Health Workforce Planning Techniques and the Policy Context

Mr Ian Crettenden
Executive Director, Information Analysis & Planning

International Health Workforce Collaborative
Technical Skills Workshop

Quebec City Canada, 6th May 2013

HWA's key objectives

- **Building capacity** to deliver fit for purpose health professionals, more quickly and efficiently

- **Boosting productivity** of the workforce and maximising their use

- **Improving distribution** to ensure the health workforce are placed in areas and specialties where they are needed

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HWA: How we work

- HWA meets its aims through evidence-based planning, policy, advice and practical, targeted reform programs
- We do this by:
  - developing a sound evidence base to inform national policy and reform
  - devising policy and programs that facilitate reform in training, workforce, workplace and international recruitment and retention
  - working across jurisdictions, sectors, health and higher education providers, professions and stakeholder groups

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Information, analysis and planning

- National projections of workforce numbers and modelling the effects of different policy scenarios for a range of professions:
  - Health Workforce 2025: Doctors, Nurses and Midwives (volumes 1 and 2)
  - medical specialties in volume 3
  - other disciplines to follow
- National data sets – national statistical resource
- Specific workforce planning (eg oral health and mental health)

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Health Workforce 2025

- National projections of workforce numbers and modelling the effects of different policy scenarios for a range of professions:
  - Health Workforce 2025: Doctors, Nurses and Midwives (volumes 1 and 2) released by ScoH on 27 April 2012
  - Medical specialties in volume 3 (released at SCoH on 9 November 2012)

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RATIONALE: Why did we do it?

- To quantify the current health workforce
- To provide an impetus and consensus for reform by:
  - gathering the evidence
  - showing the need for action
  - modelling the impacts of various policy options
- To embark on practical reform through collaboration

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METHODOLOGY: How did we do it?

- National approach
- National datasets
- Scenario modelling of various policy options:
  - productivity
  - workforce retention
  - higher education and training
  - health service demand
  - supply of professionals including self-sufficiency, graduate numbers and immigration

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DOCTORS: What did we learn?

- Short term: supply of doctors stable
  however a mal-distribution across Australia

- By 2016: insufficient specialist training places
  for projected graduates

- Dependence on immigration creates ongoing risk

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NURSES: What did we learn?

- Short term: supply of nurses is stable
- Long term: significant **shortfall (109,490 by 2025)** due to:
  - ageing workforce
  - poor retention rates
  - population health trends
- Some areas of nursing are especially at risk in terms of supply: mental health and aged care

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FINDINGS: What did we learn?

TRAINING

- By 2016: insufficient specialist training places for projected graduates
- NOW:
  - insufficient internships for newly graduating doctors
  - insufficient employment opportunities for newly graduating nurses
- Training must become more efficient while maintaining Australia's high-quality training standards
- Projected training requirements are dependent on policy choices made in other areas
- Training needs can be significantly lowered through workforce innovation and reform

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GEOGRAPHIC DISTRIBUTION: What did we learn?

- Geographic distribution of the workforce remains a significant concern in particular for doctors
- Vital that the projected increases in the supply of doctors are distributed to where they are most needed
- Current policy settings not capable of achieving desired shifts in distribution

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IMMIGRATION: What did we learn?

- The current health professional workforce in Australia is highly dependent on immigration for doctors and nurses

- Changes to temporary migration can significantly impact the short-term need for health professionals by managing short-term fluctuations in supply

- Measures to improve self-sufficiency will require concurrent additional effort in training and workforce reform

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CONCLUSIONS: What did we learn?

- Large-scale workforce reform is necessary to meet Australia's future health needs
- Meeting Australia's projected health workforce needs will require collective action across governments, the health sector and the education and training sector
- There is no silver bullet – we need a multi-pronged approach: supply, education, training, immigration, productivity, demand, role re-design and workforce capacity
- We need to continually improve data available to deliver the best possible workforce planning

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The Workforce Planning Model

