Nurse Labourforce Projections
Victoria 1998-2009

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Introduction

In May 1998, the Department of Human Services commissioned Dr Ron van Konkelenberg of Fresbout Pty Ltd to conduct a review of the Victorian nurse labourforce. Dr van Konkelenberg conducted previous Victorian studies in 1991 and 1993.

Objectives

There is a need for health authorities to identify the requirements for staff with appropriate nursing skills in order to plan for and ensure both adequate education and training places and service provision. Concurrently, there is a need to develop a profile of the current labourforce to better understand its dynamics and behaviour, and to highlight those variables or indicators which will provide management information for monitoring and policy decision making. Within these broad needs, the Department of Human Services has identified three major objectives for the nurse labourforce study:

1. To prepare a ten-year projection of the demand for, and supply of, the nurse labourforce in Victoria. This projection should be for the total labourforce including both the public and private sectors.

2. To prepare labourforce needs analyses which can be used as a basis for planning of student intakes.

3. To implement an analytical model that has been proven in an Australian nursing context covering all areas of nursing in order to calculate and facilitate analysis of demands for and supply of nurses in the Victorian labourforce.

Scope and Required Deliverables

The consultant's briefing document defines the scope of the project to include the entire Victorian nurse labourforce including nurses in all divisions of the register and all settings in which nurses practise.

The consultant was required to prepare a report for the Department of Human Services with:

1. A baseline of the numbers currently employed in the nursing labourforce.
2. A description of the patterns of employment of the nursing labourforce.
3. Estimates of the current and future rates of net migration.
4. Estimates of the numbers of nursing graduates for the next three years.
5. Estimates of the current participation rates in the nursing labourforce including casual rates.
6. Estimates of the net change in the demand for nurses for the next ten years.
7. Alternative scenarios modelling the nurse labourforce data for the next ten years based on assumptions determined by a Reference Group and the best information available.

Consultation

The Department of Human Services convened a Reference Group to support the consultant. The Reference Group included:

Rosemary Bryant	Department of Human Services - Public Health and Development
Barbara Carter	Nurses Board of Victoria
Dianne Cutts	Australian College of Midwives
Clare Dewan	Aged Care Victoria
Geraint Duggan	Department of Human Services - Public Health and Development
Kura Emery	Australian and New Zealand College of Mental Health Nurses, Victoria Branch
Donna Fisher	Human Resources Professional, Southern Healthcare Network
Brian Fitzpatrick	Australian Nursing Homes and Extended Care Association, Victoria
Gavin Jackson	Department of Human Services - Mental Health Branch
Sam Lees	Rural Doctors Association
Dawn MacKenzie	Aged Care Service Group
Kathleen McLaughlin	Department of Human Services - Public Health and Development
Jan Norton	Department of Human Services - Public Health and Development
Pauline Nugent	Victorian Deans of Nursing
Robyn Ogle	Confederation of Australian Critical Care Nurses, Victoria
Ros Pearson	Private Hospitals Association of Victoria
Alan Sandford	Department of Human Services - Public Health and Development
Pauline Scottow	Victorian Health Care Association Ltd
Anne Marie Scully	Australian Nursing Federation, Victorian Branch
Janet Secatore	Ministerial Advisory Council on Nursing
Lesley Siegloff	Association for Australian Rural Nurses
Jocelyn Small	Royal College of Nursing, Australia
Tim Smith	Education Victoria - Higher Education Branch
Jenny Theisinger	Department of Human Services - Aged Care Branch
Ann Turnbull	Australian College of Nurse Management
Philippa de Voil	Ministerial Advisory Council on Nursing
Peter Wallis	Rural Hospital CEO - Echuca Hospital
Fran Williams	Health Services Union of Australia

Current Issues

The following were raised by the reference group as issues to be addressed in the current study. It was generally felt that:

