PHYSICIAN WORKFORCE PLANNING: WHAT HAVE WE LEARNED?

An Australian Perspective (August 2003)

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Where To Begin

I thought I should start this paper by making it clear that it does not seek to make the case for workforce planning, but assumes that the reader recognises the value workforce planning offers to the health sector. I would also recognise that not all of us involved in the health sector understand and appreciate the value of health workforce planning or its limitations; there can be some who see it for more than it is and still others who doubt its value altogether.

I think any of the doubt, or even cynicism, that can surround health workforce planning, really goes right back to needing to have a clear understanding of what is meant by health workforce planning, what is intended by health workforce planning and what health workforce planning can be used for. So in this paper, as part of asking the question – what have we learned? – I thought it would be good to cover some of these areas and perhaps outline some important principles from an Australian perspective that should underpin the health workforce planning process.

Definitions, Definitions, And Still More Definitions

The title to this section says it all. If you work through the literature, even just the recent literature, there are some slightly different definitions of health workforce planning and, more particularly, different views on health human resources processes and the role of workforce planning within that process.

Perhaps the most straightforward definition of workforce planning I have found is:
"Workforce planning is the systematic assessment of future human workforce needs and the determination of the actions required to meet those needs (Ripley 1996)."

Generally though, health workforce planning is considered part of broader health service planning and health human resource processes, which in turn leads into an array of different perspectives on health workforce planning and what it can usefully achieve. For example, WHO (2001) and Hall (1998) note that there are three key aspects to health human resource functions - workforce planning, workforce production and workforce management. De Geyndt (2000) views workforce development as the key workforce process, which involves the three interrelated actions of planning the workforce (which is a quantity concern), training the workforce (which is a quality concern) and managing the workforce (which is a performance

issue). Masterson and Humphris (2001) stress the importance of workforce planning being accompanied by education and training, good employment practices and reward systems. Queensland Health (2001) sees workforce planning as being concerned with defining, acquiring and sustaining the workforce of the future. The Northern Territory Department of Health and Community Services views health human resource policy as four interlinked processes - workforce planning, workforce management, workforce development and workforce organisation. (AHWOC 2003 forthcoming). O'Brien-Pallas et al (2001) note that health workforce planning involves estimating future health workforce requirements and determining the most efficient and effective ways of providing for these. The 2002 review of national medical workforce planning in Australia defined health workforce planning as being about planning for the future supply and distribution of properly educated and trained practitioners to best meet the population's need for quality health services, which is part of the broader continuum of overall health services planning and policy development (AHMAC 2002). AMWAC has been equally guilty of developing its own definition which is that workforce planning is the process of estimating the required health workforce to meet future health service requirements and the development of strategies to meet that need (AMWAC 2003.1).

So there are lots of definitions and lots of perspectives. The above is just a sample. There are many more, and whilst for workforce planning estimating numbers is a common theme, it is equally clear that workforce planning can mean more to some people than others, as it moves out of the area of just thinking about supply and requirements and numbers and moves into the broader human resources area where the planning is linked to workforce development and workplace organisation. Furthermore, much of this variance in definitions and scope probably reflects differing policy perspectives within countries and changing policy perspectives over time; although it is also interesting to note that some of the variance could be due to differing backgrounds amongst researchers, especially in terms of whether there is a nursing or a medical perspective involved.

In very straightforward terms workforce planning in the health sector has frequently been summarised as ensuring that the right practitioners, with the right skills to deliver quality health care to the population, are in the right place at the right time. And if this is not quite a definition it does perhaps remain the best description of what is meant by health workforce planning because to my mind it does encompass the concepts of determining and defining supply (both in terms of numbers and mix); considering distribution; basing both these determinations on population need; involving the concept of managing the workforce and linking workforce to the broader health system; linking workforce to the provision of quality care and therefore introducing the need for workforce education, training, development and standards; thinking about the future; and developing strategic responses to existing or evolving situations, which is essentially all that health workforce planners are asked to do.

So one observation about health workforce planning is the variation in definition and scope; but what have we actually learnt over recent years?