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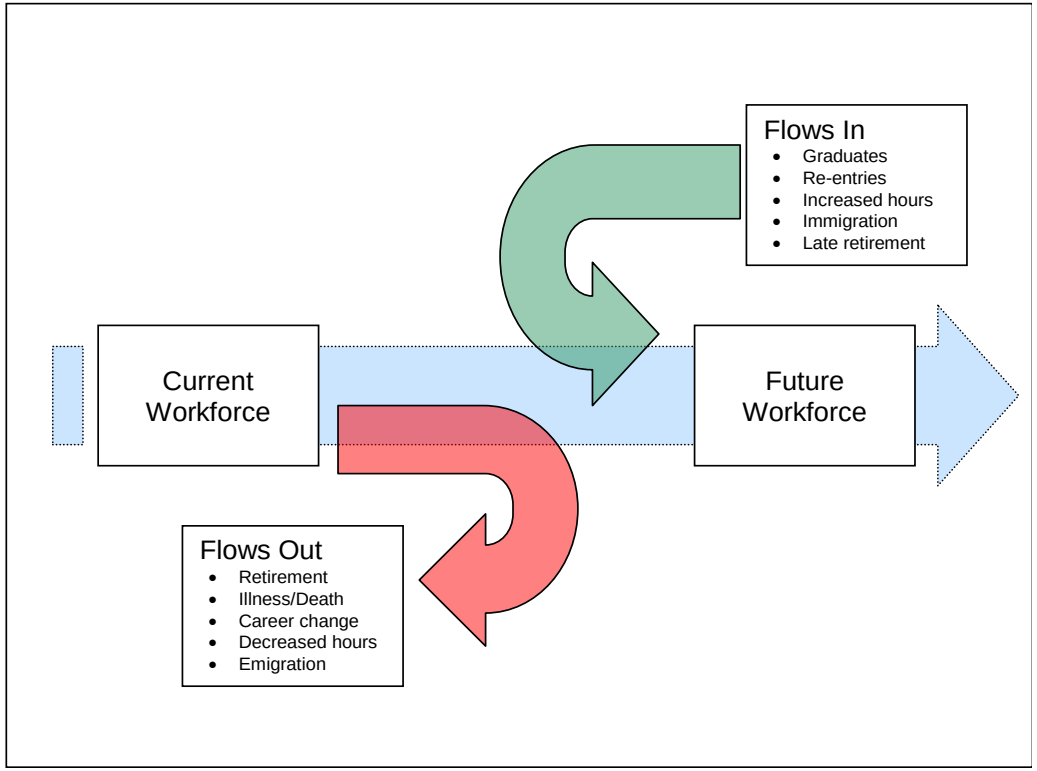
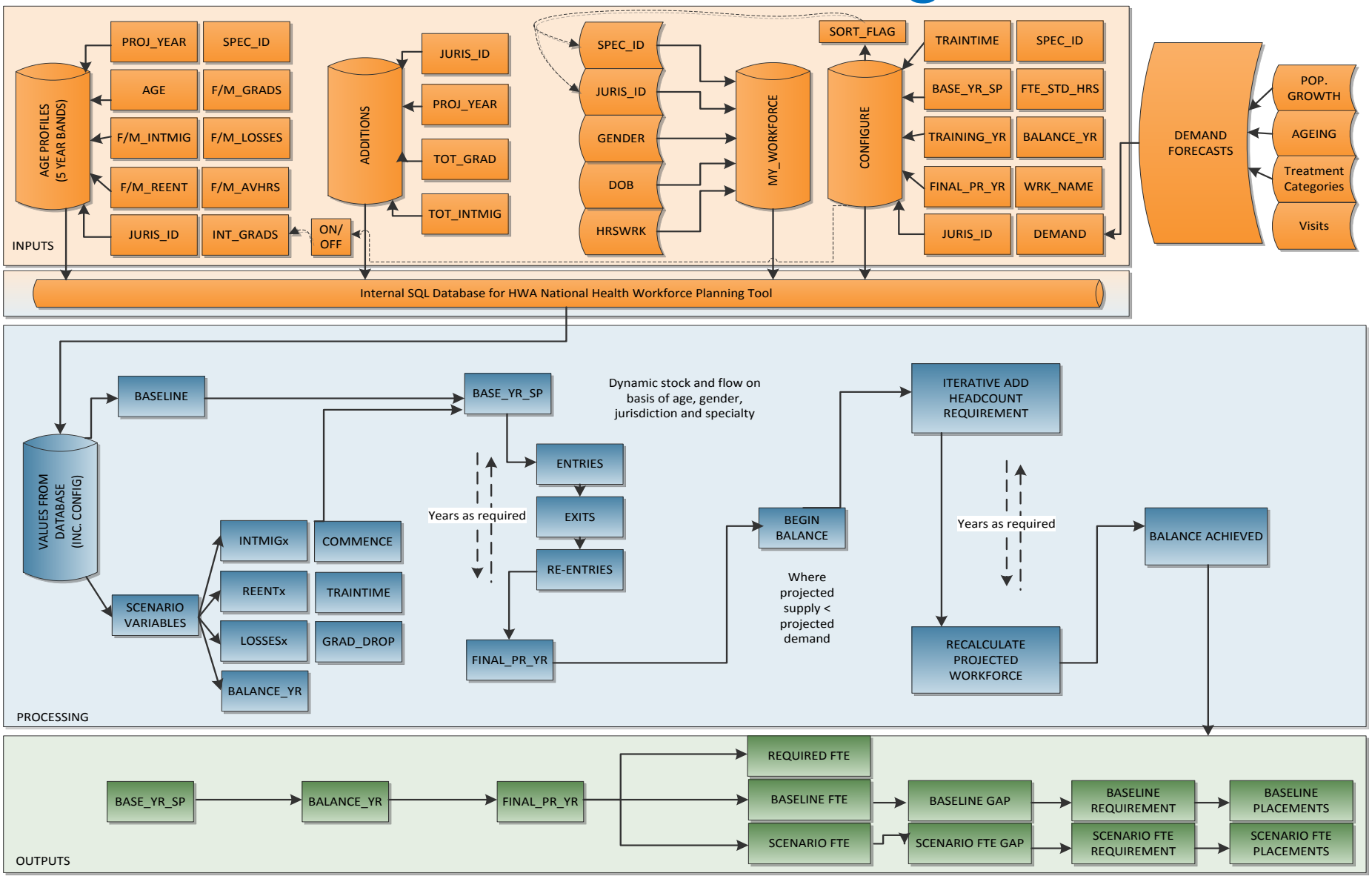
Simple Workforce Planning Model

