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Changing health professionals' scope of practice: how do we continue to make progress?

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National Lead Clinicians Group
Enhancing clinical leadership and engagement in the Australian health system

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Executive Summary

What are the issues related to health professionals' changing scope of practice in Australia?

There is evidence that the current organisation of health professionals and health practitioners, and their associated scope of practice, are not suited to meet the needs of the Australian health system. This is contributing to unsafe and inefficient care delivery. There have been substantial changes in population health needs and the technologies, structures and processes of the health care system, yet there has been little change in the health workforce to adapt to the system requirements. Many of the difficulties in adapting the workforce are created by existing legislation and regulation, the funding models for health professional services, and entrenched professional cultures. There is no agreement on coherent policy for the health workforce even though the national, state, and territory governments have focused on this issue

What are the implications if these issues are not addressed?

Individual health services and health systems will be unable to implement changes to their health professional and practitioner workforce that enable them to meet the access, quality and financial targets necessary for sustainable operation of the public health system.

What can we do?

While there have been a range of health practitioner scope of practice changes documented in the literature, there is no analytical framework to categorise the changes to enable benchmarking of achievements and outcomes. In addition, few of the scope of practice changes have been evaluated, and those that have, suffer from poor methodology and lack of economic evaluation. This suggests that there are no ready-made solutions waiting on the shelf and leads to the following recommendations.

1. Include health professional and practitioner scope of practice as a standing item on the national, and state and territory health policy agendas, with the goal to develop national policy directions that are supported by all parties. Three actions are required to procure the data needed to enable this policy development to proceed:
    a. Establish and maintain a central repository of Australian health professional and practitioner scopes of practice.
    b. Develop inter-disciplinary agreement on essential work roles in community and primary care, mental health, aged and chronic care and Aboriginal and Torres Strait Islander health.
    c. Prioritise health services research directed to evaluation of changes in health professional and health practitioner scope of practice.

Once the policy has been developed, undertake legislative changes to facilitate scope of practice changes, amend health service purchasing rules to encourage safe service delivery by a broader range of health professionals, and reform health professional education to better address the workforce needs of the health system. These changes will be required to support health workforce policy that encourages a flexible approach to health practitioner scope of practice, but that still ensures sufficient protection for the population.

Changing health professionals' scope of practice: how do we continue to make progress?

The problem

The Australian health care workforce is large and diverse, ranging from highly qualified and specialised health professionals (about 43% of the health workforce[1]) to workers with limited or no qualifications providing in-home care and support services.[2] Given the variety in this workforce, confirmation of safe scope of practice is important. Scope of practice is defined as the range of tasks and activities that a practitioner in a discipline is entitled to complete within their discipline role.[3] Various proposals aimed at changing the scope of practice of health care professionals have been discussed in Australia since the early 2000s[2], with limited sustained change.[4] These proposals and a large literature identify reasons for adjusting the scope of practice of health professionals, as follows:

1. Current organisation of health professional roles not based on evidence

There is no existing evidence base for the current organisation of health professional roles, with experts suggesting that "The reason why some tasks are the responsibility of one profession and not another is frequently an accident of history". [5: 75] In addition, the health professional workforce has not adapted to documented changes in the health needs of an ageing population and the clinical and technological responses that have revolutionised the nature and the location of care provision.[6] The health care needs of the population have shifted from a focus on acute infectious diseases and accidents to chronic conditions that require a focus on prevention, and result in repeated interactions with the health care system.[1] Advances in technology have enabled many procedures that once required hospitalisation to be completed in an outpatient or community setting, and have enabled more complex services to be provided by less qualified health practitioners.[7] As a result, "traditional conceptualizations of medicine, nursing, physiotherapy… are unlikely to be sufficiently flexible to address 21st century needs". [8: 200] There is increasing recognition of the need to reform the health workforce to better match the population health and system needs.[1,9] This is coupled with a greater focus on patient needs through patient-focused care that demands greater responsiveness from health workers.[10]

2. Mismatch between education, training and workforce needs

There are limited mechanisms to ensure a match between health professional education and training which is controlled nationally, and the workforce needs of the largely state-controlled health care organisations. Ensuring the required supply of health professionals to serve population needs requires long term planning given the length of time required to educate qualified health professionals. Yet,

despite a decade of studies and workforce strategies,[2] some health professions suffer chronic skill shortages.[11]

This suggests that not only does the current organisation of health professionals not meet population needs for health care, but that certain professions are not attractive to workers.[11,12] In addition, unlike the UK where there is a close relationship between the health service providers and the health professional educators, there is little connection between State-based health workforce needs and Australian Government tertiary education providers.[13]

3. Over specialisation

Despite the chronic difficulties in recruiting and retaining sufficient health care workers, there is ever-increasing specialisation of the health professional workforce.[14] Specialisation, or division of labour, defines the extent to which tasks in an organisation are subdivided into separate jobs. In health care this is based on professional expertise, and there are over a hundred health professions, and within only one of these professions, over 130 medical specialties. While this specialisation was originally designed to enable higher quality care delivery, more recently this division of labour has been thought to be at odds with the cross-disciplinary health needs of the population[1] and there have been concerns that there are too many specialists and insufficient generalists.[11] There has also been increasing discussion in the literature about the generally negative impact of the current health workforce structure on the quality and safety of the care provided. The boundaries between the health professional groups reduce information sharing[15] and the efficiency,[1] continuity and quality of care.[13]

4. Organisation of workforce contributes to unnecessary costs

As demand for service increases, public health systems around the world are focused on reducing the costs of care. There have been repeated suggestions that the organisation of current workforce contributes unnecessary costs. The high levels of specialisation may require more staff to participate in care delivery than would be required if the workforce was organised efficiently, and staff at higher pay levels may be performing tasks that could be completed by staff a lower pay levels.[13] Ensuring that health professionals work to the extent of their scope of practice and do not complete tasks for which they are over qualified may assist in reducing costs of care delivery. Many health jurisdictions have realised that health system improvements are more likely to be achieved through changing work practices than continued system restructuring.[16,17]

As a result of these factors, public health care systems around the world are exploring workforce reform, with similar proposals for changing the scope of practice of health professionals. However, there has been little documented sustainable success, and in many cases workforce changes have increased costs as the new roles became add-ons to the system.[18] In recognition of the substantial issues, Health Workforce

Australia (HWA) recently launched a survey to gather views on the industrial relations and legislative barriers to health workforce reform,[19] but HWA was a casualty of the recent national budget proposal and it is not clear if the results will be made available.

Barriers to health professional scope of practice change in Australia

1. Lack of consistency in definitions and limitations of the evidence

Unfortunately, a large variety of terms have been applied to the literature outlining health professionals' scope of practice changes, with no consistency or shared understanding. This limits our ability to compare and evaluate these change programs. Workforce changes have been referred to in the health workforce literature as advanced practice, encroachment, delegation, diversification, new work, old work, role enhancement, role expansion, role extension, re-profiling, scope of practice, skill-mix, trans-professional care, shared care, substitution (both horizontal and vertical) and surrogates of health professionals, suggesting the first step in progressing scope of practice changes is to confirm the definitions.

