all sedation.[94] As this takes up an estimated three per cent of anaesthetists' time, it would save $16 million a year.[95] Introducing nurse anaesthetists could save $39 million, but we don't recommend making this change immediately.[96]

The number of anaesthetists has increased considerably over the last decade.[97] There are already anaesthetists who would like to do more work than is available, suggesting there may be an oversupply.[98] But, if there is an oversupply, it does not seem to be decreasing anaesthetist wages or costs for patients.[99] Concerns of existing anaesthetists need to be weighed against the broader benefits outlined in this chapter. An oversupply of medical anaesthetists is not a reason to ignore beneficial long-term change, especially as demand for care is growing and future training intakes can be adjusted.

3.3 The impact of introducing specialised nurse roles

Together, endoscopy nurse and sedation nurse roles could save public hospitals $28 million each year, or the equivalent of funding almost 6000 additional colonoscopies a year.[100] Given the roll-out of the National Bowel Cancer Screening program, demand will increase. Introducing nurse anaesthetists could fund almost 20,000 colonoscopies.

Our estimates are conservative.[101] One reason is that we have not considered the ongoing education, teaching and research expenses of specialist doctors, which would be higher than those for the new specialist nurses.

The last two chapters propose two changes to what nurses do. These changes will work well together, and both can improve nursing jobs. One will reduce the burden of non-nursing work, while the other will create new opportunities for nurses to learn and specialise. The two changes are also complementary because, while one will slow the growth in nursing jobs, the other will create new opportunities for nurses.

[93] Dulisse and Cromwell (2010)
[94] This would leave enough sedation for medical anaesthetist training.
[95] See methodological appendix.
[96] These savings are alternative, not additive. They are not included in the $430 million total.
[97] A 35 per cent increase between 2004 and 2011. Australian Institute for Health and Welfare (2006); Australian Institute for Health and Welfare (2013e)
[98] Australian and New Zealand College of Anaesthetists (2014)
[99] Analysis of anaesthetist wages between 2008 and 2011 showed no clear trend in wage increases or decreases. Real out-of-pocket anaesthesia costs rose by 13 per cent from 2007 to 2013, Department of Health (Commonwealth) (2014).
[100] To the extent that they are unsupervised by specialists, registrars may do the specialised work discussed in this chapter. However, we do not know the amount of work done by registrars or the amount that they work without supervision. As a result, we have not included registrars in our cost savings.
[101] For more information on savings estimates, see the methodological appendix.

4. Allied health assistants

Allied health professionals work in disciplines of health care distinct from medicine and nursing. They include physiotherapists, occupational therapists, speech pathologists, podiatrists, social workers and dieticians.

This chapter looks at expanding the role that allied health assistants can play, using physiotherapy and occupational therapy as examples. These disciplines already have widespread, if small scale, use of assistants and are the professions in which evidence about assistants is greatest.[102] Yet it may be possible to expand the use of assistants in other allied health disciplines, too (see Box 4).

4.1 What are physiotherapy and occupational therapy?

Physiotherapists assess, diagnose, treat and work with patients to prevent disease and disability through physical rehabilitation. Physiotherapists treat various movement disorders by working to alleviate injury, stiffness and pain, at the same time as increasing mobility and preventing further injury.[103]

An occupational therapist (OT) works with patients to help them do everyday activities, including their jobs. For example, an OT can help enable independence by making changes to patients' kitchens and bathrooms to make them more accessible and coaching patients to understand and manage their abilities.[104]

There are 5300 physiotherapists and almost 2000 OTs working in Australian hospitals.[105] Physiotherapists and OTs have either a four-year undergraduate degree or a two-year masters degree. Some universities have introduced a professional-entry Doctor of Physiotherapy program. Many physiotherapists and OTs have advanced specialist qualifications and careers in areas such as musculoskeletal physiotherapy and hand therapy.

4.2 Allied health assistants

Allied health assistants (assistants) currently work in hospitals across Australia. They are specifically trained to work under the supervision of allied health professionals. Some of their work is indirect patient care, such as preparing equipment, but much is hands-on clinical work.

In direct patient care, assistants work on less complex cases or assist with physical aspects of care for more complex ones.[106] For example, a physiotherapy assistant working in stroke rehabilitation may work on arm exercises or basic mobility training. They supervise exercise and mobilisation when it is not

[102] It is important to note that there is very limited evidence about the use of assistants to deliver acute care in some allied health disciplines, see Box 4.
[103] Australian Physiotherapy Association (2013)
[104] Occupational Therapy Australia (2013)
[105] Australian Bureau of Statistics (2011)
[106] For example, providing support for very physically dependent or heavy patients.

safe for a patient to do this independently.[107] As one physiotherapist has put it, assistants generally work with "patients who can almost do it anyway, but need time to practise."

Allied health professionals retain clinical responsibility and coordinate a patient's care.[108] Assistants are not trained to conduct initial assessment and treatment planning, evaluate treatment effectiveness, suggest changes to treatment, or give diagnostic information to patients and their families.[109] That said, assistants may be able to provide useful feedback to help allied health professionals do these tasks at the professional's discretion.[110]

Figure 10 shows how often assistants in Western Australia do a number of allied health tasks. Assisting with patient procedures and patient administration are routine tasks for them: 69 per cent and 54 per cent of assistants respectively do these tasks daily. Assistants free up allied health professionals to focus on diagnosis and treatment planning, and more complex treatments for patients with severe physical difficulties or pain.

However, there is wide variation in the tasks that assistants currently do. While 43 per cent of assistants do delegated patient care daily, 34 per cent say this is not part of their duties. This can partly be explained by the different roles assistants play in different disciplines, but also possibly by lack of clarity around the role that assistants can play.

Delegation decisions should be supported by clear guidelines on which tasks are suitable to delegate and by continuity of training.[111] NSW has developed a framework that supports professionals to make delegation decisions about assistants.[112] Senior professionals can also advise on delegation as part of their normal supervision and mentoring roles.

Box 4: Allied health assistants in other disciplines

Most evidence on the successful implementation of allied health assistants in the acute care setting focuses on physiotherapy and OT.[113] Policy guidance and practice suggests that assistants could also be used in dietetics, podiatry, and speech pathology, but there is little evaluation of their effectiveness.[114]

There is limited evidence on the use of allied health assistants in these disciplines, but what exists is encouraging.[115] Case studies in Victoria, for example, show that a patchwork of interesting and effective schemes is already in place across the state.[116] However, more research is needed to establish evidence for the widespread use of assistants in these fields.

[107] Physiotherapist in the UK, Parry and Vass (1997)
[108] Ibid.
[109] Department of Health (Vic) (2012c),
[110] Nancarrow and Mackey (2005)

[111] Saunders (1998); Lin and Goodale (2006)
[112] Department of Health (NSW) (2013). See also Department of Health (Vic) (2012c)
[113] Lizarondo, *et al.* (2010); Nancarrow, *et al.* (2013) report a dearth of evidence-informed policy.
[114] Chief Health Professions Office (2008b); Department of Health (Vic) (2012c); Department of Health (NSW) (2013)
[115] Webb, *et al.* (2004)
[116] Department of Health (Vic) (2012d)

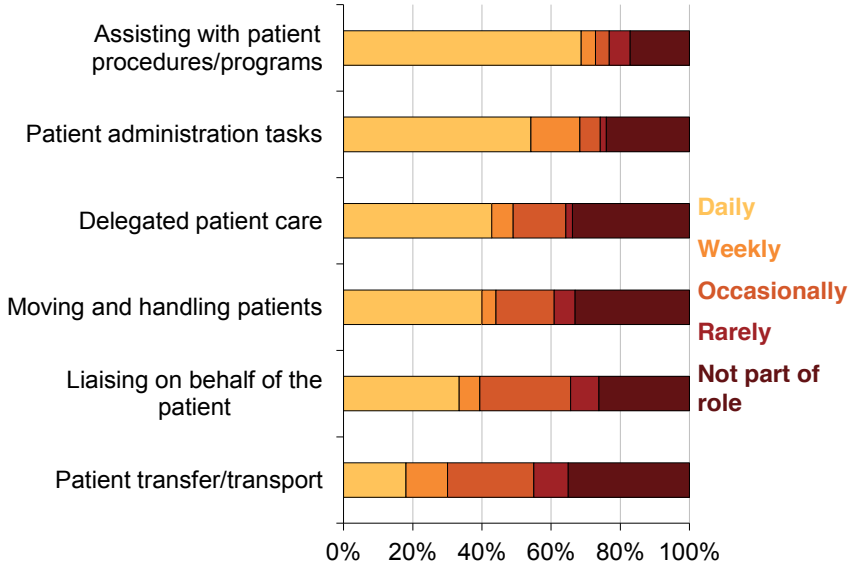
4.3 Extending the use of assistants in Australia