Ideas on Some Guiding Principles of Health Workforce Planning

The following is a listing of possible workforce planning principles – not in terms of what planning can achieve so much but more as an outline of what the role of workforce planning is and the process of workforce planning. These are things I think we have learnt about workforce planning in Australia. I should add that such a listing is not an original concept as I have seen Fitzhugh Mullan (2002) have a go at something similar in a conference paper several years ago and Tom Hall (1988) has previously published his set of principles.

1. Workforce planning is undertaken to guide workforce policy

The key words here are guide and policy. The statement itself contains the notion that workforce planning is a practical tool for the provision of timely and reliable information that informs policy development and the development of strategic actions; ideally informing about current challenges, emerging situations and future directions. Given that policy can be succinctly defined as government in action the statement also highlights that the planning is generally undertaken on behalf of government and, if government is not the commissioning agent for the planning, then it is being undertaken by key workforce stakeholders to outline the parameters of their policy, which would then, in all likelihood, be put to government.

Health policy does of course have many aspects to it beyond workforce, including service organisation, service delivery, financing, regulation, infrastructure development, education, training, and ensuring quality; and as such policy in the above statement should be considered in its broadest context to acknowledge that health workforce policy is just one part of the broad continuum that is health policy.

For policy makers, the type of information that can be provided by health workforce planning includes:

- identifying shortages and surpluses;
- defining (or redefining) workplace organisation, tasks, skills and roles;
- establishing workforce education and training needs;
- improving knowledge and understanding of the workforce, its activities, and how it operates; and
- ensuring there is a process for systematically addressing the factors that are influencing workforce and workplace change.

This then is the essential value of workforce planning – a tool for providing information of the types listed above, that can then be used to inform and guide health workforce policy.

2. Workforce planning should be conducted with clarity

One of the keys to the successful delivery of policy is confidence in the inputs to the policy process. For workforce planning the key to confidence is the clarity of the planning. Clarity comes when the scope of the planning activity is clearly set out and the planning is based on a defined process; a clear method; evidence based analysis; the use of robust and reliable information; the involvement of stakeholders; and when the reporting of the work outlines all information inputs, analysis, and modelling; and also details any limitations with any of the above.

On the technical side, being fully aware of how workforce models operate, including the inputs to the model and the assumptions that are used in the modelling, is also essential. In terms of report writing, the principle should be that all information and analysis is outlined and discussed, and all workforce modelling assumptions and calculations are clearly set out. This should ensure that any reader can understand the conceptual thinking and information inputs, appreciate the workforce analysis and follow all the workforce calculations and simulations.

3. Any workforce planning is only as good as the available information

Understanding the information used in any workforce planning exercise and how that information is being used and interpreted is essential to ensuring clarity and accuracy. In the health workforce context, any data collection must be based on a systemised process of collection, processing and analysis. Emphasis should be on a core, or minimum, data set and filling key information gaps particular to a specific workforce or service. Data dictionaries and standard definitions are an essential part of ensuring robustness and reliability. Timeliness is also of crucial importance, where the lag between collection and compilation must be minimised.

The second point to note about data is that it is important in answering both the how much (quantitative) and the why (qualitative) questions. The tendency seems to be to quantify first and this can have the effect of focussing data collection exercises more on the quantitative issues. However in terms of informing policy, why things are happening are just as crucial because this type of information can provide insights into what factors might be driving actions and decisions within the workplace and as such help construct policy solutions that can be better targeted at workforce influences and behaviour.

In Australia we have spent more effort on quantitative data collections that cover both supply and requirements for the medical and nursing workforces. This year we are commencing a greater effort on allied health. Supply data has probably been better dealt with than requirements. We have also placed more attention on developing national level datasets, rather than on improving State/Territory or regional collections. The majority of the national data sets have been compiled and held by

the Australian Institute of Health and Welfare or Australian/State/Territory governments.

Qualitative data has tended to be one off and project specific, although AMWAC and the Australian Department of Health and Ageing are in the process of putting in place a regular survey of doctors in vocational training to obtain information about the factors which influence their career choice and workforce participation decisions (AMWAC 2003.2). Work is also in progress to extend this work to cover medical students and the years immediately after graduation from medical school.

4. Remember workforces are dynamic, health systems evolve and the future is uncertain.

Given system dynamics, health workforce planning should be seen as an evolutionary activity of constant assessment, analysis, validation and renewal. For planning this means the planning itself must be regularly updated, and the processes and methods used must also evolve over time as better tools and techniques develop. It also means that even with planning for the longer term, the present must be monitored and the planner must be prepared to recommended changes to any agreed plan and admit miscalculations.