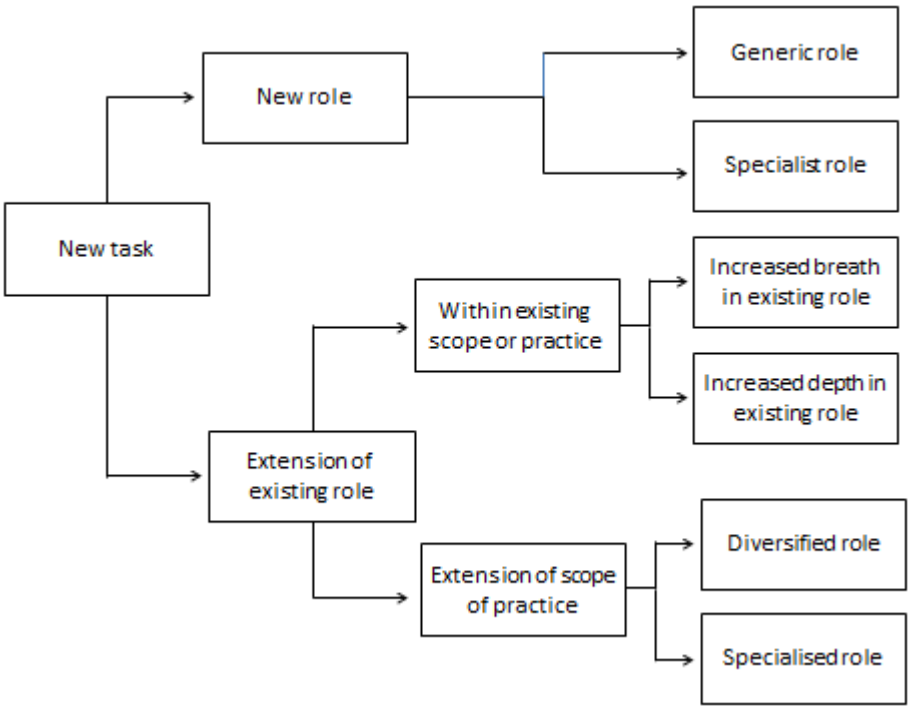
Defining types and mechanism of scope of practice change

There are two concepts that are required to describe scope of practices changes. The first is the type of change. The second is the mechanism by which the change in role is made.

Type of heath practitioner role change

With regards to the type of role change, there are six different ways that new tasks can be included in health professional roles described in the literature. These are outlined in Figure 1.

Figure 1 Options for adding new tasks to health professional roles



Role changes that are required to accommodate new tasks can be accomplished through the *development of new roles* or the *extension of existing roles*. In the case of the development of new roles, *generic* or *specialist* roles can be created.

Extension of existing roles can be accommodated within the existing scope of practice of the role or with a change in scope of practice of the role. Within the existing scope of practice the role extension can be accomplished by *extending the breadth*, that is, the number of different tasks that are performed as part of a role, or the *depth*. The depth of a role is the discretion that an individual has over how the tasks within a role will be performed.

Extension of existing roles that require extension of scope of practice may be achieved through *diversification* or *specialisation*. Diversification refers to broadening professional practice to include new areas of practice and can include new tasks or new ways of completing existing tasks.[20] An example of diversification is the transfer of tasks from one grade of health practitioner to a lower grade of the same health practitioner or the adoption of a new technology by all members of a health profession. While similar to increasing breadth within scope of practice, diversification usually requires updating on domain-specific and contextual knowledge that may be new to the practitioner.[21] Specialisation refers to the attainment of an increasing level of expertise in a specific disciplinary level[20], and may be equated to greater depth and less breadth in a role. In contrast to increasing depth, specialisation usually involves legitimisation of the new skills and abilities.[20]

These combinations result in the six different options for adding new tasks to a health professional role, comprising:

1. a *new generic role* (such as generic health professional[22]);
2. a *new specialist role* (such as maternity support worker[23]);
3. *increased breadth in an existing role* with the existing scope of practice (such as the registered nurse (RN) with cancer core competencies[24]);
4. *increased depth in an existing role* with the existing scope of practice (such as nurse-led clinics[25]);
5. *diversification* with an extended scope of practice (such as extended role midwives[23]); and
6. *specialisation* with an extended scope of practice (such as a depression clinical specialist[26]).

These six possible role changes (Figure 1) illustrate that many, but not all, changes in health professional role will require a change in scope of practice. Scope of practice change is generally required in the creation of new roles. New generic or specialist roles will require the definition of a scope of practice for the new roles and may require changes in scope of practice for other existing roles to enable the new roles to be created.

Similarly, adding tasks to existing roles outside of the existing scope of practice will require scope of practice changes for the existing role, and potentially for other health professional roles. However, changes that take place within existing scope of practice in existing roles may not require scope of practice changes.

In a 2005 article in *Sociology of Health and Illness*, Nancarrow and Borthwick[20] distinguish between horizontal and vertical movement of tasks. Horizontal transfers are between health professionals that have a similar level of training and expertise, for example, exchanging tasks between occupational therapists and physiotherapists. Horizontal transfers are less common as they rarely decrease costs, but may be useful when there are staff shortages or when it makes sense to limit the number of participating health professionals, such as for in-home care. Vertical transfers are more common and can be within or across disciplines. Vertical refers to the fact that tasks are usually transferred from health practitioners with higher qualifications to those with lower qualifications in an attempt to save costs, although the tasks could be transferred in the opposite direction as well.

Mechanisms of scope of practice change

In those areas where scope of practice changes are required the literature suggests that the increasing or decreasing scope of practice can be achieved through three mechanisms: *inter-professional collaboration*, *delegation* or *substitution.*

Inter-professional collaboration is the current terminology used to encompass the many terms used in the literature for coordination among health professionals, such as liaison, shared care, and care coordination.

Inter-professional collaboration is the negotiated agreement among different health practitioners to work together to positively impact health care.[27] Inter-professional collaboration the participating health practitioners carry accountability for their own work.

Delegation is the assignment of responsibility to another practitioner to carry out tasks, where the accountability remains with the health practitioner who delegated the work. This means that the health practitioner doing the delegation will want to have safeguards to ensure the quality of the delegated work. Substitution goes further in that the health practitioner is replaced by the substitute and no longer holds accountability for the task.

Following a detailed review of the literature and using the concepts of type of change and mechanism for scope of practice change described above, a typology (Table 1) was developed to categorise workforce changes.[28] The rows detail the type of change in health practitioner roles and the columns outline the mechanisms to implement scope of practice change. The workforce change initiatives (both theoretical and implemented) found in the literature are presented in Table 1, categorised by type of change and scope of practice change mechanism.

Table 1 Workforce changes identified in the international literature categorised in the typology.