- Mathematical simulation modelling
  - Stock and flow model
  - People entering and exiting the workforce (flows) periodically adjust the initial number in the workforce (stock)



Detailed Workforce Planning Model



Workforce Planning Model

- Age and gender of the workforce
  - Workforce was split into 5 year age and gender cohorts
  - The working hours of each cohort is determined and changed as the workforce ages to capture the different working hours of the different age and gender groups
  - New entrants to the workforce take on the characteristics of the existing workforce at the age they enter
- Exit rates from the workforce are calculated from the "exits" from each age cohort seen on progressive surveys. Intention to retire is NOT used.

Workforce Planning Model

Headcount v Full Time Equivalents (FTE)

- HW2025 reports the outputs in terms of headcounts to capture the actual number of people required
- Behind the headcount sits a FTE that changes over the projection period as the gender and age profile of the workforce changes

Demand Methodology

Demand for health services can be approached in a number of ways including:

- **Expenditure**
  - Changes in expenditure over time
- **Utilisation**
  - Changes in service utilisation over time
- **Population**
  - Changes in size and age/sex profile of the population

For the HW 2025 demand model, service utilisation rates for each population age and sex cohort has been.

These rates were applied to the projected population for each of the population age and sex cohorts, to derive the rate of change in demand over the projection period

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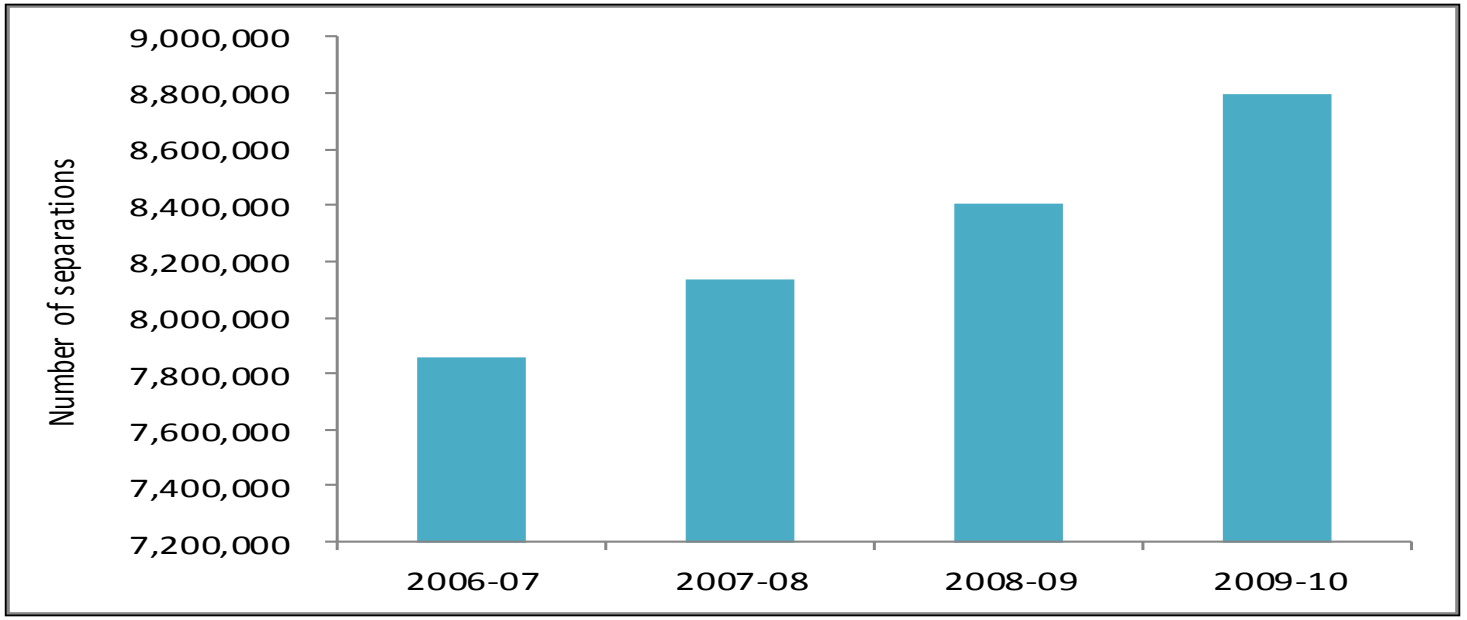
Hospital utilisation