Expanding the use of allied health assistants could be done without reducing the quality of care. There is even some evidence that using assistants can improve patient outcomes. A study at Austin Health in Victoria found that patients receiving a specific intervention from a physiotherapy assistant had a shorter stay in hospital and were also more likely to be discharged into their own home, instead of to a care facility.[117]

Other studies have found that assistants can benefit patients through reduced skin breakdown rates, a decline in the average ventilator days per patient, and increased participation in the activities of daily life.[118] When assistants complete less complex tasks, allied health professionals can spend more time with patients, improving outcomes and patient satisfaction.[119]

Health Workforce Australia notes that limited career pathways are a significant reason for physiotherapists to leave clinical practice.[120] Assistants can allow allied health practitioners to work at the higher end of their skills, such as program development and coordination.[121]

Figure 10: How often discipline-specific allied health assistants in WA report doing certain patient care duties, 2008



Note: n=106. 49 per cent of respondents were generic assistants. The disciplines with most support, both generic and specific, were OT, physiotherapy and speech pathology. A range of other allied health disciplines were also represented, including dietetics, audiology, podiatry, orthoptics, orthotics and prosthetics.
Source: Chief Health Professions Office (2008a), Figure 16

[117] Nall, *et al.* (2007); Department of Health (Vic) (2012d). There was an 8.8 per cent reduction in length of stay and 74.4 per cent of patients were discharged to their home, compared to 62.2 per cent before the intervention.
[118] Colbran-Smith (2010), Lizarondo, *et al.* (2010). Conti, *et al.* (2007) et al found that the ventilator pneumonia rate for 2006 was 3.7, compared to 4.1 in 2005. They also found reduced skin breakdown and average ventilator days per patient. Department of Health (Vic) (2012d) reports that mean scores for the participation in the activities of daily life increased after the introduction of OT assistants to Ballarat Health Service.
[119] Colbran-Smith (2010)
[120] Health Workforce Australia (2014)
[121] Extended roles for physiotherapists in emergency departments are also currently being piloted, Health Workforce Australia (2013a)

While some assistants are already used in hospitals in Australia, allied health professionals still do many tasks that assistants could do.

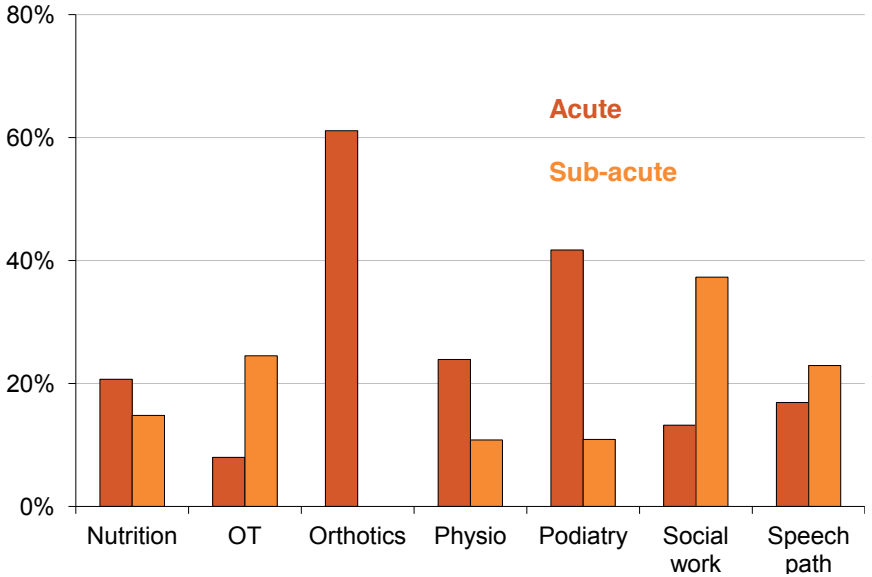
Figure 11 shows the proportion of time that allied health professionals in The Alfred and Caulfield hospitals in Victoria spend on tasks that assistants could perform. Physiotherapists, for example, spend 24 per cent of their time doing tasks an assistant could do. Of these, 84 per cent were clinical tasks, such as treatment, assisting with discharge planning and equipment.[122]

A Grattan survey of hospital CEOs reflects this. Respondents believed that, on average, 29 per cent of the work currently done by OTs and physiotherapists could be done by other workforce groups. Furthermore, 91 per cent of CEOs agreed or strongly agreed that redistribution of tasks could be done without reducing safety or quality.[123]

As Chapter 7 explains, training and support for change management are important for the safe implementation of assistants, but as a conservative target, this report recommends that assistants could do 25 per cent of the work currently done by physiotherapists and OTs.[124]

Evidence on the cost savings from the use of assistants is scant, but it suggests that assistants could be introduced safely while making the provision of allied health care more efficient.[125]

Figure 11: Percentage of time that allied health professionals spend on assistant-attributable tasks in two hospitals in Victoria, 2012



Note: Assistant attributable tasks were determined by allied health practitioners.
Source: Department of Health (Vic) (2012a), Graphs 3 and 4, p. 28-29

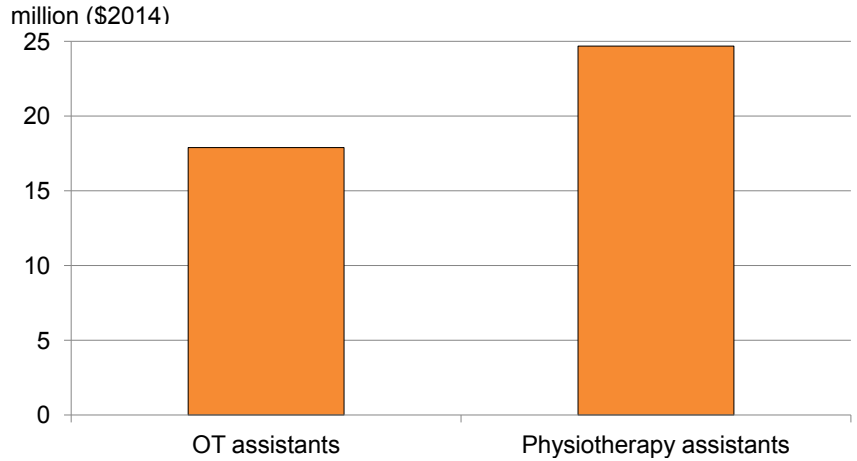
[122] Department of Health (Vic) (2012a), Table 3, p. 29. Similarly, an analysis by allied health directors of allied health tasks in the Mackay Hospital and Health service (Queensland) found that 39 per cent of ED tasks and 56 per cent of community tasks could be delegated, Pighills, *et al.* (2013).
[123] 86 per cent agreed or strongly agreed that OT tasks could be redistributed without compromising safety or quality.
[124] This report proposes discipline-specific assistants because there may be greater clarity around their role. There may be room for generalist assistants, such as an OT and physiotherapy assistant.
[125] Thomas, *et al.* (2005), van den Hout, *et al.* (2005)

4.4 Cost impact of expanding the use of allied health assistants

The CEOs we surveyed overwhelmingly supported shifting some allied health work to assistants and there is strong evidence that it is safe. Physiotherapists are currently paid an average of $89,000 and OTs an average of $76,000.[126] Allied health assistants are currently paid considerably less: $48,000.[127]

We suggest expanding the number of allied health assistants so that assistants do 25 per cent of allied health work, with additional supervision by allied health professionals.[128] Expanding the use of physiotherapy and OT assistants could save $43 million a year (see Figure 12), allowing 8500 more patients to be treated at current funding levels.[129]

Figure 12: Annual savings from expanding use of allied health assistants, 2010-11



Source: Grattan Institute

[126] Base pay plus overtime. Average for Queensland and Victoria weighted for the states' populations.
[127] Physiotherapy assistants - $48,357 – and OT assistants - $47,596. Base pay plus overtime. Average for Queensland and Victoria weighted for the states' populations.
[128] Calculations are based on 12.5 per cent additional supervision time.
[129] The methodology for costings is explained in the methodological appendix.

5. Making it happen

We must change!!!!

- Hospital CEO[130]

It's necessary and inevitable but seems to be taking forever.

- Hospital CEO[131]

Entrenched workplace behaviours can increase resistance to worthwhile innovation.