- The total number of general nurses available in Victoria is sufficient to meet current demands. However, there are a number of distribution problems in geographic and specialty areas. In particular:
  - There are problems in attracting sufficient nursing staff to rural areas, and nurses are in short supply in the critical care (including perioperative), mental health, aged care and renal dialysis areas.
  - In both the speciality and the general nursing workforce there are shortages of nurses with practical experience who can work without the need for ongoing supervision.
- Some concern was raised that base level graduates require additional practical experience after graduation before they can practise without considerable supervision. However, this reflects a need for practice settings to modify expectations about what a new graduate is prepared for and the role of the practice setting in further shaping and developing the entry level practitioner.
- There is some concern that it will be increasingly difficult to attract sufficient numbers of students with the appropriate educational standard into nursing
- There is a lack of clinical placements for students, particularly in Mental Health.
- There is considerable concern about working conditions and the fact that perceptions of inadequate working conditions are contributing to high attrition rates, preventable stress in the workplace or inability to meet professional aspirations. Specific examples of these issues include:
  - Changes in the ratio of Division One nurse to Division Two nurse, and specialist trained nurses to non-specialised staff.
  - Pay rates are perceived to be low and/or out of balance between health care jurisdictions.

- A perceived shortage of opportunities for promotion.
- Increasing workloads.
- Insufficient staff support structures.
- Some nurses in rural areas perceive that they are professionally isolated without easy access to the support of peers.
- Rapid technological changes.
- Slow response to emerging community needs for nursing care and a lack of professional opportunities for advanced practitioners and for midwives.
- A need to review models of care for nursing and for midwifery.
- The high cost of education and training.
- The need to recognise rural nursing as an area of specialisation in its own right.

• There is concern that activity and acuity levels are increasing but the number of nursing positions has remained static. The key problem identified here is that change in health care is perceived to be budget driven and 'across the board'. The changes imposed on nurses do not appear to take into account differential needs between nursing specialties or the constraints placed on service providers to respond to change.

• The aged care sector has its own problems in retaining and attracting staff. In particular the Reference Group identified differential pay rates between service providers and the States and Commonwealth and inadequate and/or poorly distributed funding of nursing home facilities. Increasing levels of back injuries in the aged care sector were anecdotally linked with inappropriate staffing skills or levels and at best are considered to be an indicator of stress in the industry.[(1)]

[1] The current (1998) Australian Health Care Agreement with the Victorian Government includes a provision to address prevention of back injury in nursing.

Overview of the Victorian Nursing Labourforce[2]

There were 69,811 nurses on the Nurses Board registered nurses file as at 1st July, 1998 (Table 1).

Table 1: Registered Nurses File Statistics as at 1 July, 1998

Division	Nurses Registered in One Division Only	Nurses Registered in More Than One Division	Total Registered
Division 1	48,990	383	49,373
Division 2	16,133	521	16,654
Division 3	1,802	62	1,864
Division 4	554	0	554
Division 5	1,366	0	1,366
Total	**68,845**	**966**	**69,811**

Source: Nurses Board Registration Statistics.

Because there will be no further registration in Division 4 and 5, and because overall numbers are low, the Reference Group considered that these categories should be excluded from the analysis. While the same applies to Division 3 nurses, they remain in the analysis. This leaves a total 67,891 nurses for further analysis. For discussion purposes Division 1 is labeled Registered Nurses (RNs), Division 2 Enrolled Nurses (ENs) and Division 3 Registered Psychiatric Nurses.

Details on nursing employment have been obtained from the Nurses Registration Survey for 1996. The Nurses Registration Survey is commissioned by the Australian Institute of Health and Welfare (AIH&W) and is confidential. Individual nurse registration numbers are not retained on file. Labourforce gains, losses and migration are available directly because the survey asks for details on both current and in the twelve months' previous employment status.

[2] The primary data sources for this study were the Ampersand survey of nurses for the 1996 calendar year, and Victorian Nurses Register statistics supplied by the Nurses Board of Victoria. Data were reviewed and validated by the Reference Group.

It was assumed that the nurses registration survey is a sample of the total nurse registration file. There were no patterns in the characteristics of respondents and non respondents so it is assumed that the divisional samples are unbiased.