- Hospital separations have increased over the last 4 years, from 7.9m in 2006-07 to 8.8m in 2009-10
- This was an average annual growth of 3.9%

Hospital separations, 2006-07 to 2009-10



Source: AIHW Hospital separations

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Forecasting method

- National public and private hospital data by DRG's for 2006 - 2009
- DRG's were mapped to ESRG to SRG's (402) DRG to (134) ESRG to (48) SRG's
- Forecasts are generated for each
  - age-group (0-14, 15-44, 45-69, 70-84 & 85+),
  - sex ,
  - esrg - diagnosis
  - and stay type (same-day, multi-day non-tert & multi-day tert)
- For the modelling LOS is truncated at 90 days to decrease the effect of outliers on average length of stay calculations
- Forecasts are for the years 2018/19 and 2025/26

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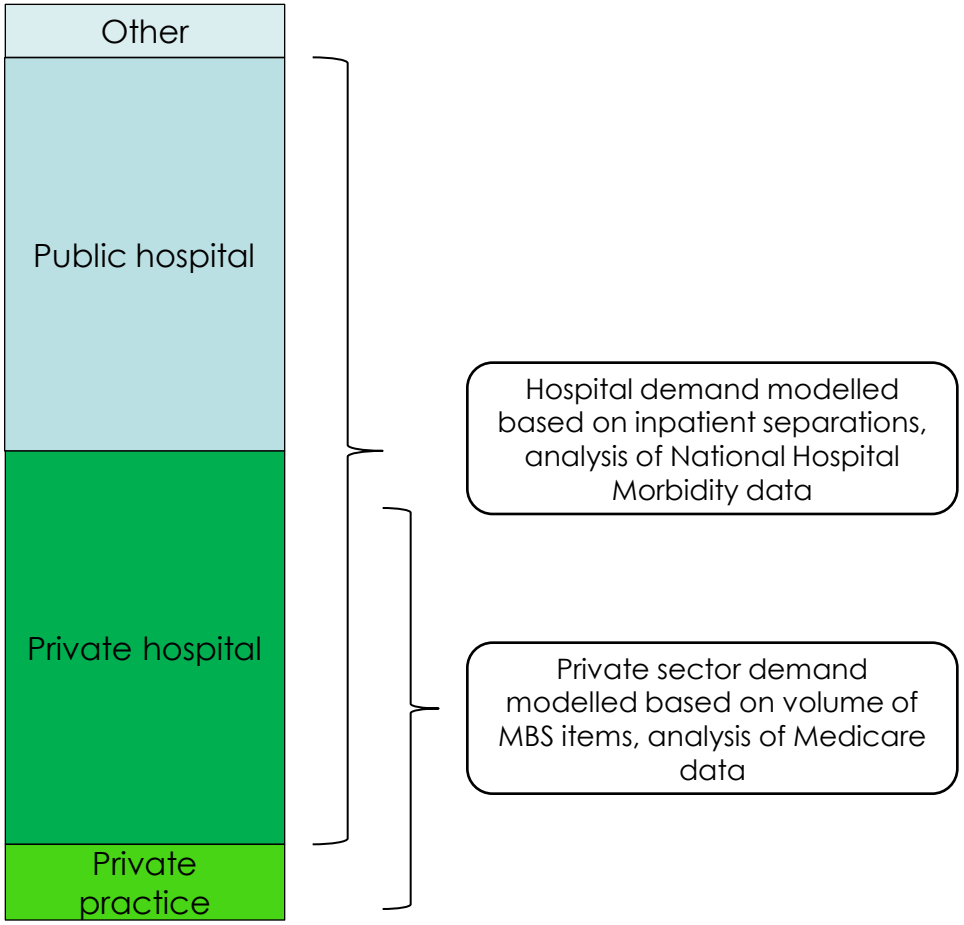
Medical – Overall Sector Utilisation Rate