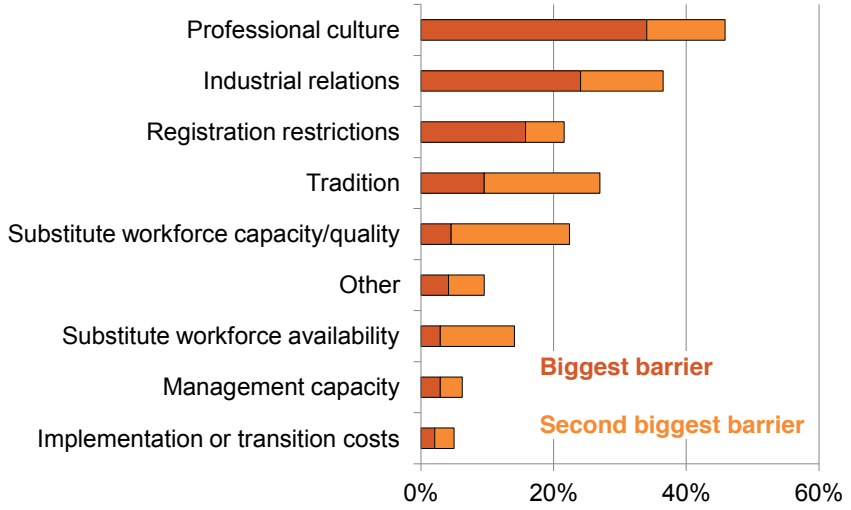
- Productivity Commission[132]

The previous chapters outline the benefits of introducing or expanding some workforce groups. Every year, public hospitals could save $430 million – about two per cent of their labour costs – in just the three case studies we have looked at, without compromising patient care.[133]

We can be confident that these changes would work. As well as the evidence from overseas, there have been successful trials of sedation nurses in South Australia in 2008 and endoscopy nurses in Queensland and Victoria since 2013. But these good examples are far from common. Why is reform taking so long?

Workforce reform is hard. Hospital CEOs cite two big problems that stand in the way of changing workforce patterns: regulation and culture.

Figure 13: Barriers to workforce change as reported by hospital managers, 2013



Source: Grattan Institute

[130] In response to Grattan Institute's Delphi survey
[131] In response to Grattan Institute's Delphi survey
[132] Productivity Commission (2005), p. xix
[133] in 2014 dollars. This is a conservative estimate that does not account for on-costs.

Figure 13 shows that almost half of hospital CEOs say 'professional culture' is one of the top two barriers to workforce change. Industrial relations and registration restrictions followed, with 37 and 22 per cent respectively. The Productivity Commission has confirmed the CEOs' responses that culture and regulation are big obstacles to change.[134]

It is relatively clear how to fix the rules and regulations. The next chapter outlines the changes that need to be made to professional registration, industrial negotiations and training.

Cultural barriers are more complex. This report argues that fixing the structural elements of the health system – funding and regulation – is essential. But, to overcome resistance to change, hospitals must also be supported to implement reform through incentives and training.

The final chapter suggests a package of support that helps to overcome the barriers and inertia that make long term change so difficult.

[134] Productivity Commission (2005), p. 28-29

6. Fixing the rules

Hospital CEOs identify registration restrictions and industrial relations as two of the biggest barriers to workforce change. These rules reinforce other important barriers: professional culture and tradition. Registration restrictions and industrial relations affect the reality and perceptions of who can do what, discouraging training providers, hospital managers and CEOs from trying new things.[135]

6.1.1 Registration

Health professionals must register with the relevant body before they can practise. For example, nurses register with the Nursing and Midwifery Board, and physiotherapists with the Physiotherapy Board.[136] These organisations monitor registration standards, such as English language status or criminal history, and determine the qualifications a workforce group needs.

Registration has practical consequences. Prescribing (by people other than doctors) requires specific recognition from the relevant national board.[137] Insurance policies that cover adverse events in hospitals also require registration of health professionals.[138]

To make it easier for endoscopy nurses and anaesthetists to work safely in Australian hospitals, these roles should be covered by specific registration endorsements. The Nursing and Midwifery Board should develop standards for these roles similar to the arrangements it has for nurse practitioners and midwives who can prescribe drugs.[139]

Assistants won't require registration. They will be supervised by nurses and will only undertake a narrow range of personal care tasks. They will, however, be covered by the code of conduct being developed for all health care workers.[140]

[135] See Nancarrow, *et al.* (2013) on 'legislative scaffolding' – regulatory changes required to facilitate and drive cultural change. See Dower, *et al.* (2013) on regulation influencing perceptions of roles, p. 1974-5. For example, regulatory barriers to the employment of physician assistants meant forced pioneering physician assistant training at the University of Queensland to close because of low demand. Sweet (2011)

[136] All these professional boards operate under the nationally-consistent Australian Health Practitioner Regulation Agency (AHPRA). Registration is not required for the assistant workforce.

[137] As outlined in the Health Professional Prescribing Pathway, a nationally consistent approach to prescribing developed by Health Workforce Australia (2013d). States will also have to amend legislation to allow prescribing by sedation nurses.

[138] VMIA (2013a), Section 4.5. This excludes assistants who work under the direct supervision of a registered professional. Insurance charges may be higher for the new workforce groups. As insurance is a small component of hospital costs, however, this would be more than offset by payroll savings from new workforce roles. See the methodological appendix for further discussion.

[139] This should include a provision to ensure specialist nurse roles maintain their skills.

[140] Australian Health Ministers' Advisory Council (2014)

6.1.2 Industrial and professional negotiations

All existing workforce groups discussed in this report are represented by a union and a professional body. Their employment is partly regulated by an agreement between the relevant union and state governments. The agreements specify working conditions that range from the broad tasks different workforce groups do to their wages and working hours.

Industrial relations are complex. Each party has different priorities, including protecting employment levels, guaranteeing safe working conditions, promoting broader roles, managing costs and safeguarding patient care. As we have shown, the changes proposed in this report will not threaten the quality of patient care.

A comprehensive analysis of industrial relations is beyond the scope of this report. Yet we propose a practical change that could make it easier to get a better match between jobs, skills and workers.

Introducing workforce change is, and should be, a process of negotiation. But unions are often concerned that changes will threaten their members' jobs and livelihoods. In this context, the right to consultation and the threat of industrial action can be seen as a veto over workforce reform, paralysing change.[141]

This is particularly the case for nursing, given the impact such a large workforce group has if it decides to take industrial action. As long as nursing assistants are seen as a threat to nursing jobs, strong resistance to change is likely. But there will be continual growth in demand for nurses over the next five years.

One solution is a state reform framework that takes fear of job losses out of the equation. Because demand for hospital care is growing, employment levels can be guaranteed at the state level even when new roles are being created.[142] In return for maintaining jobs, an increase in nursing assistants could be agreed. Consultation on the details of local implementation would remain. At the same time, nurses could take broader roles in endoscopy and anaesthesia, giving them new opportunities.

Some restrictions in workplace agreements may need to be suspended or revised as part of this approach. An example is Victoria's requirement for a specific number of registered nurses per patient (nurse-to-patient ratios).[143] Employment guarantees at

[141] Most enterprise bargaining agreements include a clause that ensures that union members are consulted about decisions by hospitals to change the workforce. An example is Clause 32 of the Victorian nursing agreement. Department of Health (Vic) (2012b), p. 46. Industrial action can include strikes or 'work to rule' where workers only perform their narrowly specified responsibilities.

[142] Job losses may be necessary in individual hospital networks where demand is stagnating, but across the country demand for nurses is increasing. In the decade from 2001, the overall number of nurses has increased by more than a third (Australian Bureau of Statistics (2013)). Workload shifts can happen within this growth, reshaping the workforce of the future, while maintaining jobs for existing nurses, see Chapter 7.

[143] Agreements in other states do not have this restriction. Generally one nurse to four patients during day shifts, but ratios may be adjusted depending on patient profile, the capacity of nursing staff to complete activities within their working hours, clinical risk, OH&S and staff engagement. Further details found in Section 42 and Schedule C of Department of Health (Vic) (2012b). Our recommendations are predicated on maintaining the same number of care hours per patient so there will be no reduction in available time on any ward.

a state level can be made, but rigid ratios in all hospitals would make it much harder to get the mix between staff and skills right.

By removing the threat of job losses, hopefully all sides could focus on the benefits of creating high-skilled jobs in the interests of employees, hospitals, governments and – most importantly – patients.

Professional bodies should recognise that the changes suggested in this report provide new opportunities. While less complex, personal care tasks can be done by others, the door is opened for nurses to take on traditionally medical procedures.[144]

6.1.3 Training

Currently, there is no consistent national qualification for nursing assistants in Australia. Specialised nurse roles have only been implemented on a trial basis and so training programs have not become widespread or systematised.

