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The Pharmacy
Guild of Australia

Pharmacy Workforce Planning

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EXECUTIVE SUMMARY

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Acknowledgement

The Pharmacy Workforce Planning Study is provided with ongoing expert advice by an Advisory Panel consisting of representatives from:

- the Professional Programs and Services Advisory Committee Research & Development Steering Committee;
- the Pharmacy Guild of Australia;
- the Department of Health and Ageing;
- the Pharmaceutical Society of Australia;
- the Society of Hospital Pharmacists of Australia;
- the Council of Pharmacy Schools: Australia New Zealand Inc;
- the Association of Professional Engineers, Scientists and Managers, Australia; and
- the National Health Workforce Taskforce.

To learn more about this project and to obtain companion publications go to the following websites:

www.guild.org.au/research

www.humancapitalalliance.com.au.

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Study objectives

The objectives for this study along with a summary of achievement are listed in the Table below.

study purposes	achievement summary
Validate and where necessary refine the model and projections in the 'Workforce Supply and Demand 2000-2010' report (HCI, 2003);	A new model for projecting supply and demand (the Pharmacy Workforce Planning Model referred to throughout the rest of this document as 'the model') that is much more flexible and accessible has been developed.
Develop a 'forecast' of annual supply and demand for pharmacy workforce using an optimal model through to 2025;	A forecast of 'Best estimate' for supply and demand to the year 2025 has been constructed as well as two other possible scenarios.
Provide information about the current state of the pharmacy workforce;	The current pharmacy workforce supply and demand is fully described.
Identify, analyse and quantify factors, including practice change initiatives that either are or have the potential to affect the pharmacy workforce;	A large number of variables influencing future supply of and demand for pharmacists included in the model.
Identify opportunities for innovative intra and inter profession arrangements that lead to pharmacy workforce retention and capacity building;	In discussions of various pharmacist labour market scenarios generated from the model issues of job satisfaction and workforce retention are covered in a general sense.
Identify and consider issues to be addressed relating to balancing pharmacy workforce supply and demand.	A range of policy and practice responses to at least three significantly different labour market scenarios are discussed.

Approach to model development

Significant effort has been expended over the last two years to achieve the objective of modelling the pharmacy workforce, first by identifying all the variables that impact on supply and demand and second by generating the best possible estimates and predictions for these variables. The aim of this was not so much to develop a definitive forecast for the future pharmacy labour market (in particular the pharmacist segment), but rather to create a strong and credible platform from which feasible future scenarios could be fashioned and examined. The emphasis of the aim in modelling was less on providing capacity to predict and more on providing choice to decision makers who want to influence the future direction of pharmacy services and the pharmacy profession, and don't want workforce issues to impose limitations.

It is fair to say that development of the **demand** side of the workforce modelling evolved most during the course of the study. Initially the model (influenced to some extent by thinking in past studies) was somewhat static and dominated by dispensing and dispensing-related activity in the community sector. By the end of the project a more dynamic means of modelling demand that better reflects and allows for evolving pharmacist practice (less dominance of the dispensing role, more integration between community and hospital pharmacy sectors, a stronger and more integrated role in primary health care, emergence of alternative forms of pharmacist labour with different organisational and financial arrangements) had been created. The demand variables are:

Community pharmacy services

- Dispensing and related activity, including variables that allow for change in the number of prescriptions because of different rates of population growth and the ratios of scripts to persons and a variable measure of productivity (based largely on the approach and efficiency of pharmacists to the dispensing function)
- The role of technicians especially in the dispensing function and the ratio of technicians to community pharmacists
- Variation in growth of selected cognitive pharmaceutical service programs in particular home medicines review and support for persons with particular chronic illnesses
- Further pharmacy services, involving growth of a stronger primary health care role

Hospital pharmacy services

- The number of people attending hospitals

- The ratio of pharmacists to hospital separations. This is effectively a productivity variable, but possibly measuring more changes in the hospital pharmacist role than changes in efficiency in performing the same role
- Unrealized demand

Other pharmacy services

- This largely allows for variation in growth of the ‘consultant’ pharmacist workforce, currently in step with growth in community pharmacy as a result of growth in selected cognitive pharmaceutical service programs. Variation could also though be accommodated here as new independent pharmacist practitioner roles emerge.

In contrast, **supply** modelling quite early adopted and retained a more traditional ‘stock and flow’ approach with relatively standard supply variables, with most of the study effort being devoted to honing the understanding of different variables. The variables included in the model were:

- active workforce (headcount);
- fulltime equivalent conversion factor;
- new graduate supply;
- immigration (from all sources);
- gains from inactive workforce;
- loss from active workforce;
- loss from retirement;
- loss from death & disability; and
- loss through migration overseas.