In the sections following, the proportion of nurses responding to each question in the survey have been multiplied by the respective total registration numbers for each of the three divisions analysed. Although this provides details of the relative size of the current labourforce, the survey for 1996 may not be fully representative of the 1998 labourforce. However, the Reference Group agreed that data presented in this way was the best currently available.

Baseline Nursing Employment Levels

Based on the calculations described above, there were 56,350 nurses working in Victoria on 1 July, 1998 compared with 59,063 the previous year (Table 2).

Table 2: Nurses Working in the Victorian Labourforce 1 July, 1997 and 1998

Division	1 July, 1997	1 July, 1998	Change
Division 1	43,023	41,279	-1,744
Division 2	14,350	13,491	-859
Division 3	1,690	1,581	-109
Total	**59,063**	**56,350**	**-2,713**

Source: computed from 1996-97 Registration Survey and 1998 Registration Statistics.

Current Employment Patterns

The 1998 distribution of nurses by service and clinical activity is shown in Tables 3 and 4 respectively.

Table 3: Distribution of Victorian Nurse Labourforce by Service (1998)

Service	RNs		ENs		RPNs	
	Public	Private	Public	Private	Public	Private
Hospital Inpatient	18,817	6,906	3,523	695	775	118
Hospital Outpatient	825	82	241	19	263	3
Nursing Home	2,056	3,011	3,295	2,885	43	18
Day Procedure Centre	258	296	59	80	5	0
Hostel	173	159	261	222	6	1
Hospice	197	20	94	3	0	0
Community Health Centre	2,055	0	222	0	183	0
Private Medical	0	945	0	536	0	3
Agency	910	334	312	96	31	10
Private Nursing Practice	0	259	0	71	0	8
Intellectually Disabled Services	36	19	193	21	34	1
School	128	62	25	4	0	3
Tertiary Education Institution	623	19	15	5	13	1
Private Sector	0	350	0	79	0	3
Prison Medical Service	37	0	5	0	8	0
Defence Forces	56	0	44	0	0	0
Maternal and Child Health Service	717	18	8	1	1	0
Other	1,298	614	260	213	41	9
Total	**28,184**	**13,095**	**8,558**	**4,932**	**1,404**	**177**

Source: Computed From 1996 Registration Survey and 1998 Registration Statistics

Table 4: Distribution of Victorian Nurse Labourforce by Principal Area of Clinical Activity (1998)

Clinical Activity*	RNs	ENs	RPNs
Mixed Medical or Surgical	8,997	2,004	18
Medical	1,920	675	14
Surgical	2,280	214	9
Perioperative	3,091	233	6
Critical Care or Intensive Care	2,794	16	3
Paediatric	1,006	85	3
Obstetrics and Gynaecology (Excluding Midwifery)	309	64	1
Midwifery	3,566	95	18
Psychiatric or Mental Health	1,027	988	1,361
Intellectually Disabled Services	76	240	26
Nursing Home Gerontology	6,193	7,184	54
Accident and Emergency	1,253	77	5
Community Health	1,171	88	10
Child Health	437	11	0
School	202	27	1
District or Domiciliary Care	1,501	60	5
Occupational Health	392	67	1
Private Medical Practice	872	533	1
Independent Practice	126	24	3
No one Principal Area of Practice	677	179	13
Other	3,388	628	31
Total	**41,279**	**13,491**	**1,581**

*Nurses were asked to self select the principal area of their nursing activity and the enumeration for each of the areas of nursing activity identified do not represent register endorsements.
Source: Computed from 1996 Registration Survey and 1998 Registration Statistics.

Of all nurses in Victoria 36.6 per cent (20,651) are employed in the private sector. This is constitutes 35.6 per cent (14,704) of the RNs, 42.2 per cent (5,699) of the ENs and 15.7 per cent (249) of the Registered Psychiatric Nurses (RPNs) in Victoria.

Labourforce Dynamics

There are four ways in which the labourforce can change. These are through migration, losses (retirements, resignations), gains (entry or reentry) and new graduates.