There should be clear and consistent standards for the qualifications and training of new workforce groups.[145] We should avoid unnecessary new rules, however. Training requirements should only be as prescriptive as patient safety and quality care require.

Training should be competency-based. In other words, course completion is based on what students have learnt to do. Trainees must show they can provide safe and quality care across a range of tasks, not simply attend training on certain topics for a certain length of time.[146]

Hospitals should ensure that anyone they hire into the new roles outlined in previous chapters has demonstrated competency by gaining certification that meets the Australian Qualifications Framework. The Council that governs the Framework will guide exactly what certification would require.

Training could take a range of forms, including courses similar to existing certificates III and IV in health care assistance, recognition of prior competencies, or workplace up-skilling programs for existing staff.

The exception is nurse anaesthetists, since the nature of the care they are providing means that patient risk is higher. We recommend a specialised masters degree, as in the USA (see Chapter 3).

6.1.4 Specifying clear roles for assistants

National standards for assistant training will help ensure clearly delineated roles. In addition, states should commit to an explicit scope for nursing assistant and allied health assistant work. This will help ensure a consistent approach and avoid risks that can be caused by ambiguous workforce roles.

[144] The Australian College of Nursing, for example, already directly supports nurses to upskill through nurse practitioner training through the offer of scholarships.
[145] Nancarrow, *et al.* (2013)
[146] With competency-based training in place, in England health care assistants were perceived to be an asset to critical care units, Bowman, *et al.* (2003). An evaluation of the introduction of competency-based training in Ireland found that 92 per cent of trainees felt that training provided them with the skills and knowledge necessary to be an assistant, McKenna, *et al.* (2004).

7. Changing the culture

Professional culture was the biggest barrier to change identified in our survey. Many governments and hospitals are already trying new things. But these efforts rarely change how things are done across the board, or shift perceptions about professional roles. Most innovations are small-scale pilots that can test new ideas, but rarely lead to wider reform.[147]

Change takes time.[148] Yet most pilot projects are funded for a limited period, such as a year or 18 months. This is rarely long enough to embed a project in a hospital.[149] Often everyone involved knows the project is time-limited, making proper integration of new staff seem less important.[150] Once funding for the pilot ends, even continuing the limited changes it has achieved is uncertain.[151]

Pilots tend to function on a small scale – often only in one or two departments of a single hospital. If other hospitals or policy makers don't know about the successful pilot or don't have enough will to change, innovation is hard to spread.[152] A sedation nurse project in South Australia, for example, had an initial pilot workforce of three in one hospital, expanding to six when the reform was proven successful.[153]

Because managers are often understandably reluctant to replace an existing model with a short-term, unproven one in a pilot, new groups of employees are usually added on top of existing staff, with traditional practices and roles largely unchanged.[154]

Finally, pilots are often introduced in areas that are most eager to try new things.[155] This sidesteps much of the cultural reluctance that prevents change from spreading elsewhere.[156]

7.1.1 Investing in change: financial incentives

Pilots can show that a new approach works. But change needs to happen throughout the system, not just on a trial basis.

There are many barriers to change, including inertia and resistance. Incentives can counteract them, rewarding the hard work needed to shift working practices.[157] One of the biggest levers that governments have is funding for staff and procedures.

[147] Simmons, *et al.* (2007)
[148] Bradley, *et al.* (2004), p. 7
[149] DLA Piper (2011), p. 18
[150] Greenhalgh, *et al.* (2004), p. 608
[151] Bradley, *et al.* (2004), p. 7; Simmons, *et al.* (2007), p. 145
[152] Berwick (2003), p. 1970; Kuipers, *et al.* (2008)
[153] Long (2008)
[154] Examples of this include Nursing Assistants in Victoria – PwC (2011) – Physician Assistant pilots in Scotland, South Australia and New Zealand – Farmer, *et al.* (2011); Ho, *et al.* (2010) – and Sedation nurses in South Australia – Jones, *et al.* (2011).
[155] Berwick (2003); Jones, *et al.* (2011)
[156] UNICEF (2013), p. 45
[157] Bradley, *et al.* (2004), p. 8

This report proposes a transition grant to help hospitals to make changes to their workforce.

A transition grant is needed for two reasons. First, it will cover the one-off costs of change that hospitals will have to meet. These include revising rules and procedures and ensuring that all staff understand the changes that are happening. Second, the grant could exceed these costs in the short term, providing an incentive to take on the challenging task of change.

In the first year, the grant might fund the full cost of the new workforce groups (see Box 5 for how a transition grant might work). Then funding should taper over time. That will give hospitals a reason to embed change early, when financial support is greatest (see Table 1 for an example). If hospitals put off change, they will be left with above average costs after the transition grants are over – another reason to get started early.[158]

Making changes to workforce roles will be easier in some hospitals than others. Some are treating more people while others have a steady or shrinking workload. In addition to whether a hospital is growing, there may be other differences that require different targets or time periods.[159]

Growing hospitals are already adding staff to meet new demand. The transition grant would encourage them to hire certain groups, such as nursing assistants or endoscopy nurses. Hospitals that are not growing face more difficult decisions. A longer, five-year grant would let them use natural attrition to help adjust their workforce.

As a condition of ongoing funding, hospitals would have to show they are making progress towards a new workforce mix, by meeting clear targets. They would also need to meet the training requirements outlined in Chapter 6 and demonstrate that assistants were working within a clear and limited role.

Other Grattan reports indicate there are savings to be made in the health system that could help finance transition grants in the short term.[160] Over time, state governments would recoup the cost through lower labour costs and lower payments to hospitals under activity based funding.[161]

[158] If other hospitals act, hospitals that don't change will have costs above activity-based prices (unless their relatively high wage costs are offset by below-average costs in other areas).

[159] For example, the scope for change might differ for smaller, rural or teaching hospitals, or hospitals that deliver a different mix of services. However, all hospitals can make at least some workforce adjustments. We believe a universal approach with some flexibility about targets is the best way to achieve widespread change.

[160] Duckett, *et al.* (2013). See also Productivity Commission (2005), p. 29

[161] The hospital funding system is explained in detail in a previous Grattan report, Duckett, *et al.* (2014)

Box 5: How a transition grant might work

1. Hospitals sign up to embed new roles in their workforce. They agree to establish a target of existing and new workforce groups, not to simply add new groups to existing staff.
2. Hospitals get a time-limited grant to fund a proportion of the cost of introducing a new workforce. It tapers over time as the costs of changing work practices decline.
3. At the mid-point of the grant, hospitals must prove they are halfway to meeting the final staffing target. The second half of the grant is conditional upon demonstrating progress.
4. The transition grant finishes at end of a set period, by which time new workforce roles should be embedded.
5. Savings will be passed back to the system by a fall in the cost of care. Under the activity-based funding model, prices are based on the average cost of providing services in previous years. Therefore, when workforce reform makes service delivery more efficient, the average cost for services will decrease.

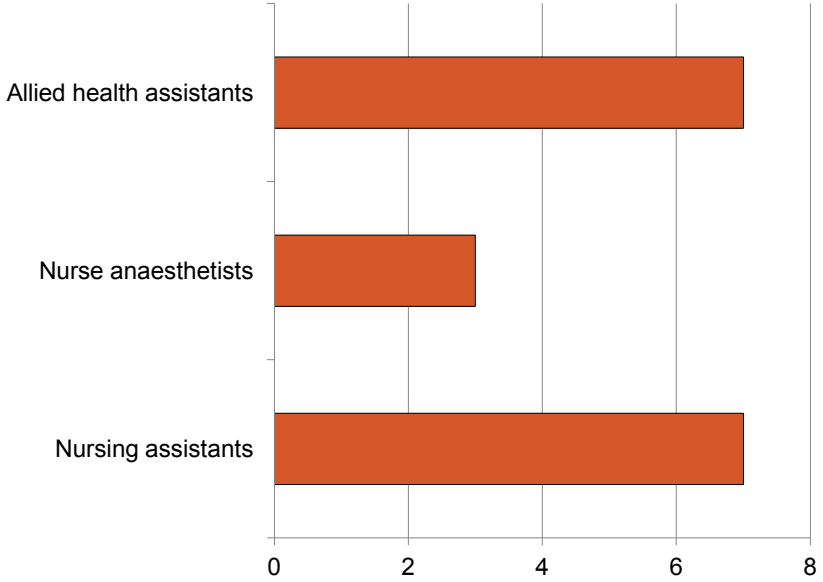
Table 1: Proposed transition grant funding model (example of nursing assistant)

		2014 (before)	*2015*	*2016*	*2017*	*2018*	*2019*
Hospital A (growth hospital, early adopter)	RNs*	100	100	100	100	100	100
	nursing assistants*	0	5	10	15	15+	15+
	% nursing assistant wages paid by transition grant	-	100	67	33	0	0
Hospital B (non-growth hospital, early adopter)	RNs*	100	97	94	91	88	85
	nursing assistants*	0	3	6	9	12	15
	% nursing assistant wages paid by transition grant	-	100	80	60	40	20
Hospital C (growth hospital late adopter (2017))	RNs*	100	100	100	100	100	100
	nursing assistants*	0	0	0	9	12	15
	% nursing assistant wages paid by transition grant	-	0	0	33	0	0

*Note: *As a percentage of the RN workforce in Year One. Transition grant period is shaded.*

Figure 14 shows the point at which the transition grant would be repaid in savings for the three workforce groups studied in this report. All estimates are less than seven years, but are low for nurse anaesthetists as their wages are much lower than those of medical anaesthetists. The short payback periods show that governments will be making a relatively small sacrifice for lasting savings in their budget.