From the Australian perspective, there has been an expressed desire to see greater emphasis placed on developing scenarios that cover a range of credible possibilities and 'what if' options. In the past we have tended to focus on singular solutions (AHMAC 2002).

The dynamic nature of health systems has two key impacts on the workforce planning process. First, the impact of any broad health policy, service delivery and/or technology change on the workforce needs to be considered as part of the supply and requirement analysis and prediction process. These impacts can be considered in terms of anticipated changes or simulated adjustments. The second consequence of the dynamics of health systems and the health workforce is that there will be a need in any planning exercise to constantly monitor, update and refine the workforce analysis and planning advice. In terms of current dynamics, several basic trends seem likely, and all imply an innovative and constantly evolving workplace and workforce. As many have noted, these trends can be expected to include:

- more and better technology;
- new and varied approaches to service delivery and the provision of care;
- new roles for old disciplines and new disciplines;
- a focus on quality cost efficient service provision;
- increased consumer participation;
- greater availability of accurate, timely information;
- continuing demographic shifts; and
- the continued development of the global community.

Overall, from the workforce planning perspective any health policy, service delivery or technology change must be quantifiable in terms of an effect on demand, productivity or practice, or a combination of all three.

5. Stakeholder input and commitment is essential to the planning process

Fundamental to any workforce planning exercise is a commitment from stakeholders to the planning process, their participation in that process and their understanding of why workforce planning is undertaken and what the planning exercise can add to workforce policy. Participation is also seen as important because of the key role stakeholders have to play in implementation of the planning recommendations and strategies and with the monitoring of this implementation and the outcomes of the planning exercise.

Participation is a two way process though, and equally fundamental to the planning process is the data, information and insights stakeholders can bring to the planning, particularly in terms of local perspectives, technical insights, and their views about the future.

In Australia, the key stakeholders in health workforce planning are government, consumers, service providers, the professions, the education and training sectors, and a range of inter-sectoral organisations.

6. Workforce planning needs to be conducted within an overarching strategic workforce framework
(and any strategic planning process must not forget principle 4)

In some respects this is a statement of common sense. However, the importance of developing an overarching strategic framework is to contextualise the policy action that flows from any particular workforce planning exercise and to ensure that having a vision for the future is seen as being just as important as focusing on credible solutions to immediate challenges. A strategic framework is also important for linking health workforce priorities to broader health system priorities. It can also outline responsibilities for action among the relevant stakeholders, particularly within government and the health professions.

Generally, the purpose of the strategic framework should be to set out guiding policy principles; consider issues (both current and emerging); discuss potential actions, and likely responsibility for action; and provide a guide to prioritising investment in workforce planning and workforce development.

The key value of such a process is that it is an enabling mechanism for greater thought about the future. My observation is that too often workforce planning exercises are undertaken to solve immediate crises and therefore can tend to focus

more on the short term quick fix and less on the longer term issues. Over a period of time this means that planning and policy is more reactive than proactive, and perhaps none of the immediate individual solutions are sustainable over the longer term without more fundamental reform to systems, structures and processes.

7. Don't over complicate what is essentially a straightforward process of evidence based analysis of supply and requirements and thinking about the actions that may be necessary to meet current and expected challenges.
   (and don't forget principle 3)

The general approach to workforce planning is to incorporate some process of supply analysis, requirement analysis, gap analysis and solution analysis. Invariably this involves some form of calculation tool or workforce model to assist with mathematical calculations and projections based on scenarios that vary some or all of the key workforce supply and requirement inputs.

Of course workforce models are simulations of reality and as such are only as good as their design, underlying assumptions and inputs. Modelling is only a tool – it is not a solution. Modelling is only as good as the fundamental principles behind the models construction, the data inputs to the model and the assumptions behind the model simulations.

Also remember there are two parts to the analytical equation - supply and demand. In comparative terms our experience in Australia has been that the intricacies of supply are easier to understand and accommodate within data collections. In this context the work of AMWAC has ensured all the key supply inputs have been incorporated into workforce models for nearly a decade now. Assessing current, and then thinking about future, requirements seems to be much harder and is probably the area where AMWAC has had most difficulty defining scenarios for projection purposes; and as such I think this is the area of greatest potential error in Australian health workforce planning. Our general view is that needs based requirement assessments are preferable.