Migration

Net migration from the nursing labourforce to and from interstate and international destinations resulted in a loss of 18 nurses (0.03 per cent of the labourforce). However, the total figure includes a net gain of 106 RNs and net losses in other divisions (Table 5).

Table 5: Victorian Nurses Labourforce Net Migration

Division	Net Migration	Per cent of Labourforce
Division 1	106	0.25%
Division 2	-95	-0.66%
Division 3	-29	-1.72%
Total	**-18**	**-0.03%**

Source: Computed from 1996 Registration Survey and 1998 Registration Statistics.

Labourforce Losses

A total of 4,376 nurses left work in the last year. Most of these were RNs but proportionally EN losses were higher (Table 6).

Table 6: Victorian Nurses Labourforce Losses

Division	Losses	Per cent of Labourforce
Division 1	3,056	7.10%
Division 2	1,219	8.49%
Division 3	102	6.02%
Total	**4,376**	**7.41%**

Source: Computed from 1996 Registration Survey and 1998 Registration Statistics.

Labourforce Gains

A total of 1,682 nurses entered or reentered the labourforce. The gains were substantially lower than the losses (Table 7)

Table 7: Victorian Nurses Labourforce Gains

Division	Gains	Per cent of Labourforce
Division 1	1,206	2.80%
Division 2	454	3.17%
Division 3	22	1.29%
Total	**1,682**	**2.85%**

Source: Computed from 1996 Registration Survey and 1998 Registration Statistics.

Graduation Levels

In total 1,805 nurses including 1,280 RNs and 525 ENs graduated in the last year (Table 8). However, only 1,228 (68.03 per cent) of the total graduates entered the Victorian Labourforce. Of these 870 (70.75 per cent) were RN graduates and 358 (29.1 per cent) were EN graduates.

Table 8: Victorian Nurse Graduates Entering the Victorian Labourforce

Division	Graduates	Per cent of Labourforce
Division 1	870	2.02%
Division 2	357	2.49%
Division 3*	38	2.25%
Total	**1,265**	**2.14%**

* After the current (1996) graduation is completed the Division 3 Register will be closed and there will be no further training of Nurses for Division 3 of the Register.

Source: Computed From 1996 Registration Survey and 1998 Registration Statistics.

In 1997 there were 4,905 RN and 1,100 EN students in various stages of education and training in Victoria. The total number of RN students has been relatively constant over the last three years. However, the number of EN students has nearly doubled over the last year.

Labourforce Participation Rates

The total participation of nurses in terms of full-time equivalents is relatively high. As estimated by the sample, all nurses work 88 per cent of available hours. The RN rate is slightly higher and EN slightly lower than the average but Registered Psychiatric Nurses (Division 3) work nearly ten per cent more than available hours (Table 9).

Table 9: FTE Rates for Victorian Nurse Labourforce

Division	Nurses	Sample Hours Worked	FTE Ratio*
Division 1	23,484	730,300	0.89
Division 2	6,953	200,289	0.82
Division 3	833	31,732	1.09
Total	**31,270**	**962,321**	**0.88**

Source: Computed from Registration Survey.
*FTE ratio = (hours/35) or number of nurses.

The Full Time Equivalent (FTE) ratio has increased considerably since the 1993 study when RNs worked 73.8 per cent and ENs 75.2 per cent of average available FTEs.

The sample for RPNs shows a substantial number of Division 3 nurses reported working more than 35 hours per week. Of the total survey respondents (833) 61 per cent reported working 38-40 hours per week. A further 14 per cent reported working up to 100 hours per week. These results are consistent with the anecdotal evidence of shortage of psychiatric nurses reported by members of the reference group. By contrast, the number of hours worked sampled for RNs and ENs support the Reference Group's assessment that the general nursing workforce is in relative balance overall.

Direct measures of casual work were not obtained. However, agency nurses as percentages represent a relatively small proportion of the total labourforce (Table 10).