Figure 14: Payback period for transition grant



Note: Given the method used to estimate the number of endoscopy nurses needed, it was not possible to calculate a payback period. However, it is likely to be similar to anaesthetists given the similar wage differences between medical specialists and endoscopy nurses.
Source: Grattan Institute

7.1.2 Leading workforce change

Leadership is essential to lasting implementation of workforce reform.[162] Championing a project, especially against resistance, takes considerable time and effort.[163]

Managers can help integrate new workforce groups in many ways.[164] The incoming group should be welcomed and provided with appropriate management, supervision and professional support. Clarity about the new role is vital to successful implementation. Managers should minimise misinformation by clearly explaining staffing changes and the impact they will have.[165]

Yet it should not be taken for granted that managers always know how to lead structural change.[166] It happens rarely, so most managers will have little experience of how to manage it.[167] They still have to deal with the usual running of the hospital and cannot devote all their time to change.

Managers will need support.[168] Some will come from internal 'change champions': respected staff members that encourage

[162] Berwick (2003), p. 1974; Aarons (2006), p. 1162
[163] Snell (1998) cited in McKenna, *et al.* (2004), reported many assistants in the UK being left in charge of a shift. Bradley, *et al.* (2004), p. 4-6
[164] Productivity Commission (2005), p. 309
[165] Bohmer and Imison (2013), p. 2028; Nancarrow, *et al.* (2013); McCannon, *et al.* (2007), p. 1938; Productivity Commission (2005), p. 308; Franco, *et al.* (2002), p. 1259; Nancarrow, *et al.* (2013)
[166] Doh (2003); McCannon, *et al.* (2007), p. 1939; Doh (2003)
[167] Health Workforce Australia (2012d), p. 6-7
[168] Productivity Commission (2005), p. 304; Doh (2003)

others to view reform as a positive step.[169] But this alone may be insufficient. Change management training delivered by states can help give leaders the skills they need. A recent Health Workforce Australia review found that very few leaders in Australian hospitals receive change management training.[170] The organisation is now developing leadership tools, networks and programmes.[171]

The New South Wales Government has tried to address this by establishing a Centre for Healthcare Redesign. It provides support and training to help staff redesign and reform their services. This includes a diploma program for senior managers and clinicians to develop their service redesign skills.[172]

States could also choose to develop a central expert team who can help leaders where they work. The Victorian Department of Health employed a central support team as part of the Redesigning Hospital Care Program, which funded about 250 redesign projects in hospitals. The team coordinated redesign efforts and provided advice and tools for health services to use.[173] An evaluation found that it "delivered measurable improvements and positive returns on investment across the health care system."[174]

[169] Greenhalgh*, et al.* (2004), p. 602-3; Bradley*, et al.* (2004), p. 4; McWilliam and Ward-Griffin (2006), p. 120; Nancarrow*, et al.* (2013)
[170] Health Workforce Australia (2012d), p. 7
[171] Health Workforce Australia (2013c)
[172] NSW Agency for Clinical Innovation (2913)
[173] DLA Piper (2011), p. 23
[174] Ibid.

Conclusion and recommendations

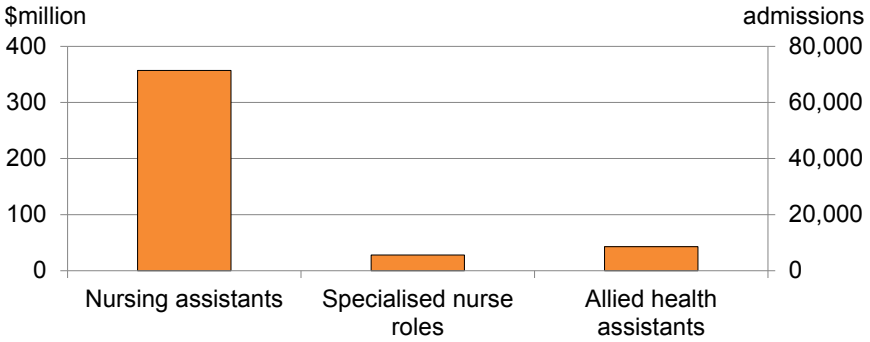
Unlocking the skills of just three types of staff could save public hospitals nearly half a billion dollars a year, as Figure 15 shows. That could pay for 85,000 hospital admissions. Job satisfaction would be higher because staff could focus on the more challenging aspects of their work. Quality of care would be maintained or improved.

Most of the savings come from changes to nurse roles. As Figure 16 shows, anaesthetists earn $290,000, but new sedation nurses would make $86,000. Over time, and as new evidence comes to light, the approach outlined in this report can be applied to many other workforce groups.

Two things will help ensure change can spread through the hospital system, not remain in isolated pockets. The first is fixing the rules that stand in the way. The second is providing the right incentives and skills to help hospitals update their workforce roles. These actions are summarised in Table 2.

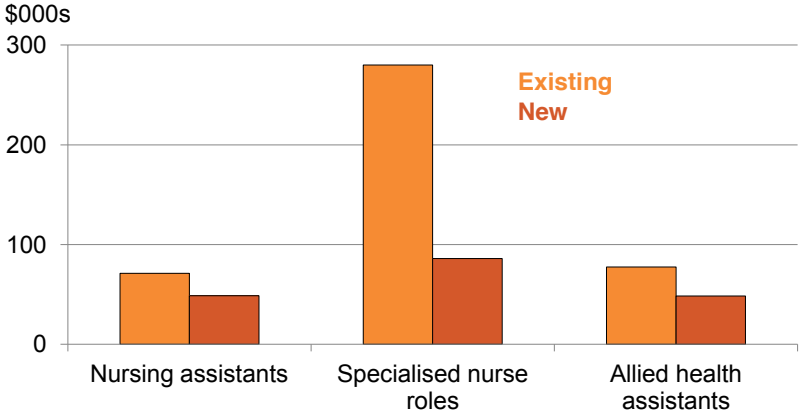
The hospital system is under pressure from rising demand, skill shortages and squeezed budgets. Instead of more of the same, these challenges require sensible adjustments to how duties are allocated. If the right work is done by the right people, it can make hospital jobs better as well as freeing up funding for more hospital care.

Figure 15: Annual savings from recommendations, 2012 ($2014)



Source: Grattan Institute

Figure 16: Salaries of existing and new workforce groups, 2012



Source: Queensland and Victoria payroll data

Table 2: Recommendations

Invest in change • Transition grants • Change management training	States should offer a transition grant to hospitals to help introduce new workforce groups, provided they demonstrate real change. The grant would taper over time to encourage early change. States should fund training in change management for hospital managers.
Fix the rules • Adjust registration • Training standards • Amend legislation	The Nursing and Midwifery Board should change registration to support new nurse roles. The Australian Qualifications Framework Council should specify standards for competency-based, nationally consistent training for nursing assistants, allied health assistants and specialised nurse roles in the Australian Qualifications Framework. Hospitals should only hire people who have completed training that meets these standards. States should change legislation to allow prescribing by sedation nurses.
Improve industrial arrangements	States could guarantee no reduction in the nurse workforce across the state. In return, professional bodies and unions could accept new workforce roles and remove requirements that limit workforce flexibility, such as nurse-to-patient ratios.
Introduce new workforce groups • nursing assistants • specialised nurse roles • allied health assistants	With the above recommendations in place, over five years hospitals should: • shift 15% of nurse workload to nursing assistants, with added monitoring by nurses • employ trained specialised nurses to do endoscopies that do not involve biopsies or further treatment, and where medical specialists are available if needed • employ sedation nurses to do sedation only on low-risk patients (rated low-risk, aged 16-75, having non-emergency procedures – about three per cent of admissions involving anaesthesia), where medical specialists are available if needed • shift 25% of the OT and physiotherapy workload to assistants, with supervision of delegated tasks

8. Methodological appendix

8.1 Delphi survey methodology

This report was informed by a Delphi survey of hospital CEOs and their direct reports. Delphi surveys consult participants over a number of rounds and aim to gather a large amount of qualitative information from experts in a field in a structured way, especially in areas where existing evidence may be limited.[175]

The Delphi method seemed appropriate for this report as it was a way to gather expert consensus from across Australia on a topic where it was not clear if there would be consistency among respondents. It was not feasible to gather a consensus view from experts at very large scale.