Type of scope of practice change	**Mechanism of scope of practice change**		
	Inter-professional Collaboration	Delegation	Substitution
New generic role	Care support worker (implemented in UK)[29]	Advanced community rehabilitation assistant (implemented in Australia)[30] Emergency medical technician (implemented in the United States of America (USA))[31] Intermediate care support worker (implemented in the United Kingdom (UK))[32] Primary care technician (theoretical in USA)[31] Health care assistant (implemented in UK)[33]	Generic health professional (theoretical)[22]
		Assistant practitioner (intended as delegation, but lack of clarity in implementation led to substitution in UK)[34] Inter-professional care coordinator (moved from delegation to substitute)[35]	
New specialist role	Perioperative specialist practitioner (theoretical in UK)[36]	Maternity support worker (implemented in UK)[23] Physician assistant (implemented UK, USA, Canada, theoretical in Australia)[37,38] Pharmacist technicians and assistants (implemented in USA) [39] Imperial surgical care practitioner (theoretical in UK)[36] Health care assistant (implemented UK)[40]	Emergency care worker (implemented in UK)[16] Podiatric surgeon (implemented in Australia, UK)[41]
		Nurse practitioner (implemented as both substitute and delegated role, Australia, Canada, UK, USA)[42]	
Within existing scope of practice			
Increase Breadth	RN with cancer core competencies (implemented in USA)[43] Community matron (implemented in UK)[18]		
Increase Depth	Advanced practice podiatrist (implemented in Australia)[44]	Nurse-led clinics (implemented in UK)[25] Nurse-led follow-up (implemented in UK)[25] Practice nurse (implemented in Australia)[4]	Pharmacy technician (implemented in UK, USA)[40,45] Medication review by pharmacists (implemented in UK, USA)[46]

(continued next page)

Type of scope of practice change	Mechanism of scope of practice change		
	Inter-professional Collaboration	Delegation	Substitution
With extended scope of practice			
Diversify		Nurse anaesthetist (theoretical in Australia, implemented in Europe)[47,48]	Extended role midwives (implemented in UK)[23] Prescribing by podiatrists (implemented in Australia, UK)[49] Prescribing by psychologists (theoretical in Canada)[50] Radiological reporting by radiographers (implemented in UK)[51] Medication prescribing by mental health nurses (implemented in UK)[52]
Specialise	Advanced scope spinal pain physiotherapist (implemented in Australia)[44] Depression clinical specialist (implemented in USA)[27] Medical practitioner specialisation for children and older adults (e.g. older adult neurologist) (theoretical)[53]	Occupational and physical hand therapist (implemented in UK)[54]	GPs with special interests (implemented in UK)[55] Nurse initiated thrombolysis (implemented in USA)[56] Primary contact musculoskeletal physiotherapist in ED and clinics (implemented in Australia)[44]

Unfortunately few of the changes in Table 1 have been appropriately evaluated. Evaluations consisted of qualitative methods, measuring satisfaction, within a relatively short term timeframe. Few used robust economic (such as cost-benefit) analysis.[57] Some 'successful' role changes are found in the literature, but the definition of success generally relates to the success of the implementation and acceptance by patients or other workers in the system, and not to successful impact (such as increasing access, reducing costs) on the health system. In all cases the evaluations have measured short term impact, with limited evidence of the longer term impact of health professional scope of practice changes.

2. Health practitioner scope of practice case studies

Within these constraints we found six published health practitioner scope of practice change studies that included some quality of care or system level impact in the evaluation. A brief case study of each of these follows.

i) In the UK GPwSIs or **GPs with special clinical interests** have been providing clinical services, such as diagnosis or minor procedures that are beyond the normal scope of practice of the general practitioner.[55] This is achieved with 5 to 8 days of additional training enabling *specialisation with extended scope of practice*. An evaluation of GPwSIs working in ear, nose and throat (ENT) services found that 30 to 40 per cent of all patients referred to an ENT consultant could be seen by the GP, with the result that the waiting times for treatment were reduced.[58] These positions appear to have been accepted by specialist consultants who assisted in preparing the job specifications and training, thereby accepting the *substitution* of aspects of their practice to the GPwSIs.

ii) It has been shown in the UK and USA that **radiographers** can accurately report on certain radiographic images.[59] This has enabled *diversification with extended scope of practice* with radiological reporting, such as plain radiographs, mammography and ultrasound, by radiographers. A number of studies have identified cost savings comparing radiographer reporting to radiologist reporting. For example, barium enemas performed by the radiographer cost 21.3 per cent less than those performed by a consultant radiologist due to the lower pay of the radiographer and fewer staffing requirements.[60] Although there was mixed acceptance of this *substitution* by radiologists in the literature, it was suggested that the shortage of radiologists helped overcome resistance to change, as well as relieving radiologists from the more mundane tasks allowing them more time to undertake preferred duties.[60]

iii) In the USA *increasing depth* of the **pharmacy technician** role in scope included taking medication histories; a task previously completed by nurses. The study reported reduced medication errors.[45] The nurses accepted the *substitution* of tasks as the ongoing nursing shortages meant that freeing up duties enabled them to concentrate on other duties. In addition the hospital ensured a comprehensive change management program to assist the nurses with the changes. [45]

iv) **Physician assistants** are health care professionals who are licensed to practice medical care under medical supervision. It has been suggested that 50 to 75 per cent of a doctor's work can be completed by a physician assistant at much lower remuneration costs.[61] Primarily found in the USA, physician assistants were established as a *new specialist role* and have been accepted as their work is *delegated* by medical practitioners and they respond to areas of need, where there are doctor shortages.[38] Physician assistants were trialled in South Australia (SA) in 2008-09 with the conclusion that policy and regulation barriers to achievement of full scope of practice needed to be addressed.[62]

v) *Extended scope specialist* **hand therapists** comprising occupational and physical therapists were established to address growing waiting lists for specialist consultant services. Although these scope

of practice changes met the targets in reducing waiting lists, interviewed consultants expressed concerns about professional isolation for these roles and personal fear of litigation, suggesting that these roles retained aspects of *delegation*.[54]

vi) In the UK National Health Service (NHS) *new specialist role* level 3 **health care assistants** (HCA) were trained to take on specified tasks for stroke inpatients. The evaluation suggested that the HCAs were able to take on 33 tasks previously completed by RNs and saved an average of three hours of RN time a day.[40] While there was inconsistent implementation of HCAs in different sites throughout the NHS[33], the gains at this stroke unit appeared to result from *delegated* activities from the RNs. This study also suggests greater success with the implementation of specialist HCA roles in comparison to generic HCA roles.

It does appear that scope of practices changes through substitution may have greater likelihood of success than collaborative or delegated changes. This is supported by a study that found that from the perspective of the health system it cost slightly more than a GP to use a nurse practitioner for delegated medical tasks. The authors suggested that a substitution model, with less time spent by the GPs contributing to the delegated nurse practitioners' consultations would be more likely to improve costs.[63] There appears to be even greater likelihood of success when the health professionals from whom the tasks are being 'transferred' do not have sufficient capacity, such as in rural and remote areas (for example, the physician assistant role) or do not have the interest in continuing these tasks (for example, the reporting by radiographers described above).