Using the Model

A user guide has been constructed to facilitate appropriate use of the model and this is available in Appendix C and D of the ‘Final Report’. As a way of demonstrating how the model can be used, three separate labour market scenarios were created and tested through the model *viz.* a ‘**Best estimate**’ scenario, an ‘**Aspirational world**’ scenario and a ‘**Left behind world**’ scenario. The characteristics of each of these scenarios can be briefly summarised as follows:

<i>Left behind world scenario</i>	<i>Best estimate scenario</i>	<i>Aspirational world scenario</i>
<ul style="list-style-type: none"> • primary health care has not been effectively integrated into pharmacy practice • patient directed pharmacy care is delivered in the community but tends to be external to pharmacy practice • pharmacists’ therapeutic skills not recognised as unique and other health professions are increasingly substituting for traditional and emerging pharmacist roles 	<ul style="list-style-type: none"> • increase in primary health care practice largely built on to still dominant dispensing role in community pharmacy • strong reliance of demand growth on government funding of primary health care effort • continued growth in hospital demand for professional pharmacy services 	<ul style="list-style-type: none"> • primary health care is patient directed and an increasingly dominant feature of pharmacy practice • pharmacies deliver their services integrated within the broader ‘health services’ market • pharmacists’ therapeutic skills are recognised as unique and adding significant value to health outcomes

The ‘Best estimate’ scenario obviously represents the projected labour market that is most likely to eventuate based on current understanding, however there are high levels of uncertainty around many of the values in the ‘Best estimate’ scenario and alternative futures can easily be argued — indeed the model is intended to facilitate just such arguments.

Despite the quite different contexts of the three scenarios the model accommodates these differences through changes to a comparatively small number of variables. The key variables that are altered in comparison to the ‘Best estimate’ scenario are:

- Left behind world scenario: slightly higher graduate supply, greater substitution of technicians for pharmacists in the dispensing function, higher rate of growth in dispensing productivity, and lower growth in chronic disease program encounters and home medication reviews.

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- Aspirational world scenario: increase in rate of growth of graduate supply and in supply of immigration of overseas trained pharmacists, increase in primary health care services undertaken by pharmacists, decreased dispensing productivity and growth in medication review activity.

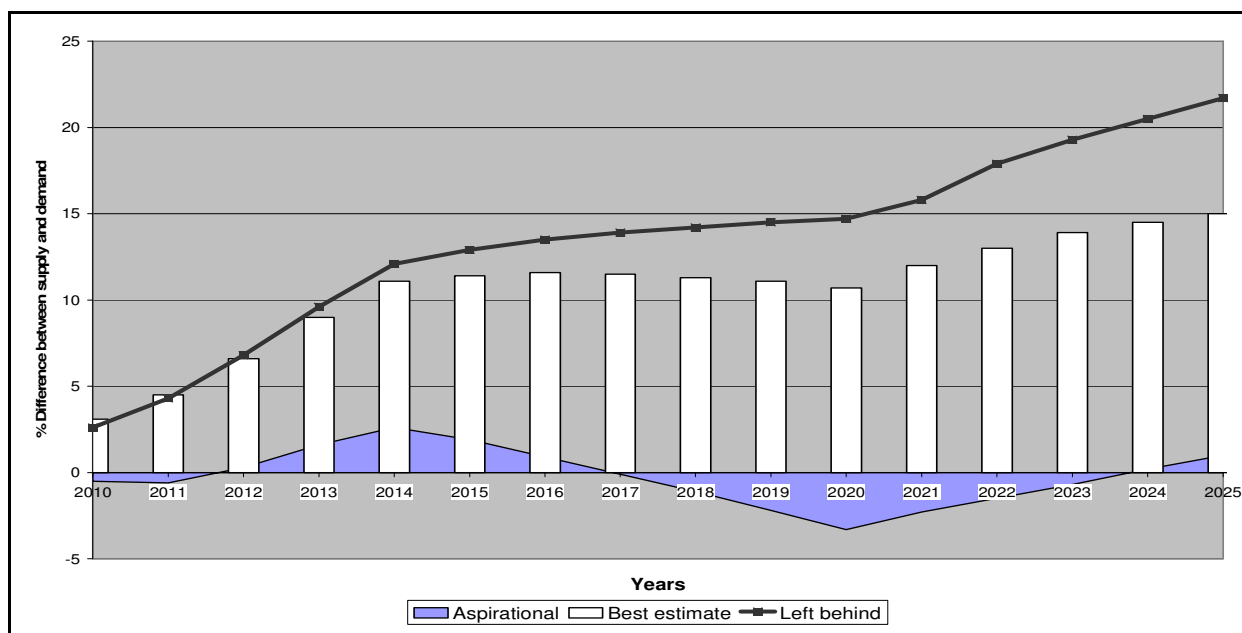
These changes to key, or highly 'sensitive' variables, produces dramatically different **outcomes** from the model.