The Delphi method also provided the opportunity to ask questions in stages. First, the survey asked respondents to explain which workload shifts were possible without compromising quality and safety, and how large they could be. Following this survey, results were analysed and reported back to the sample. Respondents were provided with the average results from the previous round, as part of a follow-up survey. This second survey contained some repeated questions, as well as some new questions (such as questions about barriers to change). The aim was to determine a consensus view from surveyed CEOs about workforce change options.

The presentation of original responses, anonymously, allows respondents to reconsider their initial responses in round two, informed by what their peers said.

8.1.1 Survey respondents

The short online surveys were distributed to hospital CEOs and their direct reports with assistance from the Australian Hospitals and Healthcare Association and Catholic Health Australia.

Table 3 provides descriptive statistics of the sample. Responses were received from metropolitan, regional and rural, as well as public and private hospitals.[176] The backgrounds of the CEOs and their direct reports suggest significant clinical, as well as management, experience.

Although the sample sizes may seem small, these are within the range of typical responses to Delphi surveys.[177] The survey was designed to identify the areas to be examined, and the number of responses is adequate for that purpose.

[175] For more detail on Delphi surveys, see Ismail (2009) and Hsu and Sandford (2007)

[176] The only statistically significant difference in the level of substitution suggested by public and private hospital CEOs was for the substitution of OTs – private CEOs believed that 42 per cent of work could be substituted compared to 23 per cent by public CEOs. Both results are above the substitution level suggested in this report. There was also a significant difference in support of three substitutions – residents and interns to RNs and interns to ENs. In each of these cases public hospital CEOs agreed more with the substitution. However, none of these substitutions is discussed further in the report.

[177] Ismail (2009), p. 28

One criticism of Delphi surveys is the difficulty of keeping participants involved round to round.[178] This is seen in our sample, where only 46 per cent of respondents in round two had participated in round one.

As with any survey, there is the potential for response bias – it may have been the case that respondents were more supportive of workforce reform than non-respondents.

Table 3: Descriptive statistics of Delphi survey of CEOs and direct reports, 2013

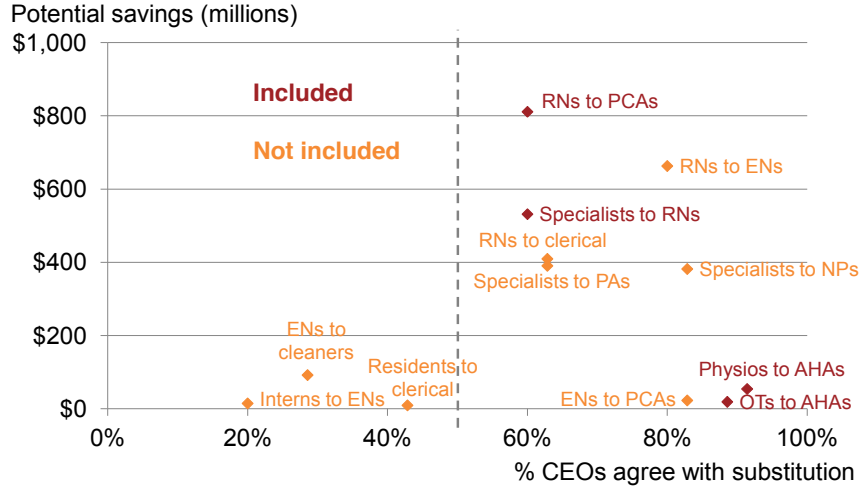
	Round one	*Round two*
n	43	35
Location		
- metropolitan	35%	29%
- major regional	12%	20%
- rural and remote	53%	51%
Position		
- CEO of a public hospital	33%	37%
- CEO of a private hospital	19%	14%
- CEO of a local health district	7%	20%
- directly reports to CEO	33%	23%
- other	9%	6%
Background		Question not asked
- medical	12%	
- nursing	67%	
- allied health	2%	
- other	19%	

[178] Hsu and Sandford (2007), p. 4

8.2 Workload shift savings

Workforce reform is difficult, controversial and in some cases could compromise the quality of care. Therefore we chose to focus our example reforms on the workload shifts that had extremely strong support from CEOs and would most improve efficiency (see Figure 17).[179]

Figure 17: Changes by estimated savings and CEO support, 2013



Note: NPs are nurse practitioners; PAs are physician assistants. As far as possible, calculations were based on AIHW workforce figures and Queensland payroll data (Victorian payroll data was not available at the time of this initial analysis). PAs were paid according to figures in Duckett, S. et al. (2013). Interns were paid at the same rate as Residents. Substitutions that generated less than $2 million are excluded from the figure. Source: Australian Institute for Health and Welfare (2012b);Australian Institute for Health and Welfare (2013a); Queensland payroll data

[179] While these are only the opinions of one stakeholder group, their views were sufficiently indicative to proceed with further research.

Due to limited evidence on quality and safety or minimal expected savings in the short term, we did not investigate the following five workload shifts:

- RNs to ENs[180]
- ENs to nursing assistants[181]
- RNs to clerical workers[182]
- specialists to physician assistants[183]
- specialists to nurse practitioners.[184]

8.2.1 Data

We used a number of data sources in the calculations for this report:

- Census (2011) workforce figures for nurses and allied health professionals. Nurses were counted if they were: registered nurses, nurse managers or nurse educators. Midwives were not counted as registered nurses.[185]
- AIHW full time equivalent (FTE) assumptions on hours worked by different workforce groups.[186]
- ABS state population statistics for the quarter up to June 2012.[187]
- Payroll data for Queensland and Victoria, weighted by population. We received data for financial years 2011/12 and 2012/13 from Queensland, and the month of June 2012 for Victoria.[188] To combine these data we weighted average salaries (base pay and overtime) by state population. We assumed that these weighted averages are nationally representative. Neither dataset included a breakdown of specialist wages so alternative data were used.

[180] There is limited evidence on the impact this would have.
[181] There is a very small number of ENs in hospitals (8000). Combined with the relatively small gap between EN and nursing assistant wages, this results in very limited opportunities for savings.
[182] There is limited evidence to justify this proposal.
[183] PAs would do similar work to residents and interns (doctors paid at similar rates to PAs). Therefore, the savings to the system would come through the lifecycle of a doctor by reducing the number of trainees. These savings would not be realised within our five-year timeline so physician assistants were excluded.
[184] As discussed in Chapter 4, we also did not explore nurse practitioners specifically as, like specialised nurses, they would take on some medical workload and responsibilities, but with much broader roles so risks to the quality of care are harder to evaluate.

[185] Australian Bureau of Statistics (2011)
[186] Australian Institute for Health and Welfare (2012b); Australian Institute for Health and Welfare (2013a)
[187] Australian Bureau of Statistics (2012)
[188] June is taken as a valid representation of workforce and pay rates. Three small rural health services are excluded from the analysis due to missing data. June pay was estimated for two health services based on the EFT of the last month they reported (May 2012).

- MABEL, a national survey of doctors' working lives, particularly for specialists' salaries, Wave 4 (2011).[189]
- National Hospital Cost Data Collection (2010-11) to calculate anaesthesia risk.[190]
- National Hospital Morbidity Database (2009-10), to calculate the number of public endoscopies performed.