Overall utilisation rates :

Where hospital separations data and Medicare occasions of service data were available they were used to calculate an overall utilisation rate based on a weighting factor derived from AIHW labour force survey data public/private average hours

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Scenario and Sensitivity Analysis

- Used to provide an understanding of which variables and assumptions have the most significant impact on the overall modelling results.
- There were two purposes of the alternative scenarios:
  i. to explore the implications of possible alternative futures
  ii. to demonstrate the sensitivity of the model to various input parameters.
- Achieved by altering a single input parameter in the model
- Flow through effect measured through the impact relative to the comparison scenario

Workforce projection scenarios

- **comparison scenario –** a no change scenario in which current policy settings remain fixed into the future
- **service and workforce reform scenario –** the demand for a specialty is reduced through reforms involving changed skill mix, technological change or other reforms, at a rate of approximately 1.4 percentage points per annum
- **registrar work value scenario –** the work contribution of senior registrars is included to indicate the relative reliance of different specialties on this workforce
- **medium self-sufficiency scenario –** immigration is reduced by 50 percent by 2025 to show the relative reliance of specialties on IMGs
- **capped working hours scenario –** is designed to show the impact of a reduction in working hours to 50 hours maximum per week

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Geographic Modelling

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Geographical Modelling - Expansionary Scenario

Number of doctors by Major cities of Australia, 2025

Doctors	Major Cities of Australia			
	Headcount	Density per 100,000 population	Change from 2009	Annual growth rate from the 2009 baseline
Total Australia	123,836	460.12	51,702	3.44%
Major Cities of Australia	86,153	460.12	29,246	2.63%
Inner Regional Australia	24,385	460.12	15,302	6.37%
Outer Regional Australia	10,754	460.12	6,949	6.71%
Remote Australia	1,626	460.12	898	5.15%
Very Remote Australia	919	460.12	640	7.73%

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Geographical Modelling - Contractionary Scenario

Number of doctors by Inner Regional Australia, 2025

Doctors	Inner Regional Australia			
	Headcount	Density per 100,000 population	Change from 2009	Annual growth rate from 2009
Total Australia	69,834	259.47	- 2,300	-0.20%
Major Cities of Australia	48,583	259.47	- 8,324	-0.98%
Inner Regional Australia	13,751	259.47	4,668	2.63%
Outer Regional Australia	6,065	259.47	2,260	2.96%
Remote Australia	917	259.47	189	1.45%
Very Remote Australia	518	259.47	239	3.94%

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Geographical Modelling – 50% improvement of regional and remote

50% improvement in distribution for regional and remote Australia (RA2-5) by 2025 within the existing baseline projections

Doctors	2025				
	Baseline		Incremental distribution (50%)		
	Headcount	Ratio per 100,000 population	Headcount	Ratio per 100,000 population	Change from 2009
Total Australia	109,205	405.76	109,205	405.76	37,071
Major Cities of Australia	86,153	460.12	80,055	427.6	23,148
Inner Regional Australia	13,751	259.47	17,627	332.6	8,544
Outer Regional Australia	5,760	246.46	7,622	326.1	3,817
Remote Australia	1,102	311.80	1,268	358.8	540
Very Remote Australia	422	211.59	616	308.7	337

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Establishing starting point (Gap / Excess)

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Existing workforce position

	No current perceived shortage
	Some perceived difficulty in filling positions, either through maldistribution or insufficient workforce
	Perceived current shortage

- The existing workforce position was determined from expert opinion from jurisdictions, private employers and the profession; and an analysis of current vacancies and waiting times (where relevant and available)

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HW 2025 Volume 3 – Workforce Dynamic Indicators