Table 10: Agency Nurses as per cent of Total Labourforce *

Division	All Nurses		Public		Private	
	Number	Per cent	Number	Per cent	Number	Per cent
Division 1	1,233	3.0%	858	3.2%	375	2.6%
Division 2	395	2.9%	284	3.6%	111	1.9%
Division 3	43	2.7%	29	2.2%	14	5.6%
Total	**1,672**	**3.0%**	**1,172**	**3.3%**	**500**	**2.4%**

*Agency nurses in main (first) job only.
Source: computed from 1996 Registration Survey and 1998 Registration Statistics.

The analysis above is for the first (major) nursing job only. The majority of nurses are employed in only one job (Table 11).

Table 11: Victorian Nurses with one or More Jobs

Division	Total Nurses	Number of Nurses with One Job Only	Per cent with One Job Only	Number of Nurses with More than One Job	Per cent with More than One Job
Division 1	41,279	35,379	85.71%	5,900	14.29%
Division 2	13,491	11,745	87.06%	1,746	12.94%
Division 3	1,581	1,441	91.17%	140	8.83%

Source: Computed from 1996 Registration Survey and 1998 Registration Statistics.

Second and third nursing jobs are more likely to be in agency work than first nursing jobs. Overall, the number of nurses doing agency work in their first or subsequent job is relatively small.

Table 12a: Victorian Agency Nurses by Nurse Job Numbers

Division	Total Nurses	Nurses with One Job Only		
		Number	Number of Agency Nurses	Per cent Agency Nurses
Division 1	41,279	35,379	1,233	3.49%
Division 2	13,491	11,745	395	3.36%
Division 3	1,581	1,441	43	3.02%

Source: Computed from 1996 Registration Survey and 1998

Table 12b: Victorian Agency Nurses by Nurse Job Numbers

Division	Total Nurses	Nurses with 2nd & 3rd Jobs		
		Number of Agency Nurses	Number Agency Nurses	Per cent
Division 1	41,279	5,900	832	14.11%
Division 2	13,491	1,746	289	16.56%
Division 3	1,581	140	14	9.84%

Source: Computed from Registration Statistics

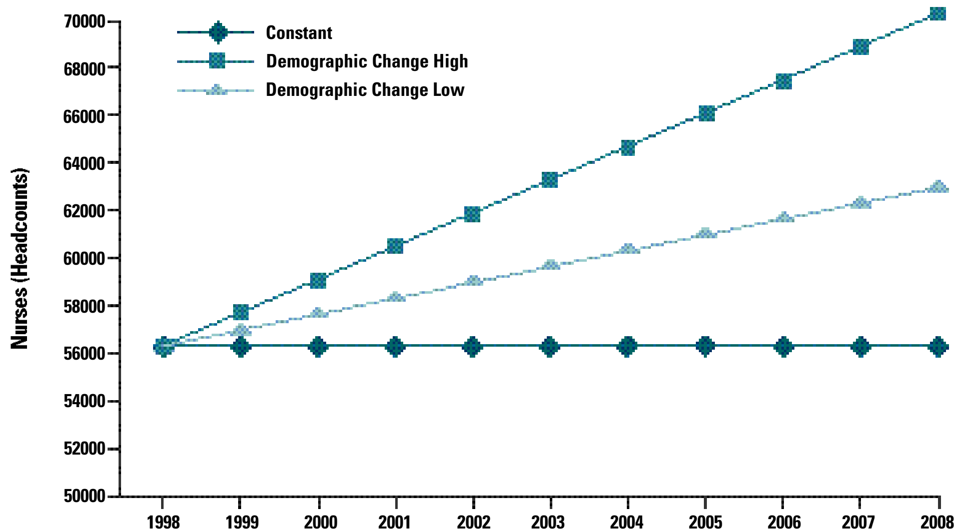
Demand Trends

Three sets of requirements projections were generated for this project. These were constant (no change), high demographic change (population growth plus ageing effects) and low demographic growth (population growth only). Population growth is based on current Victorian Department of Infrastructure projections scaled to the 1996 Census. Ageing effects apply population projections to hospital bed day by age and gender cohorts. Changes in service patterns result in substitution of care without reduction of the underlying need for care (Table 13).