In summary, there is a large variety of scope of practice changes documented in the literature, with no consistency in terminology and little robust evidence of the effectiveness of the changes. A typology was developed to assist in describing scope of practice changes among health professionals. Use of this typology enabled categorisation of the scope of practice changes found in the literature. Although not an exhaustive search, the articles that were found with acceptable evaluation methods suggested the following trends in scope of practice changes for health professionals:

- Despite the suggestion that many health professionals are not currently working to their full scope of practice,[1,64,65] there were fewer examples of within scope changes within the literature. Clearly, vertical or horizontal role changes that did not require changes to existing scope of practice would be easier to implement but this would require an overarching understanding of existing health practitioner scope of practice and opportunities for exchange that is not currently available for the Australian health system.
- When new roles are created it appears that specialist roles have a greater chance of success than generic roles. In addition, it appears to be easier to delegate tasks to new roles, than with extension to existing roles.
- The addition of tasks to existing roles appears to be achieved more readily through substitution than through collaboration or delegation. This may be a function of the accountability

requirements for health professionals within the health systems where the majority of these changes have taken place.

- Scope of practice changes appear to be more widely accepted when the health professionals transferring the scope have accepted that their profession does not have the capacity or the interest in continuing to provide these tasks.
- There is little evidence of scope of practice changes reducing health system costs, mainly because the studies have not included robust economic evaluation. A few studies report the same or greater costs from the perspective of the health system, following scope of practice change with the inclusion of all costs (e.g. training and supervision in addition to the direct staffing costs). The health system impact that is reported most often is the ability to more quickly respond to service demand and reduce waiting lists.

In Australia there are structural and cultural barriers to scope of practice changes among health practitioners that may make implementation even more difficult. These are outlined in the next sections.

3. Legislation, government policy and funding

3.1 National registered health professions

It is not easy to change the scope of practice of Australian health professionals. All states and territories have enacted the national law to enable national registration and accreditation, recognising both *registered* health practitioners and *specialist* health practitioners. There are 14 registered health professions, comprising Aboriginal and Torres Strait Islander Health Practice, Chinese Medicine, Chiropractic, Dentistry, Medicine, Medical Radiation Practice, Nursing and Midwifery, Occupational Therapy Optometry, Osteopathy, Pharmacy, Physiotherapy, Podiatry, and Psychology. These 14 professions are governed by national health professional boards in partnership with the Australian Health Professional Regulatory Agency. As outlined in the *Health Practitioner Regulation National Law Act,* the national health professional boards identify the *areas of practice* for purposes of endorsement "for which the Board is established" and may also develop the *scope of practice* of health professionals, both of which are recommended to the Australian Health Workforce Ministerial Council (AHWMC) for approval. AHWMC also approves a list of specialities for the profession and corresponding specialist titles.

The objectives of AHWMC relate to approval of specialties, appointments to the national boards and approval of legislation, with no reference made to ensuring a health professional workforce that meets population needs for healthcare. Although AHWMC is in a position to consider scope of practice changes for the registered professions, it does not provide this oversight and receives the submissions of the health professional boards, which clearly have a vested interest in protecting the scope of practice of their registered health professionals. While the legislation includes the purposes as:

"To facilitate access to services provided by health practitioners in accordance with the public interest", and

"To enable the continuous development of a flexible, responsive Australian health workforce…"

This does not appear to have been achieved, with perceptions of maintenance of the status quo. These legislative and regulatory barriers to changes in health professionals' scope of practice are experienced throughout the world, with similar pressures being felt to challenge existing scope of practice through the increasing pressures on public health systems.[5]

3.2 Unregistered health practitioners

An unregistered health practitioner provides a health service but is not registered as one of the 14 professions regulated under the National Registration and Accreditation Scheme.[66] This group includes health professions such as audiology, dietetics, paramedics, and speech pathologists.
Many of these practitioners have voluntary self-regulation that may be a condition for government or private health insurance funding. All health practitioners are required to uphold existing legislation and regulation, such as public health laws and different States have enacted different requirements for unregistered health practitioners. A recent Regulatory Impact Statement (RIS) recommended no change to statutory registration for these practitioners, and instead of imposing additional self-regulation requirements, the RIS recommended the strengthening of statutory health complaints mechanisms.[66] As a result, the scope of practice of these practitioners is codified to different extents in the rules of the various membership associations and changes can be more easily made where the scope does not impact on any of the 14 registered health professions.
Given that there has been little national policy on changing health professional scope of practice, various states have established local processes. For example, the SA Department of Health issued a Directive outlining the required systems and processes for "establishment, planning, implementation and evaluation, review and ongoing monitoring for health practitioners' advanced or extended scope of practice roles".[67: 7]
In SA the Local Health Networks are required to progress through four stages of initiation, strategic service planning, implementation and evaluation, review and ongoing monitoring, with oversight at various stages from Credentialing Committees and senior health executives.

The current health professional registration and credentialing processes, which generally assume that scope of practice cannot be shared among health professionals, limit the implementation of scope of practice changes among health professionals.

3.3 Legislation

In addition to the health professional regulation legislation, the various state-based legislations on *Drugs, Poisons and Controlled Substances* limits possession and use, sale and supply of these substances to medical practitioners, pharmacists, veterinary surgeons or dentists, limiting the scope of practice of other health professionals. Similarly, the *Radiation Acts* include limitations to listed registered health professions.

3.4 Funding models

Another substantial barrier to scope of practice reform is the fee-for-service funding model. As suggested in a 2006 publication as part of the European Observatory on Health Systems and Policies Series, "In general, a system that rewards professionals for undertaking procedures frequently obstructs less powerful professions (generally those other than medicine) from taking them on".[5: 73] If a category of health professionals is compensated for a particular procedure, there is little incentive to facilitate a transfer of this procedure to another health professional.[68]

To address this, the Enhanced Primary Care Initiative (EPC) enabled health professionals other than GPs to conduct health assessments and complete capped allied health treatments, billing the Medicare Benefits Scheme (MBS) on behalf of the MBS registered service provider. Various evaluations of the EPC have shown increased referral to and use of allied health services for patients with chronic conditions.[69] However, the evaluations also suggested the scheme may not be viable with patient co-payments for services[69,70] and identified that GPs did not appear to have sufficient knowledge of which allied health services would be most beneficial,[69] with most studies recommending guidelines or education for GPs.[71]

3.5 Health policy complexities

Much has been written about the difficulties in the development and implementation of health policy that is perceived as redistributive.[72] It is clear that health policies can have "a direct and significant effect on the incomes of healthcare providers" suggesting that it will always be difficult to coalesce the interested parties in health policy that may improve effectiveness and efficiency of the system but which may put dominant groups or individual in positions where they are less well off. This suggests that there may be advantages in focusing discussions away from health professions onto essential work roles.