Census workforce numbers are for 2011, while payroll data is for 2012. Given growth in hospital staffing numbers, our calculations underestimate savings for 2012.[191]

8.2.2 General assumptions

We made a number of assumptions for our workforce substitutions that informed our savings calculations:

- All substitutions are as safe as existing workforce roles for transferred tasks (see evidence in various chapters).
- All substitutions, except for nursing assistants (discussed below), are as productive as existing workforce roles for transferred tasks (see evidence in various chapters).
- A working year is 48 weeks; average working hours and FTE assumptions were taken from AIHW figures.[192]
- Wages would not increase or decrease based on changed demand for existing workforce groups.
- External training costs, such as university or TAFE qualifications, are excluded from our calculations.
- On-the-job training costs are excluded from our calculations as we do not expect training costs to be significantly more than hospitals currently pay for professional development.
- Insurance premiums would not change significantly.[193]
- On-costs were not calculated. As we are reallocating work without a significant change in overall employee numbers, we assume on-costs would not differ substantially. If anything, on-

[189] The MABEL longitudinal survey of doctors is conducted by the University of Melbourne and Monash University (the MABEL research team). Funding for MABEL comes from the National Health and Medical Research Council (Health Services Grant: 2008-2011; and Centre for Research Excellence in Medical Workforce Dynamics: 2012-2016) with additional support from the Department of Health (in 2008) and Health Workforce Australia (in 2013). The MABEL research team bears no responsibility for how the data has been analysed in this publication,

[190] The NHCDC dataset covers approximately 83 per cent of public hospital admissions, excluding small hospitals. Independent Hospital Pricing Authority (2013b); Australian Institute for Health and Welfare (2013f)

[191] In the years 2001-2011, there was an annual increase of 3.0 per cent nurses and 4.8 per cent specialists. Australian Bureau of Statistics (2013)

[192] Australian Institute for Health and Welfare (2012b); Australian Institute for Health and Welfare (2013a); Australian Institute for Health and Welfare (2013e)

[193] It is unclear exactly how much insurance hospitals pay. However, in 2012/13, Victorian Managed Insurance Authority collected $131 million in medical indemnity insurance premiums (VMIA (2013b), p. 56). The 2012/13 Victorian acute care budget was $9332m (Department of Treasury and Finance (Vic) (2013)). Medical indemnity covers a variety of health providers, not just acute care. But even if this were the case, insurance premiums would still constitute only 1.4% of hospital budgets, and the majority of professionals covered by this premium would be unaffected by the proposed changes.

costs would be reduced as our substitute workforces do less indirect care and non-clinical work, such as teaching, supervision and research.

- Savings were adjusted for inflation to 2014 dollars, using average workforce wage growth over the five financial years 2006-7 to 2011-12, published by AIHW.[194] No adjustments were made for growth in hospital workforce since 2011, so our savings calculations are very conservative.

8.2.3 Specific workforce group calculations

Nursing assistants

The payroll data for nursing assistants from Victoria and Queensland was based on a broader role than we propose in this report, and therefore did not adequately reflect the salary they would be paid. Therefore, nursing assistant salaries were taken from the Queensland Assistant in Nursing pay scale. We believe this is still a conservative estimate as Assistants in Nursing may do more than the nursing assistant role proposed.

As discussed in the report, additional nurses may be necessary to cover the lost monitoring that RNs do concurrent with personal care tasks. We assumed that a nurse could achieve the same level of monitoring in five per cent of the time they spend on personal care, provided this time was dedicated to monitoring. Hospitals would choose to add RNs or ENs based on the staffing profile of their hospital or the needs of their patients.

For our calculations, we assumed that 50 per cent of the additional monitoring role would be done by ENs and 50 per cent by RNs. The monitoring role is less complex than some of the tasks done by RNs, such as care coordination and treatment, and so we believe much of it could be done by ENs. We calculated that 872 FTE nurses would be needed for monitoring.

Allied health assistants

Allied health assistants may need additional supervision.[195] As a result, an additional 12.5% of allied health professionals' time was factored into the calculations for each allied health assistant.[196]

Nurse specialist roles (endoscopists and anaesthetists)

Current specialists were counted based on their self-reported main specialty in MABEL: gastroenterology and urology.

No medical specialists in our sample worked entirely in the public sector. Therefore, to work out the public salary we calculated the average salary of specialists who spent a majority (more than 50 per cent) of their hospital work (public and private) working in the public sector, weighted for the amount of work they did in public hospitals.

Endoscopy nurses and sedation nurses were paid at the weighted average of the most experienced clinical nurses in Victoria and Queensland. Nurse anaesthetists were paid at the rate of nurse

[194] Australian Institute for Health and Welfare (2013c)

[195] Ellis and Connell (2001); O'Brien, *et al.* (2013)

[196] Based on time use data from Chief Health Professions Office (2008a)

practitioners in Queensland and Victoria according to payroll data, weighted by population.

Endoscopy nurses

For the specialised nurse roles we needed to calculate the relevant procedures, not simply the number of medical professionals. Gastroenterologists, for example, do much more than just endoscopies, but unlike our assistant workforce categories, there is no time use evidence on which to base our assumptions.

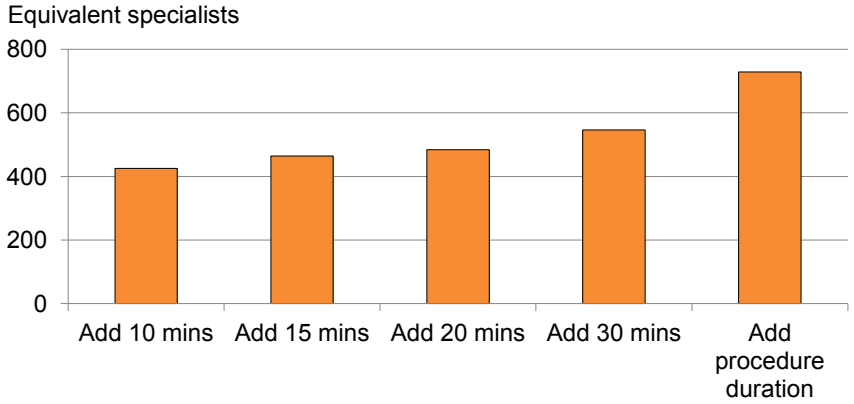
For endoscopies, we counted the number of less complex colonoscopies, flexible sigmoidoscoies, gastroscopies and cystoscopies done per year in public hospitals. Less complex refers to these procedures without biopsies or further treatment. Procedure times were estimated based on literature.[197]

We added additional time to cover the endoscopists' role in pre- and post- procedure consultation. We could not estimate the time this takes based on literature. Therefore, we ran a sensitivity analysis to estimate the number of specialists needed for different consultation times. In our final calculations we used 'adding ten minutes to procedure time', but alternative options are shown in Figure 18. The option we chose is the most conservative, resulting in the lowest savings estimate.

Using procedure time information, it was possible to calculate the number of gastroenterology and urology specialists required to work full-time only on the types of endoscopies that endoscopy nurses would be doing.[198]

As we were limiting the introduction of specialised nurse roles to larger hospitals where there were sufficient medical specialists to be on hand, we only used metropolitan workforce figures. The total number of endoscopists was calculated using the percentage of specialists that work in metropolitan areas according to the MABEL dataset. In the case of endoscopists this was the weighted average from 95 per cent of gastroenterologists and 93 per cent of urologists (based on their share of less complex endoscopies).

Figure 18: Sensitivity analysis showing number of specialists needed for different pre-/post-procedure time, 2011



Note: These estimations result in different substitution savings, from $12 million in the case

[197] Colonoscopy – 45 minutes. Flexible sigmoidoscopy – 25 minutes. Gastroscopy – 25 minutes. Cystoscopy – 25 minutes. Ginsberg, *et al.* (2012) Zamir and Rex (2002); Williams, *et al.* (2006); Petersen and Ott (2008); Encylopedia of Surgery (2013)

[198] Specialists weighted by procedure type.

of adding ten minutes, to $19 million in case of doubling procedure time. 20 minutes results in total savings of $15 million.

Nurse anaesthetists

There is good evidence that nurse anaesthesia is safe. However, to be conservative, we identified the safest cases for nurse anaesthetists to take on. Using the NHCDC dataset, almost four million procedures where anaesthesia was performed were analysed to show which patient characteristics and procedures are associated with the greatest risk of death.[199] We analysed patient age, anaesthesia risk category, procedure and whether that procedure was an emergency or not. [200]

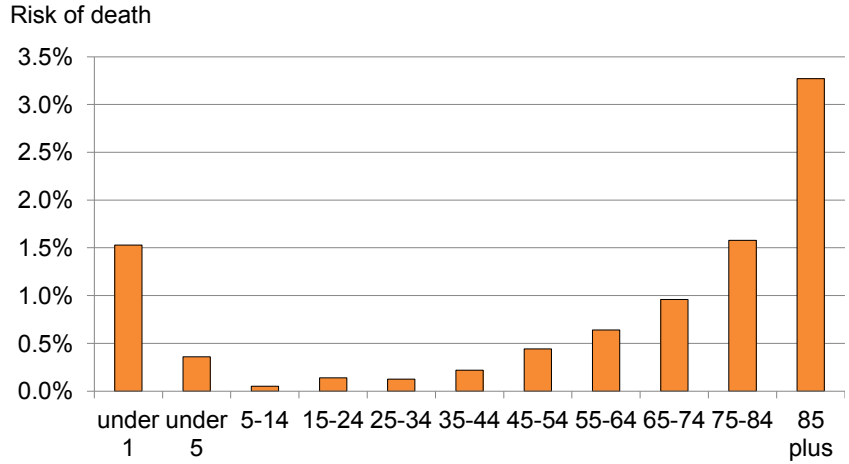
Risk of death was calculated by determining the proportion of separations (hospital episodes) that involved anaesthesia within a specific category (e.g. age over 75) that resulted in death. We counted deaths that occurred in a single separation as well as those that occurred following transfer from a different hospital.[201] This helps to account for cases when a procedure occurring in one hospital may be related to a death recorded in a second hospital.