Table 13: Requirements Projections

Year	Constant	Demographic Change Low	Difference Between Low Growth and Constant	Demographic Change High	Difference Between High Growth and Constant
1998	56,350	56,350	0	56,350	0
1999	56,350	56,964	614	56,992	642
2000	56,350	57,585	1,235	57,642	1,292
2001	56,350	58,213	1,863	58,299	1,949
2002	56,350	58,847	2,497	58,964	2,614
2003	56,350	59,489	3,139	59,636	3,286
2004	56,350	60,137	3,787	60,316	3,966
2005	56,350	60,793	4,443	61,003	4,653
2006	56,350	61,455	5,105	61,699	5,349
2007	56,350	62,125	5,775	62,402	6,052
2008	56,350	62,802	6,452	63,114	6,764

Figure 1: Requirements Projections



As in the 1991 and 1993 studies, the constant requirements line assumes no growth in demand and assumes that the number of nursing positions available remains constant. This economic assumption approximates the actual trend over the past five years. However, the maintenance of a constant requirements line implies efficiency gains and/or changes in nurse-to-patient ratios because the number of patients and patient acuity will increase because of demographic changes. The extent of the potential growth in demands due to demographic changes is shown in the low and high requirements trends.

Annual population growth of 1.14 per cent per year, as published by the Department of Infrastructure and adjusted to the 1996 census, is indicative of a low growth in requirements. In addition to simple population growth, changes in age and gender compositions also modify demands. Age and

gender changes of 1.93 per cent per year are estimated by multiplying current bed day usage by five-year age or gender population estimates. This is a similar approach to that used by the Service Development Branch of the Acute Health Division of the Department of Human Services in modelling future acute service utilisation. The calculations illustrate that aging effects add 0.79 per cent per year to total demand for nursing care.

The growth in demands assume continuation of current staffing patterns. If actual staffing levels remain constant, the intrinsic growth in demand indicates the relative increase in staffing productivity required due to demographic factors alone. In practice staffing patterns will change because of changes in patient management practices, new and emerging technologies and substitution of services between service categories due to changes in funding patterns. The projected growth lines should therefore be interpreted as inertial lines which show the extent of change needed in the health system if the number of positions is not increased above current levels

Supply Projections

Supply trends were calculated with a stocks and flows model. This model commences with a starting stock of staff, adds entry, migration from interstate and overseas and new graduates and subtracts losses from the labourforce and migration out of Victoria to estimate the number of staff in the next period. The projections were calculated in five-year age and gender cohorts for Divisions 1, 2 and 3. This accounts for differential ageing effects within the Divisions.

A proprietary labourforce projection package was used for calculations.

Six supply scenarios were generated as follows:

- BaseModel. Assumes current workforce dynamics rates are retained.
- Increase losses by 25 per cent. Assumes greater losses from the labourforce.
- Decrease losses by 25 per cent. Assumes lower losses from the labourforce.
- Decrease losses by 50 per cent. Assumes very high improvement in labourforce retention rates.
- Increase graduate output by 1,500. Assumes a high increase in the number of graduates.
- Increase graduate output by 1,800. Assumes a very high increase in the number of graduates.

The supply scenarios are illustrated in Table 14.