There is strong evidence showing a relationship between effective teamwork and better quality patient care,[73] but there are also data that suggest that the costs of care increase significantly for each additional health professional that is involved in care of a patient.[74] The structure in Australia would suggest that community and primary care, mental health and aged and chronic care teams would have representation from medicine, nursing, various registered and unregistered allied health disciplines, as well as health workers with little formal skills and training.

This is an expensive and inefficient model of care delivery and is not consistent with the evidence that roles can be designed to meet the needs of patients and clients enabling provision of high quality care, with fewer health professionals involved on the team. Focusing health policy development on the work roles required for community and primary care, mental health, aged and chronic care teams and Aboriginal and Torres Strait Islander health teams may assist in defining a relevant future workforce.

4. Industrial and workplace relations

Although there are formidable regulatory and financial barriers to scope of practice change, the required behaviour change among health professionals may be the strongest to overcome. There is a large literature that confirms the reluctance of the more powerful doctors (both specialists and general practitioners) to give up practice scope so that other health professions may extend their scope of practice, or in fact, operate fully within an existing defined scope.[10] Similarly, nurses and allied health professionals do not want less qualified nurses or other health professionals to substitute for them, and on and on. This is not blocking scope of practice changes for spurious reasons, but because health professionals are genuinely concerned about achieving the best patient outcomes. In situations of liaison and delegation there are also legitimate litigation and indemnity concerns.

There are few incentives within the system to encourage behaviour change. The evidence suggests scope of practice change requiring one profession to 'give up' aspects of their work is only successful when the chosen aspects are those that the professionals do not want to do themselves, such as practice in rural and remote areas. Scope of practice changes appear to be most successful when 'need' drives behaviour change. Therefore, working with health professionals locally to design roles that best meet the needs of the community may be an effective strategy to begin to drive scope of practice changes. At the local level health professionals will have a greater opportunity to visualise how the changes can have positive outcomes for them and their patients.

There is some suggestion that agreement on the Triple Aim goals of better care, better health and lower cost for all has stimulated greater interest in scope of practice changes in the USA. Direct linking of financial and clinical accountability has been shown to positively influence scope of practice changes.[75] When clinicians are accountable for financial and clinical outcomes there is an incentive to engage lower cost providers in service provision.

There is management research to assist in the design of these roles. The job characteristics model (JCM) has received unequivocal empirical support as an effective model for job design.[76] [77] The JCM outlines five measureable characteristics of jobs that are positively associated with work motivation and performance, and job satisfaction.[78] The job characteristics are skill variety, task identity, task significance, autonomy and feedback.

Skill variety is the degree to which a job requires an individual to use different skills to complete the tasks. Task identity measures the degree to which a job focuses on the completion of a 'whole' and identifiable piece of work. This is the extent to which a job is related to a beginning-to-end production, with visible outcomes. Task significance is related to the perception of the incumbent that their job has a substantial impact on the lives or work of other people – that is it is considered an important job. Autonomy is the ability of the incumbent to exert discretion in when and how their work is carried out. Feedback is the degree to which clear information about the effectiveness of the incumbent is conveyed during the course of completing the work. These five characteristics are important to consider in work design, as they are associated with job satisfaction [79] and better performance.[76]

The job characteristics model was used to analyse proposed health professional scope of practice solutions (Appendix A). The roles most consistent with the principles of the JCN were achieved through substitution which provides further support for the evidence for substitution found in the scope of practice case studies. This analysis also suggests that many of the proposed workforce solutions have the potential to result in less attractive health roles within the sector, with substitution by extended roles as the solution most likely to be attractive to health professionals.

How should scope of practice be changed in Australia?

1. Advocate for the inclusion of health professional and practitioner scope of practice on the national and state and territory health policy agendas

Given that "no government wishes to have a confrontation with the medical profession unless it becomes essential to achieve other politically popular objectives"[72 p. 359] , it will be difficult to ensure scope of practice changes are included on government policy agendas. Many policy analysts have suggested that substantial policy change is only achievable if the professional monopolists (in this case the medical profession), the corporate rationalists (in this case the bureaucracy, system planners and managers) and community interests line up.[80] However, it is unlikely that the medical profession will see the issues the same way as the bureaucracy, and doctors have shown they have the ability to influence community interests.

Case studies of substantial health policy change, such as the introduction of Medicare and casemix-based funding, suggest that in the absence of agreement among the interested parties, health policy reform can still be achieved if the politicians are convinced that it is the only way to achieve their broader objectives.[72] Others have suggested that public attention and community interest is also effective at getting health policy issues addressed. This would suggest that showing how scope of practice changes could improve those health issues repeatedly covered in the popular press[72], such as hospital waiting lists, overspending on hospital budgets, doctors' income and fees, and costs of health insurance would be a useful advocacy

strategy. The scope of practice of health professionals and health practitioners touches on all of these public interest areas.

2. Establish and maintain a central repository of health professional and practitioner scopes of practice

Given the relatively poor evidence base for scope of practice changes, there is a need to ensure a coherent approach to development, implementation, and future research and evaluation of health practitioner scope of practice. As early as 1998, the Pew Health Professions Commission in the USA recommended a central clearinghouse for health professions' scope of practice.[81] While Health Workforce Australia launched the Inventory of Innovation in 2012,[44] further work would be required to provide a database for effective comparisons. While scope of practice and competency is recorded for the regulated health professions, there is no central body that maintains similar information for unregulated health practitioners.

The establishment of this central repository would also require the confirmation of health workforce change terms and definitions, such as those proposed by the typology of health workforce change, to provide the foundation for evaluation of scope of practice change. The repository would also enable identification of existing overlapping and shared health professional scopes of practice.

There is general appeal and logic to suggest that the use of less expensive health professionals working to the extent of their scope of practice, substituting for high cost health professional would enhance the efficiency of the health care system. Unfortunately, as discussed above, there is currently not sufficient robust evidence on the essential scope of practices changes required. This suggests a need to prioritise health services research directed to evaluation of changes in health professional and practitioner scope of practice.

3. Develop inter-disciplinary agreement on essential work roles in community and primary care, mental health, aged and chronic care and Aboriginal and Torres Strait Islander health

To address population health needs, it has been recommended that, at a minimum, work roles need to be confirmed for community and primary care, mental health, aged and chronic care and Aboriginal and Torres Strait Islander health.[19] AHWMC should establish inter-disciplinary workforce planning task forces to design the community and primary care, mental health, aged and chronic care and Aboriginal and Torres Strait Islander health roles. These task forces should agree on the essential tasks, not the type of health professional.

This approach is consistent with the recommendations from a review of the UK workforce changes that the work needs to be redesigned before the workforce can be changed.[18] Once the components of the community and primary care, mental health, aged care and Aboriginal and Torres Strait Islander health roles are confirmed, it will be possible to design health worker jobs that safely and efficiently provide the necessary services. Following this, it may be easier to consider other scope of practice changes in existing roles.