In terms of solution analysis, or the development of actions to deal with workforce imbalances in supply and requirements, there are a range of policy options available, such as:

- adjust education and training intake;
- change participation rates;
- reduce workforce loss;
- encourage re-entry (for shortages) or early exit (for surpluses);
- adjust net migration;
- encourage adjustments in workforce productivity;
- improve workforce distribution;
- redesign workforce tasks to vary the combination of skill mix and professions; or

- influence consumer behaviour.

In Australia we have tended to focus most on adjustment to education and training intake, given it seems to offer the best medium term solution; and to supplement this with more short term solutions based around the use of immigration options. Given Australia's geography actions on distribution have also been a feature of medical workforce policy since the mid 1990s. The other policy options have rarely even been considered as potential solutions to issues.

As we all know, however, the main difficulty for the health workforce planner and the health workforce policy maker with intake based solutions is the long lead time between implementing the adjustment to intake and their effect in the market place. This can be frustrating and cause people to feel that not enough is being done to deal with immediate situations.

For governments, the other key issue in constructing policy responses is whether they are going to use incentives (to encourage certain behaviour) or disincentives (to discourage certain behaviour). Generally in Australia incentives have been favoured, usually based around additional payments for behaving in a particular manner, for example practising in a rural location.

So, there are seven guiding principles which I think are the core things we have learnt about successful workforce planning. Could there by other principles besides the ones I have outlined above? Undoubtedly. Indeed, Hall (1988) for example lists principles such as:

- projection models should be applicable to national and regional realities;
- at least as much attention should be given to requirements as supply;
- the reasonableness of projections should be tested; and
- predictions are bound to prove wrong in the end.

Fitzhugh Mullan's paper included things such as the workforce should mirror the population it serves and to remember that any exercise in futurism should draw on the momentum of the past (Mullan 2002).

So how does Australia's national level medical workforce planning measure up against the seven principles checklist – well not badly, but there are areas for improvement; which I should add are all being worked on.

Guiding principle	Assessment of AMWAC performance
1. Workforce planning is undertaken to guide policy	This is the sole rationale behind AMWAC's establishment and this task is clearly set out in the AMWAC terms of reference.
2. Workforce planning should be conducted with clarity	Upon reflection, in the early work of AMWAC clarity could have been better, but new arrangements and systems are now in place to ensure clarity is a feature of each planning project.
3. Any workforce planning is only as good as the available information	Australia has some of the best national level medical workforce data collections in the world. These cover both supply and requirements information. Timeliness needs to be improved and maintenance of relevance and best practise in collection and processing are constant considerations. Further work is needed at the State/Territory level and at the regional level to ensure there are useful and compatable minimum data sets.
4. Remember workforces are dynamic, health systems evolve and the future is uncertain	There is a process in place to ensure systematic update of all AMWAC workforce plans. Less work has been done on considering the longer term future and one of the key projects for the 2003-04 health workforce work program is to examine ways to better incorporate thinking and assessment of the future and the impact of change over time into workforce planning.
5. Stakeholder input and commitment is essential to the planning process	This has been a feature of the AMWAC process with all key stakeholder organisations involved in each project. Broader consultation has needed some improvement and systems and approaches are now in place to ensure this occurs.

6. Workforce planning needs to be conducted within an overarching strategic framework	In part, this has been the case for medical workforce planning, but not for the health workforce as a whole. One of the key projects for 2003-04 health workforce work program is to develop a national health workforce strategic framework.
7. Don't overcomplicate what is essentially a straightforward process of evidence based analysis of supply and requirements and thinking about the actions that may be necessary to meet current and expected challenges.	This has constantly been AMWAC,s view.

Current AMWAC Methodologies and Tools

To answer the first question asked in this paper, the process we have been following in Australia is best summarised as describe, evaluate, predict (AMWAC 2003.1).