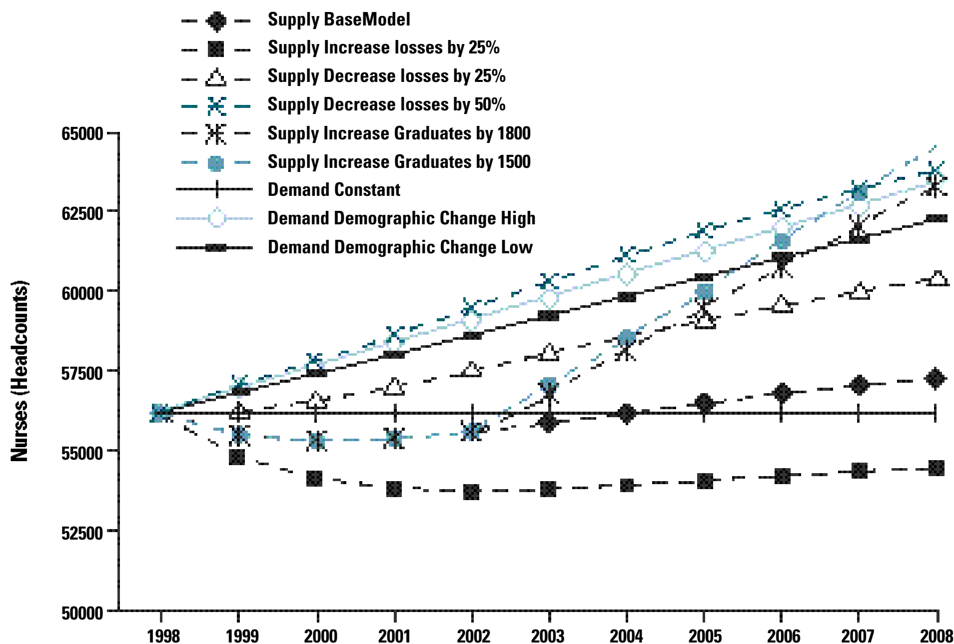
Table 14: Supply Scenarios

Year	Supply Base Model	Increase Losses by 25%	Decrease Losses by 25%	Decrease Losses by 50%	Increase Graduates by 1,500	Increase Graduates by 1,800
1998	56,350	56,350	56,350	56,350	56,350	56,350
1999	55,630	54,928	56,332	57,034	55,630	55,630
2000	55,466	54,259	56,697	57,951	55,466	55,466
2001	55,535	53,950	57,177	58,878	55,535	55,535
2002	55,748	53,868	57,721	59,791	55,748	55,748
2003	56,043	53,923	58,291	60,676	57,060	57,264
2004	56,377	54,054	58,860	61,518	58,430	58,842
2005	56,717	54,218	59,407	62,308	59,819	60,441
2006	57,043	54,389	59,918	63,038	61,201	62,036
2007	57,340	54,546	60,382	63,703	62,561	63,608
2008	57,598	54,678	60,794	64,299	63,886	65,148

Balancing Supply with Requirements

Figure 2 illustrates the balance between the requirements and the supply scenarios. The reference group assumed that supply is initially in balance with requirements for the total labourforce.

Figure 2: Balance Between Supply and Requirements Scenarios



All supply scenarios, except the 25 per cent increased losses, lead to a balance with constant demands. The 50 per cent increases in retention rates and an approximate doubling of graduate outputs will achieve a balance with the low requirement trend, but the supply scenarios do not balance with the high requirements trend.

The indicative shortfall between the BaseModel supply and increasing requirements is quite large (Table 15). Shortfalls in available student numbers and limits on retention rates in a primarily female workforce will make it difficult to achieve such a balance (even with major increases in nursing budgets). Neither is migration a long-term solution. Instead it will be necessary to accommodate demand for nursing care through changes in service delivery patterns and different skill mixes within the nursing workforce.

Table 15: Shortfall Between BaseModel Supply and High Demand Projections

Year	Supply Base Model	Requirements Demographic Change Low	Shortfall in Supply on Low	Requirements Demographic Change High	Shortfall in Supply on High
1998	56,350	56,350	0	56,350	0
1999	55,630	56,964	1,334	56,992	1,362
2000	55,466	57,585	2,119	57,642	2,176
2001	55,535	58,213	2,678	58,299	2,765
2002	55,748	58,847	3,099	58,964	3,216
2003	56,043	59,489	3,446	59,636	3,593
2004	56,377	60,137	3,760	60,316	3,939
2005	56,717	60,793	4,076	61,003	4,286
2006	57,043	61,455	4,412	61,699	4,656
2007	57,340	62,125	4,785	62,402	5,062
2008	57,598	62,802	5,204	63,114	5,515

Conclusions

The actual number of nurses working in Victoria has been declining as the health industry is restructured. Although this trend was anticipated in previous studies, the rate of change has been more rapid than expected. Given current demographic change, a substantial gap will emerge between high and low requirements applying constant nursing practice patterns and nursing supply projections. The analysis illustrates that a balance can be maintained in the nursing labourforce only if demands (that is, nursing positions) are held constant. However, given the underlying changes that have been occurring in the health system, available nursing staff will be sufficient to meet the number of positions offered with current graduate output patterns if the nursing workforce is supplemented with appropriate nursing support services.