4. Reform Australian health professional registration

Eventually, reform of health professional registration will be required to enable and encourage scope of practice changes. This can be accomplished by changing health professional registration from the current profession-based approach to regulation of the services and practices that have the potential for harm. This type of approach is used in the province of Ontario in Canada, where the legislation recognises 14 controlled acts, such as communicating a diagnosis, performing a procedure, administering a drug, etc.[82] A registration system based on tasks, and not on established professions, recognises that the team-based care required for population health will have overlapping scope of practice among the members of the health practitioner team.[7]

The first step to registration reform is to include powers of delegation in the scope of the Australian health professional registration boards. Stephen Duckett has suggested that this would establish an appropriate regulatory framework to enable registered health professionals to delegate tasks to others,[13] and would signal to health professionals that delegation is valued in the Australian health system.

The Ontario health professional registration legislation also allows health professions to delegate controlled acts to other registered and unregistered health professionals that do not have the statutory authority to perform such services. The health professional regulatory agencies see this as a way to optimise use of the health workforce and promote more timely access to services for patients.[83] For example, medical practitioners are able to delegate acts to other health professionals through direct order for individual patients and through medical directives for all patients. The medical practitioner makes the judgement that "the delegate must be able to carry out the act as competently and safely as the delegating physician".[83]

Moving in this direction, the Australian Nursing and Midwifery Board provides a flow chart to assist registered nurses and midwives to determine when delegation is appropriate.[84] However, unlike the Canadian health professionals, who see patient access and reduction in resource use as relevant aims of delegation of services, the Australian Medical Association only supports delegation "where it can be demonstrated that there is an improvement in the delivery and maintenance of quality patient care and where there is agreement of the relevant medical practitioners".[85: 1]

A further recommendation to address the power of the existing health professionals is to change the membership of the bodies recommending health professional scope of practice from existing health professionals, with a vested interest in the status quo, to members of the public who are not health professionals. In a public health system, largely funded by taxation, it makes sense to have greater citizen involvement in the planning of the health practitioner workforce. The Canadian system also ensures citizen involvement in these committees to obtain the public perspective on issues of cost, quality and access to care.[7]

5. Funding reform

Scope of practice can be changed if third party payers and government funders are willing to change purchasing practices to purchase services from non-traditional health professionals. Increasing the number and range of items not requiring personal provision by medical practitioners would likely encourage medical practitioners to involve lower cost health professionals in providing these services through liaison, delegation or substitution. This would enable medical professionals to maintain their interests in ensuring high quality care, while potentially lowering costs.

6. Revise health professional education

The literature suggests scope of practice change happens between health professions where one profession is willing to re-allocate a portion of their scope of practice. There is a greater chance health professionals will participate in additional collaborative or scope of practice activities once they have experienced collaborative practice with other disciplines.[86] This suggests that despite the significant legislative and policy barriers, in instances where health professionals working together can identify benefits, scope of practice change is more likely, which may be most effective at local levels. This also suggests that health professional educational programs should focus to a greater extent on inter-professional education and collaborative practice. Educational programs need to demonstrate better understanding of the roles and responsibilities among each of the health professions and generate value and respect for their competencies, along with breaking down educational silos

The need for health professional education to prepare practitioners for interdependent and interdisciplinary practice was being advocated as early as 1995,[86] with many authors suggesting that health professionals cannot work together effectively within and across their respective scopes pf practice if they do not understand the roles and responsibilities[87], and if they do not value and respect each other's competencies.[88] The predominant model of health professional education in Australia is focused on a single discipline, with limited inclusion of interdisciplinary activities, such as shared lectures and clinical placements. Various experts have suggested that fundamental reform of health professional education, driven by the National Government, is required for true inter-disciplinary practice.[13,89,90]

Conclusion

Various proposals aimed at changing the scope of practice of health care professionals have been discussed in Australia since the early 2000s[2], with limited sustained change.[4] These proposals and a large literature have identified rational reasons for adjusting the scope of practice of health professionals. However there are few conclusive studies on the scope of practice changes that should be made, as the literature is hampered by few evaluation studies or studies with poor methodology and limited economic analysis.

Using a typology to characterise scope of practices changes it became apparent that scope of practices changes that are implemented through substitution may have greater likelihood of success than collaborative or delegated changes. Scope of practice changes achieved through substitution was also supported by analysis of health practitioner roles using the Job Characteristics Model. This analysis also recommended use of extended roles, as opposed to the creation of new roles. There appears to be even greater likelihood of success when the health professionals from whom the tasks are being 'transferred' do not have sufficient capacity, such as in rural and remote areas or do not have the interest in continuing these tasks.

This analysis suggests there is an urgent need to ensure that health professional and practitioner scope of practice in included on the national, and state and territory health policy agendas, with the goal of the development of national policy directions that are supported by all political parties. This is necessary to ensure the political appetite for the changes that will be required in legislation, funding and health professional education to enable effective scope of practice change.

Appendix A Job characteristics model analysis of the proposed scope of practice options

The job characteristics model (JCN) was used to analyse proposed health professional scope of practice solutions. Drawing on the literature, each of the proposed solutions was rated relatively as 'high' (+++) or 'low' (+) with low indicating zero or no opportunity, and high indicating maximum opportunity. For example, if a variety of skills are not required to complete the work, the rating would be low. The roles most consistent with the principles of the JCN were achieved through substitution and included new generic roles and advanced and extended scope roles with an increase in breadth.

	Skill variety	Task identity	Task significance	Autonomy	Feedback
Inter-professional Collaboration:					
New generic role	++	++	+	+	+
New specialist role	+	+	++	+	++
Additional breadth	++	++	+	+	+
Additional depth	+	+	++	+	++
Diversification	++	++	+	+	+
Specialisation	++	+	++	+	++
Delegation:					
New generic role	+	++	+	+	+
New specialist role	+	+	++	+	++
Additional breadth	++	++	+	+	+
Additional depth	+	+	++	+	++
Diversification	++	++	+	+	+
Specialisation	++	+	++	+	++
Substitution:					
New generic role	+	++	++	++	++
New specialist role	+	+	++	++	++
Additional breadth	++	++	+	++	++
Additional depth	+	++	++	++	++
Diversification	++	++	+	++	++
Specialisation	++	+	++	++	++