1. Describe:
   - the unique services provided to the community by a particular workforce and the other service providers and infrastructure required to provide a sustainable service of acceptable quality;
   - the current level of supply in terms of workforce numbers, characteristics (age, gender, qualifications), participation (full-time/part-time, hours worked, by age and gender), distribution (by state/territory and other geographic measures, public sector and private sector), productivity, service provision (by type and quantity of service), and skills and tasks;
   - recruitment process, including the number, characteristics and training status of people currently undertaking training in Australia, and the number and characteristics of qualified people entering the workforce through migration; and
   - current level of wastage due to migration, people choosing an alternative career path, retirement and death.

2. Evaluate:
   - the adequacy of the current level of workforce supply based on a range of indicators (eg international and national benchmarks, service waiting time, population health status, perceptions of key stakeholders), with a view to quantifying the level of shortage or oversupply if indeed either situation is found to exist;
   - the adequacy of the geographic distribution of the workforce using indicators such as level of service provision and population based benchmarks;

- the extent to which other service providers are currently doing some of the work traditionally undertaken by the workforce under review; and
- the extent to which the current workforce is providing services in line with government health goals and priorities.

3. Predict:
   - workforce requirements for a stated period of time (eg next 10 years) using a range of scenarios and requirement projection indicators; population needs based and demand-based and service provision benchmarks;
   - workforce supply for a stated period of time using a range of scenarios (eg 'no change in the level of recruitment', 'increasing/decreasing the number of people undertaking training', 'increasing/decreasing the supply of qualified people entering the workforce from overseas', 'increases/decreases in level of workforce participation, and 'increases/decreases in attrition'); and
   - the potential for changes in practice, service delivery and technology which are likely to affect population requirements for services or are likely to alter levels of workforce productivity.

This approach to medical workforce planning employed by AMWAC has evolved over the last seven years as part of a continual learning and quality improvement process. The process has been enhanced through consultation with national and international health planners, experience gained through review of 23 workforce disciplines, research to increase understanding of complex issues, and improvements in medical workforce data collections.

In terms of organisational structures, there remains a clear distinction between the conduct of national medical workforce planning and the associated provision of advice to government (AMWAC), and the implementation of that advice and co-ordination of national level strategic action (Australian/State/Territory governments and through the Australian Health Workforce Officials Committee). Similarly, most State/Territory health departments are involved to some extent in state based workforce planning which is focused, quite rightly, on the issues and challenges specific to their jurisdiction.

(Note AMWAC's brief is medical workforce planning; the Australian Health Workforce Advisory Committee has a similar brief covering the nursing and allied health workforces. Further information on each of Australia's national level committees and how they interact is available through the Health Workforce Australia website at www.healthworkforce.health.nsw.gov.au)

In terms of calculation tools, AMWAC uses a computer simulation calculation tool (based in Microsoft Excel) to project future workforce supply and requirements.

I should note that there are other workforce modelling tools being used in Australia, including:

- the Australian Research Centre for Population Oral Health and the AIHW Dental Statistics and Research Unit of the model of the dental workforce (AIHW 1998);
- the Access Economics model developed for the Australian Medical Association's review of the general practice workforce (Access Economics 2002); and
- the Department of Education, Science and Training model of the nursing workforce (Karmel and Jianke 2002).

The AMWAC workforce calculation tool projects workforce supply and requirements forward for up to a 12-year period.

Future requirements are projected by applying a growth factor to the baseline requirements level. This growth factor represents an indication of the predicted change in requirements during the projection period. The growth rate is influenced by a variety of factors, including projected population growth, the effects of ageing of the population, health expectations, technological changes, disease incidence, and trends in service utilisation. While some of these factors are not readily quantifiable, they may be contextually useful.

Future supply is projected on the basis of five year age and gender cohorts. Baseline supply is defined and then projected forward by adding in new entrants to the workforce, taking out losses, and ageing the workforce through the projection period.

The modelling process uses hours worked for measuring supply and requirements. This approach allows the model to take into account variations in working patterns and entry and loss rates among the different age and sex cohorts. In addition, using hours worked as a measure overcomes the difficulty of defining what an FTE represents in terms of hours worked per week.

Australian Medical Workforce Policy and Influencing Factors

(Note: the attached figures 1 to 15 show the trends over recent years in the key supply variables discussed in the following sections.)