Between the years 2006 to 2025, under the 'Best estimate' scenario, supply is projected to grow at a compound rate of 3.2% (adding 11,237 FTE pharmacists to the workforce), and total demand at a rate of 2.4% (adding 7,654 FTE pharmacists to the demand for pharmacist labour). In the 'Best estimate' scenario a gradually increasing surplus of pharmacist supply is predicted which after 2014 creates a difference of greater than 10% between supply of and demand for pharmacist labour. This gap is not subsequently reduced and indeed increases further as demand growth after 2020 falls behind comparatively modest growth in supply.

The Aspirational world scenario shows a more finely balanced labour market where unmet demand or over-supply of pharmacists is negligible throughout the study period. This is in spite of the fact that supply in this scenario is growing annually at a higher rate than for the 'Best estimate' scenario (3.7% versus 3.2% per annum). Growth in demand in this scenario is estimated to be 3.66% compound per annum, much higher than the 'Best estimate' scenario where growth in demand is [a lower but still healthy] 2.4% compound per annum.

At the other end of the spectrum is the 'Left behind' world labour market scenario, which has a lower rate of growth in supply than the 'Best estimate' scenario (2.7% versus 3.2%) but has a significantly lower rate of growth in demand (1.5% compound growth per annum). This scenario produces a potentially large over-supply of pharmacists throughout the planning period but especially by the end of the planning period by which time a 20% plus difference between supply and demand has emerged. This scenario would result in high unemployment or under-employment of pharmacists or else a large net wastage of qualified pharmacists from the pharmacy workforce into other occupations where some of the pharmacist's skills may be better remunerated.

The comparison of these three labour market scenarios demonstrates what was noted above how significantly different outcomes can be obtained through manipulation of a comparatively small number of variables (see Figure below; positive figures indicate a surplus of supply over demand).



Policy options

There are a broad range of variables impacting on pharmacy workforce demand or supply that can be feasibly influenced within or by the pharmacy profession. A summary of the options that can have the most impact follows.

Policy approaches suitable to a projected labour market with unmet demand	Graduate supply
	Immigration

Increased graduate supply through increasing enrolments. Would need to ensure limitations in clinical practice opportunities and resources are managed.

More encouragement for immigration and reduced difficulty in actual pathways where

for pharmacists	possible.
	<p>Competence of non-professional labour</p> <p>Substitution of pharmacist labour with technicians or assistants to free pharmacist labour for more professional service delivery (including professional components of the dispensing process). Need to improve the skills development and certification of competence of non-professional labour.</p>
	<p>Loss from the workforce</p> <p>Reducing losses of pharmacists through a range of organisational or structural strategies aimed at creating more choice in job role (and therefore more potentially satisfying work).</p>
Policy approaches suitable to a projected labour market with an over-supply of pharmacists	<p>Graduate supply</p> <p>Increasing the rigour of course accreditation and re-accreditation requirements on schools of pharmacy to slow or even stop entry of new schools into the market and place restrictions on existing school enrolments.</p>
	<p>Immigration</p> <p>Increased difficulty imposed on the processes of achieving skills recognition and / or changed immigration policies to increase constraints.</p>
	<p>Cognitive pharmaceutical services</p> <p>Growth in cognitive pharmaceutical services in community pharmacy most likely within what this study has termed 'selected' services area, largely those services supported by government funding. Within the 'selected' services area there is scope for growth since the current budget allocations are under-spent.</p>
	<p>Primary health care</p> <p>Growth of demand for pharmacist labour in the primary health care setting could be significant but the underpinning influences are weak and a deliberate and structured approach is required to ensure development progress appropriately.</p> <p>Community pharmacies are the most accessible elements of all health infrastructure. The government's commitment to enhancing the profile and importance of preventative and primary health care provides community pharmacy an opportunity to utilise its extensive community network and distribution capacity.</p>

Conclusion

The real value of the model that this study delivers is the opportunity to explore relevant labour market scenarios within a feasible range of possibilities. Uncertainty is at the very core of the methodology; the modelling process has been designed not to try to eliminate or minimise uncertainty but rather to embrace it and explore alternative pathways and understand how these pathways could be made less uncertain (or at least more predictable).

The ultimate message is that the destiny of pharmacy services can be unplanned and left largely in the hands of market forces or a more determined effort can be made to shape the future and influence factors that would most likely deliver the visioned future. The model provided will help predict the future in the first case. In the second case, the model will help identify what needs to happen from a labour demand or supply perspective so pharmacist workforce is not a limitation to the achievement of the pharmacy services vision the profession seeks.



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