HPA
HEALTH POLICY ANALYSIS

Building a sustainable workforce: Using clinical data to inform medical workforce planning*

Jim Pearse
Patrick McElduff
Eileen Robertson
Ian Brownwood
Susan Mitchell
Owen Cho

Health Policy Analysis, Sydney, New South Wales, Australia

*The work presented was conducted as part of a project commissioned by the Australian Government Department of Health to refine and develop approaches to health workforce demand and needs-based planning. The presentation reflects the views of the authors. We acknowledge the input and advice from the Workforce Planning team, especially Maureen McCarty, Catherine Gillard and Susan Wearne.

Context

- Importance of workforce planning especially in the context of global workforce shortages
- Workforce planning is used to help inform:
  - decisions about education and training
  - service planning
  - national or local workforce policies
- Workforce planning tends to make use of health service utilisation data to assess future workforce needs
- Wide interest in developing approaches to workforce planning that take better account of population health needs in assessing workforce demand

Purpose of paper

This paper looks at ways of improving workforce demand models by:

- using casemix measures to improve demand models
- using measures of population need or disease burden to estimate service levels and, in turn, the future workforce needs

Utilisation and needs-based models

Utilisation-based model

Health demand models usually measure the relationship between population characteristics and health service usage. These models are criticised because they base future need on current utilisation.

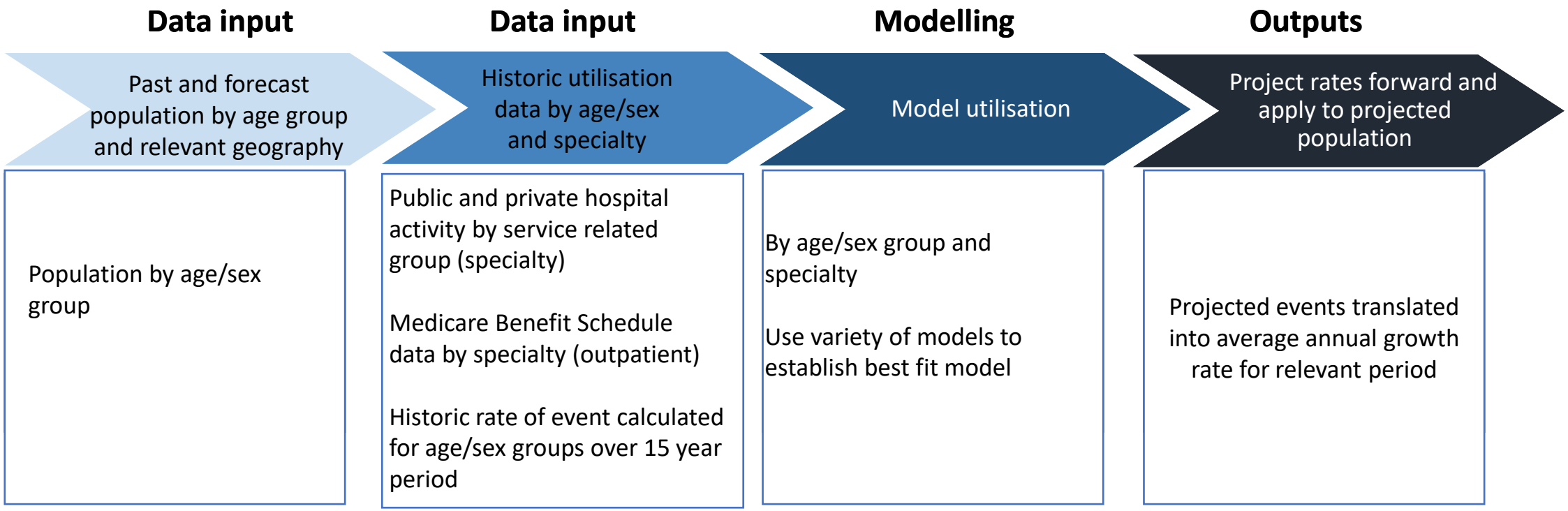
- Demographic effects
- Trends in utilisation
- National and regional modelling

Needs-based model

Develop more needs-based approaches to determine future workforce needs.