As illustrated by the supply and projected demographic effects scenarios (see discussion above), the emerging gap between requirements and supply of nurses in Victoria is not necessarily interpreted as a shortage but a measure of the extent of change that is required to match current staffing rates with constant number of nursing positions. This gap is more realistically interpreted to be a change in service structures and continuity of expectations regarding staffing levels.

The staffing gap may not necessarily lead to a reduction in health care standards but the staffing expectations must be effectively and sensitively managed to ensure a high quality of nursing care can continue to be delivered. To manage the changes, nurses and nurse managers should be empowered to make effective changes to work practices and composition of the nursing workforce. This will require not merely identification of alternatives, but linkages with budgetary processes to enable the changes to be implemented.

Nurse Workforce Strategies

The fundamental nurse workforce strategies that emerge from the analysis in this paper and the discussion above are:

- Maintain current student numbers.
- Improve retention rates to encourage nurses to stay in the workforce as long as possible.
- Empower nurses and nurse administrators to make changes within the health care system by linking their strategies for changes in service delivery to budgets.
- Encourage and support nurses and nurse managers to recreate or redefine positions to achieve necessary changes in patient management practices.
- With the involvement of nurses, identify appropriate levels of support staff and areas in which services can be delegated to other staff or different categories of nurses, technicians or personal care assistants under the supervision of registered nurses.

Geographic Distribution

The Reference Group identified nursing issues in rural areas as particularly important. Outside of the metropolitan area demand structures are somewhat different (see previous discussion on definition of demand) and there are more profound issues of getting access to supply. Consequently the issue of change and perspective becomes fundamentally more critical. This heightens the dimension and the need for alternative organisational structures and relationships. The fundamental strategies that emerge from this discussion are:

- Continued exploration of alternative models of nursing, such as cross-institutional services and regional service models, instead of services aligned to individual institutions.

- The development and promotion of nurse and midwife practitioner services.
- The further development of the rural specialty in nursing.

Specific Disciplines and Specialties Within Nursing

The reference group identified the following areas of nursing to be in short supply:

- Critical care
- Mental health
- Aged care
  and
- Renal dialysis.

Although the workforce dynamics statistics are different for each of the specialty areas, the conclusion is the same as for the general nursing analysis. However, in the case of these specialties, the relative current shortfall and differential growth suggests differing specialist models of nursing should be explored

The health industry is already responding to the shortfalls in specialty areas by allocating more duties to non nurses, especially in the renal, aged and perioperative fields. It is appropriate that further opportunities for such changes be identified and implemented. Further studies will be required for specialist nursing categories to deal with specific issues not discussed in the general and all specialties combined analysis. Such studies should have input from the relevant specialist nursing groups.

Information Systems

Previous studies have discussed the need for upgrading the information systems necessary to support strategic management of the nurse labourforce. To this end the annual nurse survey has improved in terms of design, but availability of the data, coverage and accuracy are still to be improved. It is

important that nurse labourforce data is collected and used not only to meet national information agreements, but also as a key resource necessary to routinely manage the Victorian health system.

Monitoring

The projections presented in this study should be routinely monitored and updated on a regular basis. Although consultants can be used to monitor and update nurse labourforce projections, it seems appropriate for these activities to be built into ongoing management functions and with appropriate education and training and planning tools, these activities could be undertaken in-house by Department of Human Services staff.

Budgets

Previous studies have informally informed budget processes. However, labourforce planning outputs can be formally linked with budgets to ensure appropriate labourforce outcomes are achieved. Similarly, to support change processes alternative mechanisms should be developed to include recommendations for structural change by nurses and nurse managers in regional and individual organisation budgets.