References

1. Duckett SJ. Health workforce design in the 21st century. Australian Health Review 2005;29:201-10.
2. Australian Health Ministers' Conference. National Health Workforce Strategic Framework Sydney: Australian Health Ministers' Conference; 2004.
3. Health Workforce Australia. National Health Workforce Innovation and Reform Strategic Framework for Action 2011–2015. Canberra: Health Workforce Australia; 2011.
4. Patterson E, McMurray A. Collaborative practice between registered nurses and medical practitioners in Australian general practice: moving from rhetoric to reality. Australian Journal of Advanced Nursing 2003;20:43-8.
5. McKee M, Dubois C-A, Sibbald B. Changing professional boundaries. In: Dubois C-A, McKee M, Nolte E, eds. Human Resources for Health in Europe: Open University Press; 2006.
6. Buchan J DPM. Skill mix in the health care workforce: reviewing the evidence. Bulletin of World Health Organization 2002;80:575-80.
7. Dower C, Moore J, Langelier M. It is time to restructure health professions scope-of-practice regulations to remove barriers to care. Health Affairs 2013;32:1971-76.
8. Masterson A, Humphris D. New role development: taking a strategic approach. . In: Humphris D, Masterson A, eds. Developing New Clinical Roles: a guide for health professionals. London: Harcourt International; 2000.
9. Leggat SG. Health professional education; perpetuating obsolescence? Australian Health Review 2007;31.
10. Nancarrow SA, Borthwick AM. Dynamic professional boundaries in the healthcare workforce. Sociology of Health and Illness 2005;27:897-919.
11. Health Workforce Australia. Health Workforce 2025. Canberra: Government of Australia; 2012.
12. KPMG. Health Workforce in Australia and Factors for Current Shortages: National Health Workfroce Taskforce; 2008.
13. Duckett SJ. Interventions to facilitate health workforce restructure. Australia and New Zealand Health Policy 2005;2:14-9.
14. Leggat SG. Chapter 2 – Operations management: the search for value in healthcare organisation and performance. In: Sorenson R IR, ed. Managing Clinical Processes in Health Services. Sydney: Mosby Elsevier; 2008:21-34.
15. Edmondson A. Learning from mistakes is easier said than done: group and organizational influences on the detection and correction of human error. Journal of Applied Behavioral Science 1996;32:5-28.
16. Hyde P, McBride A, Young R, Walshe K. Role redesign: new ways of working in the NHS. Personnel Review 2005;34:697-712.
17. Leggat SG, Dwyer J. Improving hospital performance: culture change is not the answer. Healthcare Quarterly 2005;8:60-6.
18. Bohmer RMJ, Imison C. Lessons from England's health care workforce redesign: no quick fixes. Health Affairs 2013;32:2025-31.
19. Health Workforce Australia. Health Workforce Australia 2012-2013 Work Plan. Adelaide: Health Workforce Australia; 2012.
20. Nancarrow SA, Borthwick AM. Dynamic professional boundaries in the healthcare workforce. Sociology of Health & Illness 2005;27:897-919.
21. Hayes KF. Being fit: the ethics of practice diversification in performance psychology. Professional Psychology - Research and Practice 2006;37:223-32.
22. Brooks PM. The impact of chronic illness: partnerships with other health care professionals. Medical Journal of Australia 2003;179:260-2.
23. Prowse J, Prowse P. Role redesign in the National Health Service: the effects on midwives' work and professional boundaries. Work Employment and Society 2008;22:695-712.
24. Gase LN, Lichtveld MY, Miner KR, Smith AP, Tyus SL. A competency-based approach to expanding the cancer care workforce: proof of concept. MedSurg Nursing 2009;18:39.

25. Dubois C-A, Singh D. From staff-mix to skill-mix and beyond: towards a systematic approach to health workforce management. Human Resources for Health 2009;7:87.
26. Hegel M, Imming J, Cyr-Provost M, Noel PH, Arean P, Unutzer J. Role of behavioral professionals in a collaborative stepped care treatment model for depression in primary care. Families, Systems & Health 2002;20:265-77.
27. Zwarenstein M, Goldman J, Reeves S. Interprofessionals collaboration: effects of practice-based interventions on professionals practice and healthcare outcomes (Review). The Cochrane Collaboration 2009;2009:1-30.
28. Leggat SG. Changing roles for health professionals: short term gain - long term pain? . In: International Research Society in Public Management. Rome, Italy; 2012.
29. Desombre T, Kelliher C, Macfarlane F, Ozbilgin M. Re-organizing work roles in health care: evidence from the implementation of functional flexibility. British Journal of Management 2006;17:139-51.
30. Wood AJ, Schuurs SB, Amsters DI. Evaluating new roles for the support workforce in community rehabilitation settings in Queensland. Australian Health Review 2011;35:86-91.
31. Kellermann AL, Saultz JW, Mehrotra A, Jones SS, Dalal S. Primary care technicians: a solution to the primary care workforce gap. Health Affairs 2013;32:1893-98.
32. Nancarrow SA, Shuttleworth P, Tongue A, Brown L. Support workers in intermediate care. Health and Social Care in the Community 2005;13:338-44.
33. Bach S, Kessler I, Heron P. Role redesign in a modernised NHS: the case of health care assistants. Human Resource Management Journal 2008;18:171-87.
34. Wakefield A, Spilsbury K, Atkin K, McKenna H, Borglin G, Stuttard L. Assistant or substitute: exploring the fit between national policy vision and local practice realities of assistant practitioner job descriptions. Health Policy 2009;90:286-95.
35. Bridges J, Meyer J. Policy on new workforce roles: a discussion paper. International Journal of Nursing Studies 2007;44:635-44.
36. Kneebone R. New professional roles in surgery. BMJ 2005;330:803-4.
37. Frossard LA, Liebich G, Hooker RS, Brooks PM, Robinson L. Introducing physician assistants into new roles: international experiences. Medical Journal of Australia 2008;188:199-201.
38. O'Connor TM, Hooker RS. Extending rural and remote medicine with a new type of health worker: physician assistants. Australian Journal of Rural Health 2007;15:346-51.
39. Cooksey JA, Knapp KK, Walton SM, Cultice JM. Challenges to the pharmacist profession from escalating pharmaceutical demand. Health Affairs 2002;21:182-8.
40. Hyde P, McBride A, Young R, Walshe K. Role redesign: new ways of working in the NHS. Personnel Review 2005;34:697-712.
41. Borthwick A. Occupational imperialism at work: the case of podiatric surgery. British Journal of Podiatry 2001;4:70-9.
42. Considine J, Fielding K. Sustainable workforce reform: case study of Victorian nurse practitioner roles. Australian Health Review 2010;34:297-303.
43. Gase LN, Lichtveld MY, Miner KR, Smith AP, Tyus SL. A competency-based approach to expanding the cancer cae workforce: proof of concept. MedSurg Nursing 2009;18:39.
44. Inventory of Innovation. 2012. (Accessed 1 March 2014, 2014, at
45. Michels RD, Meisel SB. Program using pharmacy technicians to obtain medication histories. American Journal of Health System Pharmacy 2003;60:1982-6.
46. Beney J, Bero LA, Bond C. Expanding the roles of outpatient pharmacists: effects on health services utilisation, costs, and patient outcomes The Cochrane Library 2002;2002.
47. Duckett SJ. Interventions to facilitate health workforce restructure. Australia and New Zealand Health Policy 2005;2:14-9.
48. Meeusen V, van Zundert A, Hoekman J, Kumar C, Rawal N, Knape H. Composition of the anaesthesia team: a European survey. European Journal of Anaesthesiology 2010;27:773-9.
49. Borthwick AM, Short AJ, Nancarrow SA, Boyce R. Non-medical prescribing in Australia and the UK: the case of podiatry. Journal of Foot & Ankle Research 2010;31:1.