- Adapted from Health Workforce New Zealand's medical discipline vulnerability ranking method
- Introduced as a consistent measure to provide an indication of the existing status of each workforce
- Four indicators used:
  - average age
  - percentage of new fellows to workforce exits
  - dependence on specialist international medical graduates
  - length of training program

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Workforce dynamics Indicators

	Lowest rating				Highest rating
	1	2	3	4	5
Average age of existing workforce	<45	45-49	50-54	55-59	60+
Percentage of new fellows to workforce exits (annual)	130+%	110-<130%	90% - 110%	70% < 90%	<70%
Dependence on SIMGs (migrant inflows as a percentage of all specialty inflows)	<12%	12-24%	25-37%	37-49%	50+%
Length of training program (years)	<4	4	5	6	7+
Existing workforce position					

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Stakeholder engagement

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Consultation Process HW2025

- Consultation Process 2011/12:
  - Governance Committee
  - Individual meetings with key stakeholder groups
  - Individual meetings with colleges in relation to methodology and data collection
  - Clinical Advisory Groups - for each of the specialties modelled, draft results presented

HW2025 Vols 1 & 2 - Consultation

- Project conducted in 2 phases:

1. Generation of baseline (i.e. reflecting recent trends) and alternative scenario workforce supply and demand projections
   - Method, assumptions and projections exposed for critical review
   - 13 workshops conducted nationally – both cross professional and profession specific
2. Generation of annual estimates of the number of student and trainee (for doctors) places required – "pipelining" by 2025
   - Presentation of revised projections and pipelining at clinical advisory groups
   - 11 medical, 4 nursing, 1 midwifery, one overarching nursing/midwifery and one overarching medical

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HW2025 Volume 3- Consultation

- Individual meetings with every medical college (13) to discuss baseline projections
- Follow-up meeting to discuss scenario results
- Each Specialty was sent a final draft chapter which included an issues section on future supply or demand issue that might impact on the workforce.
- Individual meetings by the project team with medical societies prior to final release of the report and input into the issues section
- Meetings with each jurisdictions on existing workforce position and projection results.

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Policy responses

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Health Workforce 2025: policy challenges

- Barriers to workforce reform and innovation
- Maldistribution of the workforce (geographic and across professions/specialties)
- Efficiency and effectiveness of the training system
- Policy approach to self-sufficiency

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Health Workforce 2025: policy responses

- Policy proposals approved by the Standing Council on Health in November 2012
- These will provide the basis for a nationally coordinated approach to the challenges of *HW2025*
- Several projects already in HWA's work plan

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Policy proposals

1. Improved productivity through workforce innovation and reform
2. Improved mechanisms for the provision of efficient training
3. Addressing barriers and enablers to workforce reform
4. Streamlining clinical training funding
5. Considerations for achieving national self-sufficiency

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The policy proposals

1. **Improved productivity through workforce innovation and reform:**

   a) Develop evidence to inform a comprehensive national approach in response to the projecting nursing imbalance

   b) Support an ongoing implementation program of nationally coordinated workforce redesign, change management and adoption to progress workforce reforms nationally

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The policy proposals

2. **Improved mechanisms for provision of efficient training:**

   a) Aligning training and workforce need

   b) Establishing the National Medical Training Advisory Network

   c) Driving efficient and effective training

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The policy proposals

3. **Addressing barriers and enablers to workforce reform:**

a) **Industrial**
Analyse health workforce industrial arrangements and agreements to identify opportunities for reform

b) **Legislative**
Analyse Commonwealth, state and territory legislation to identify factors that support or hinder flexible use of the workforce

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The policy proposals

4. **Streamlining clinical training funding:**

   a) Develop nationally consistent approaches to clinical training funding, supported by the establishment of efficient training pathways

   b) Streamline existing funding within the context of activity based funding for teaching and training in public hospitals

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The policy proposals

5. **Considerations for achieving national self sufficiency:**

Analyse implications of differing levels of self-sufficiency in the health workforce and interaction with other policy priorities including workforce distribution and training reform

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Where to from here?

- Developing improved demand methods, particularly for regional analysis.
- Developing more sophisticated costing scenario analysis.
- Exploit the workforce survey more fully:
  - longitudinal analysis; and
  - using the Australian Health Practitioner Regulation AgencyAHPRA survey to identify sub-populations for further surveying.
- Developing methods for assisting with scaling analysis of innovation studies.
- Improve coordination of medical training through a new National Medical Training Advisory Network (NMTAN)

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