It was not possible to determine which anaesthesia-related procedure in a separation caused death, so all procedures were counted as contributing to death – a conservative assumption.

The analysis also showed that the age of a patient greatly affects the risk of death from a procedure (see Figure 19). Very young patients have the highest risk of death, probably representing the risk of surgery upon neonatal babies.[202] The risk then rapidly decreases, only rising to over one per cent again when patients reach 75 to 84 years of age.[203] However, we also excluded paediatric anaesthesia (on patients under 16) due to concerns expressed during consultation.

[199] in Australia, 2010-11.
[200] Anaesthesia risk category refers to the American Society of Anaesthetists anaesthesia risk category which assigns a patient a code from one to six based on patient health. Category one refers to healthy patients, five to the sickest patients and six are those who are being operated on after becoming brain-dead, usually to collect donor organs.
[201] In some cases it was not possible to link admissions. This is most likely because patients transferred from or to a hospital not included in the dataset. These cases represent 0.05 per cent of the total sample.
[202] Children under one year of age receiving anaesthesia have on average a 1.53 per cent risk of death
[203] Over 75s have a risk of death of 1.9 per cent.

Figure 19: Risk of death by age, 2010-11



Source: Grattan Institute

Additionally, patients are assigned an anaesthesia risk code, which relates to their health status. Unsurprisingly, healthier patients are at less risk than those with higher risk codes.[204] Similarly, non-emergency patients are at lower risk than emergency patients, probably due to the advanced condition a patient is in when they must have emergency surgery.[205]

Procedures were analysed to determine a risk profile for various patient and procedure characteristics.[206] Separations were determined to be safe if all the procedures in that separation had a risk of less than one per cent.

Following initial analysis, it was determined that nurses should only provide anaesthesia to patients with an anaesthesia risk code of one to three, out of five, (a normal healthy patient, a patient with mild systemic disease or a patient with severe systemic disease that limits activity). In addition, nurse anaesthesia should be restricted to non-emergency patients. Each of these criteria had a risk of death of less than one per cent.

Criteria based on patient age, procedure, anaesthesia risk and emergency status were then combined to determine which patient *and* separations were safer and where nurse anaesthesia might be introduced. Table 4 shows the proportion of admissions that could be performed by nurse anaesthetists using different combinations of age and procedure risk.

As a result of this risk analysis we propose that the patients who nurse anaesthetists work on are rated low-risk, aged at least 16 but below 75 and are receiving non-emergency procedures that

[204] The risk of death for a "normal healthy patient" (classification 1) is 0.01 per cent versus 41.7 per cent for a "moribund patient not expected to survive longer than 24 hours without surgical intervention" (classification 5). The risk for someone with a mild systemic disease (classification 2) is 0.06 per cent; for those with a severe systemic disease (classification 3) it is 0.8 per cent and for those with a severe systemic disease that is a constant threat to life (classification 4) it is 7.5 per cent.

[205] Emergency patients have an average risk of 1.9 per cent versus 0.6 per cent for non-emergency patients.

[206] Age, emergency/non-emergency patient, ASA patient physical status classification and procedure

have a risk of death of less than one per cent.[207] This represents 27.5 per cent of separation involving anaesthesia. The risk of death for these procedures is 0.002 per cent.

Table 4: Proportion of separations including anaesthesia meeting different criteria for age and procedure risk (non-emergency patients with low-risk anaesthesia codes), 2010-11

Age / Proc. risk	16-55	16-65	16-75	16-85
0%	0.4%	0.4%	0.4%	0.4%
<1%	17.4%	22.5%	27.5%	30.9%
<2%	18.6%	24.1%	29.5%	33.3%
<5%	22.6%	29.9%	37.2%	42.1%
<10%	23.7%	31.5%	39.5%	45.1%

Source: Grattan analysis of Australian Institute for Health and Welfare (2013f)

While nurse anaesthetists are able to work on 28 per cent of cases, this may not represent 28 per cent of the anaesthesia workload. Some procedures, often the most complex and risky, take many hours while others take mere minutes.

We assume that high-risk procedures take four times as long as a low-risk procedure on average. This is not unreasonable given the procedure time for some of the most common low-risk procedures.[208] As a result, we estimate that about seven per cent of anaesthetists could be substituted by nurse anaesthetists.

We recognise that the low death rate achieved in many operations reflects current practices, where highly trained anaesthetists perform anaesthesia. As mentioned previously, nurse anaesthetists in the US are licensed to provide anaesthesia in all cases and the evidences is that they do so safely.[209] Therefore, our proposed limits on the types of activities where nurse anaesthetists can be introduced is conservative.

Sedation nurses

To calculate the proportion of sedation that sedation nurses could do, we counted the number of sedation procedures that met our low-risk criteria (the patient was in a low anaesthetic risk category, was aged 16-75 and was non-emergency).

This was then calculated as a proportion of the anaesthesia workload, using the procedure time assumptions outlined for nurse anaesthetists.

8.2.4 Workload shift rate

Our calculations are based on workforce substitutions at the rates shown in Table 5.

[207] Low risk patients have an ASA risk classification of one to three.

[208] Colonoscopies – 45 mins (see earlier in this chapter); gallbladder removal – 1.5 hours (UC San Deigo Health System (2014)); tonsillectomies – 30 mins (Medibank Private (2008)).

[209] Li, *et al.* (2009)

Table 5: Workload shift rates

Workforce group	*Proportion of workload shifted*	*Basis for estimate*
Nursing assistants	15%	Literature
Allied health assistants	25%	Literature
Endoscopy nurses	100% of less complex endoscopies in metro areas	The workload endoscopy nurses could do most safely
Nurse anaesthetists	7%	Lower-risk workload nurse anesthetists could do in metropolitan hospitals
Sedation nurses	3%	Lower-risk workload sedation nurses could do in metropolitan hospitals

8.2.5 Workforce salaries

Our calculations are based on salaries from Queensland and Victoria payroll data, the MABEL survey of doctors and the wage schedules from Queensland and Victoria, weighted by population. Table 6 shows the salaries for each workforce group.

Table 6: Workforce salaries

Workforce group	*Annual salary (FTE)*	*Source*
Nurse	$71,000	Payroll data
Nursing assistant	$49,000	Wage schedule
Medical anaesthetist	$291,000	MABEL
Sedation nurse	$86,000	Wage schedule
Nurse anaesthetist	$101,000	Payroll data
Medical endoscopist	$269,000	MABEL
Endoscopy nurse	$86,000	Wage schedule
Physiotherapist	$78,000	Payroll data
Physiotherapy assistant	$48,000	Payroll data
Occupational therapist	$77,000	Payroll data
Occupational therapy assistant	$48,000	Payroll data

8.3 Savings as services

We calculated the number of services that could be provided by the financial savings in terms of hospital admissions and less complex colonoscopies. The national efficient price is $4993.[210] Our savings would fund an additional 85,000 separations at the nationally efficient price.

The average NWAU (weighting for each procedure) was calculated for simple colonoscopies using the NHCDC dataset: 0.41. This was multiplied by the National Efficient Price to determine the cost of each procedure: $2062. This means that our savings translate to an additional 210,000 colonoscopies per year.

[210] for 2013-14, Independent Hospital Pricing Authority (2013a)

This represents about 125 per cent of the current number of simple endoscopies or approximately 16 per cent of all endoscopies currently done in Australia.

8.4 Transition grant payback period

The costs of the transition grant were calculated by multiplying the salaries of the new workforce group by the proportion covered under the grant (see Table 1). The savings were calculated by multiplying the difference between the salaries of the existing and new workforce groups by the number of the new workforce group.

The costs and savings were aggregated across years, and discounted according to the average state ten-year bond yield, weighted by state population.

The payback period is the point at which the costs to governments of funding the transition grant are outweighed by the return from lower workforce costs, and consequently a lower price paid to hospitals to deliver care.

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