50. Lavoie KL, Fleet RP. Should psychologists be granted prescription privileges? A review of the prescription privilege debate for psychiatrists. Canadian Journal of Psychiatry 2002;47:443-9.
51. Smith TN, Baird M. Radiographers' role in radiological reporting: a model to support future demand. Medical Journal of Australia 2007;186:629-31.
52. Jones M, Bennett J, Lucas B, Miller D, Gray R. Mental health nurse supplementary prescribing: experiences of mental health nurses, psychiatrists and patients. Journal of Advanced Nursing 2007;59:488-96.
53. Dall TM, Gallo PD, Chakrabarti R, West T, Semilla AP, Storm MV. Anaging populations and growing disease burden will require a large and specilaised health care workforce. Health Affairs 2013;32:2013-20.
54. Ellis B, Kersten P. The developing role of hand therapists within the hand surgery and medicine services: an exploration of doctor's views. British Journal of Hand Therapy 2002;7:119-23.
55. Nocon A, Leese B. The role of UK general practitioners with special clinical interests: implications ofr policy and service delivery. British Journal of General Practice 2004;54:50-6.
56. Smallwood A, Chadwick R. Nurse-initiated thrombolysis in coronary care Nursing Standard 2000;15:38–40.
57. Sibbald B, Shen J, McBride A. Changing the skill-mix of the health care workforce. Journal of Health Services Research & Policy 2004;9:28-38.
58. Sanderson D. Evaluation of the GPs with Special Interests (GPwSIs) Pilot Projects within the Action on ENT Programme. York: University of York; 2002.
59. Brealey S, Scally A, Hahn S, Thomas N, Godfrey C, Coomarasamy A. Accuracy of radiographer plain radiograph reporting in clinical practice: a meta-analysis. Clinical Radiology 2005;60:232-41.
60. Woodford AJ. An investigation of the impact/potential impact of a four-tier profession on the practice of radiography - a literature review. Radiography 2006;12:318-26.
61. Cawley JF, Ott JE, DeAtley CA. The future of physician assistants. Annals of Internal medicine 1983;98:993-7.
62. Ho PB, Maddern GJ. Physician assistants: employing a new health provider in the South Australian health system. The Medical Journal of Australia 2011;194:256-8.
63. Hollinghurst S, Horrocks S, Anderson E, Salisbury C. Comparing the cost of nurse practitioners and GPs in primary care: modelling economic data from randomised trials. British Journal of General practice 2006;56:530-35.
64. Miles E, Adams R, Anaf S, Sheppard L. Factors identified by physiotherapists that influence the retention of regional clinicans: a qualitative investigation. The Internet Journal of Allied Health Sciences and Practice 2010;8.
65. Kildea S, Kruske S, Barclay L, Tracy S. Closing the Gap': how maternity services can contribute to reducing poor maternal infant health outcomes for Aboriginal and Torres Strait Islander women. Rural & Remote Health 2010;10.
66. Australian Health Ministers' Advisory Council. Options for regulation of unregistered health practitioners. Canberra: Victorian Department of Health on behalf of the Australian Health Ministers' Advisory Council; 2013.
67. Government of South Australia. The Government Framework for Advanced Svope pf Practice and Extended Scope of Practice Roles in SA Health Policy Directive. In. Adelaide; 2013.
68. Bloor K, Maynard A. Planning human resources in health care: Towards an economic approach. An international comparative review. Ottawa; 2003.
69. Grimmer-Somers K, Dolesj W, Atkinson J. Enhanced Primary Care pilot program benefits Type II diabetes patients. Australian Health Review 2010;34:18-24.
70. Haines TP, Foster MM, Cornwell P, et al. Impact of Enhanced Primary Care on equitable access to and economic efficiency of alliued Health services: a qualitative investigation. Australian Health Review 2010;34:30-5.
71. Skeat J, Morgan A, Nickless T. Talking EPC - speech pathologists' views of the Enhanced Primary Care items four years on. Australian Health Review 2010;34:25-9.

72. Palmer G, Short S. Health Care and Public Policy: An Australian Analysis 4th Edition ed. South Yarra, Victoria: Palgrave MacMillan; 2010.
73. West MA, Borrill C, Dawson JF, et al. The link between the management of employees and patient mortality in acute hospitals. International Journal of Human Resource Management 2002;13:1299-310.
74. Nancarrow SA, Enderley P, Moran AM, Dixon S, Parker S, Bradburn M. The relationship between workforce flexibility and the costs and outcomes of older peoples' services: rpeort for the National Institute for Health research Service Delivery and Organisation Programme. London: Queen's Controller and Printer. Her Majesty's Stationery Office. ; 2010.
75. Leggat SG. Evaluation of a Alternate Payment System at the Hospital for Sick Children: University of Toronto; 1998.
76. DeVaro J, Li R, Brookshire D. Analysing the job characteristics model: new support from a cross-section of establishments. . International Journal of Human Resource Management 2007;18:986-1003.
77. Algera JA. Objective and perceived task charactertistics and job satisfaction: when cause becomes consequence. Organizational Behavior and Human Decision Processes 1983;35:266-78.
78. Hackman JR, Oldham GR. Motivation through the design of work: Test of a theory. Organizational Behavior and Human Decision Processes 1976;16:250-79.
79. Hackman JR, Oldham GR. Motivation through the design of work: Test of a theory. Organizational Behavior and Human Decision Processes 1976;16:250-79.
80. Alford RR, Friedland R. Powers of Theory: Capialism, the State, and Democracy. Cambridge: Cambridge University Press; 1985.
81. Finocchio LJ, Dower C, Blick NT, Gragnola CM. Strengthening consumer protection: priorities for health care workforce regulation. San Francisco, CA: Pew Health Professions Commission; 1998.
82. Regulated Health Professions Act. In. Canada; 1991.
83. Delegation of controlled acts. 2012. (Accessed 10/03/2014, 2014, at
84. Nursing and Midwifery Board of Australia. Nursing Parctice Decision Flowchart. In. Canberra; 2013.
85. Australian Medical Association. AMA Position Statement Health Workforce Reform: Australian Medical Association; 2008.
86. Henneman EA, Lee JL, Cohen JI. Collaboration: a concept analysis. Journal of Advanced Nursing 1995;21:103-9.
87. Bradford R. Obstacles to collaborative practice. Nursing Management 1989;20:72k-p.
88. Taylor JW. Collaborative practice: shared responsibility and outcomes. Chart 2002;99:4-10.
89. Frenk J, Chen L, Bhutta ZA, Cohen JI, Crisp N, Evans T. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. Lancet 2010;376:1923-58.
90. Thibault GE. Reforming health professions education will require culture change and closer ties between classroom and practice. Health Affairs 2013;32:1928-32.