What factors will influence future supply and demand for physicians is always difficult to answer. Looking first at supply it is interesting to note that Australian medical workforce policy has generally been defined in terms of supply and has gone through four distinct phases in recent history:

- increasing supply (1970s into 1980s)
- managing surplus (mid 1980s mid 1990s)
- improving distribution (mid 1990s on)
- encouraging supply growth (where we are now)

Current supply policy is all about growth, a feature which all four countries seem to share. All but one of AMWAC's individual workforce reviews have recommended increases in supply to deal with existing shortages and/or anticipated requirements growth. The exception has been paediatrics. The policy response to the need to grow workforce supply has been targeted at vocational training intakes, which have increased, in total, from around 1350 per annum in 1997 to around an estimated 1750 per annum for next year.

It is also worth noting that general practice has gone through several phases, starting with no growth, then modest growth was recommended based on assumptions about high overseas doctor intakes, which have failed to materialise, and so just recently annual general practice training intakes have been increased significantly from 450 to 600 in 2004.

Over the past eighteen months AMWAC has also registered concern about the widening imbalance between vocational training intakes and medical school intakes. Earlier this year, the Australian government announced in its May 2003 budget 234 additional publically funded medical school places from 2005, and adjustments to full fee paying arrangements that will see medical school output increase from around current levels of 1300 per annum up to at least 1700 per annum from around 2009.

The most notable supply side drivers are the ageing of the workforce, changes in participation (as measured by hours worked per week), and the increase in female participation. Two key issues that currently excite discussion are how far will average hours worked continue to decrease, especially in the hours worked by male doctors; and will an increasing number of doctors nearing retirement exit the workforce early. Female participation is also still widely discussed but in number terms the changes we are seeing have been factored into all AMWAC analyses and current trends are in line with expectations.

On the other side of the equation, it is fair to say that requirements/demand have always been difficult to project. On the whole AMWAC's assessments on requirement growth in the medical workforce have probably tended to be more on the conservative side, ranging from 1.0% to 3.0% per annum, depending on individual workforce factors. The exception was paediatrics. However, demand is difficult to project, let alone predict with accuracy, and in some cases small miscalculations can have significant impacts. As I noted earlier if there is an area where there is potential for error in workforce planning in Australia it is most likely to be in the under calling of future requirements. Of course there are also broader issues like how much can demand grow by and do governments have a responsibility to meet all health demands.

International Medical Graduates

As we have discussed at previous conferences IMGs are an integral part of each of our workforces. Indeed they have been a common feature of most for a long period of time. For example, in Australia around a third of the current workforce gained their initial medical qualifications outside of Australia. In the Australian context there are two types of IMGs - permanent resident and temporary resident.

On the permanent side, Australia has always been a net importer of doctors and over the past decade permanent entries have always exceed any exits by around 200 to 400 per year. The key area of growth in the use of IMGs in Australia has been in the temporary area, where doctors enter the country for a defined period of time (usually up to no more than two years) to fill a particular area of workforce shortage or need. As the graph below shows these numbers have grown dramatically over the last decade, to the point where at any point in time there are now around 3000 temporary resident doctors in the country. Most of the temporary resident doctors are employed in general practice, particularly in hard to fill rural locations, or in the public hospital system.

Temporary resident doctors are useful in the policy context because they have an immediate impact on supply as opposed to the training of new doctors, which takes considerable time to filter through. However the other attraction of the temporary doctors is that in the Australian context they are the only segment of the medical workforce that can be told where to practise and for how long. So they embody two key features of a flexible workforce, features which are found in no other segment of the medical workforce.

There is a considerable amount of ongoing work being undertaken to understand the dynamics of the IMG workforce better and for those who are interested I can pass on some useful contacts. Similarly there has been a shift in thinking about permanent resident IMGs, away from working to limit their numbers in the 1990s to now ensuring that systems are in place that enable more timely assessment, training, and then ultimately, for those assessed as being competent to practise, integration into the workforce.

What is clear is that IMGs are an integral part of the Australian medical workforce and are likely to remain so at least for the foreseeable future.

And In The End

And the greatest value of the workforce planning? I would suggest the answer to this question is – the provision of quality analysis and information. Information enhances understanding and improves our knowledge of our workforce, and in the policy context this information and understanding should lead to better policy action and as a result give us the best chance of ensuring that the right practitioners, with the right skills, are indeed in the right place at the right time.

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