- Estimate of disease prevalence
- Other measure of health need
- Measure across regions and over time

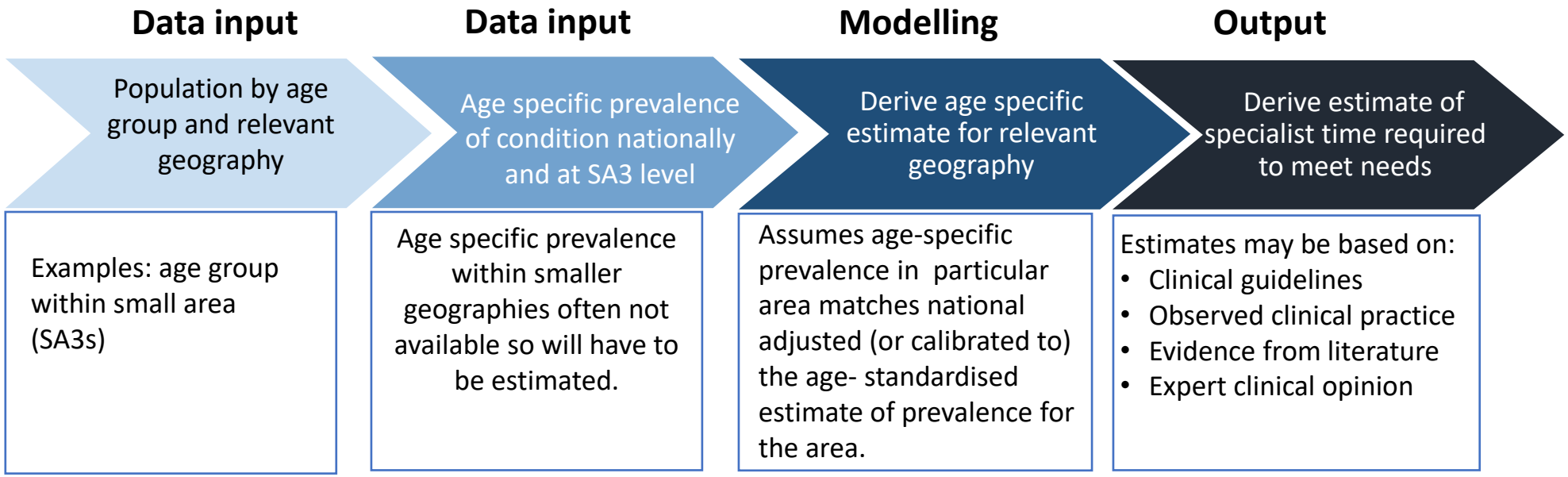
Method: Utilisation models



Refinement to method:
Incorporate casemix weighted activity to better reflect the workforce implications of 'events'. Weights reflect the relative medical input not overall cost

HPA
HEALTH POLICY ANALYSIS

Method: Needs-based model



The approach requires four pieces of information:

- population of the geographical region for each age group
- prevalence of the condition within each geographical region
- prevalence of the condition within each age group for the whole population
- the average number of hours of a specialist's time individuals with the condition require to meet their needs, this may vary by age (see output step)

HPA HEALTH POLICY ANALYSIS

Results: Converting need to workforce

Example:

- Assume the number of cardiologists across Australia is just right to meet the needs of the population with heart disease
- We can impute the level of doctor input relating to a given prevalence level of heart disease and apply this at a small area level

Population	Heart disease		Service	Cardiologist time		Hours per 1,000 people with heart disease
	National prevalence	Estimated number of people with condition		Hours	Number of Drs	
24,982,688	0.048	1,199,169	MBS	21,194	529.9	17.67
			Hospital	22,442	561.1	18.72

For example, SA3 10102 has:

- Population of 61,374 in 2018
- Prevalence of heart disease 4.29% - equivalent to 2,633 people
- Therefore over the course of a year area needs:
  - 46.6 cardiologist hours to meet their need for MBS services
  - 49.3 cardiologist hours to meet their need for hospital services

$SA3_x$ = hrs × prevalence of disease × population/1,000

Where: $SA3_x$ is number of cardiologists needed in SA3 X, hrs equals the number of cardiologists hours required per 1,000 people with heart disease to meet the need of the population

HPA
HEALTH POLICY ANALYSIS

Discussion points

Utilisation-based models:

- If using standard utilisation methods, important to take account of resource use (workforce input) so applying casemix weighting is likely to make the measurement more precise
- Assumes casemix weighting is a good indication of workforce input
- Important to be able to reflect the balance of workload between different types of activity (e.g. inpatient versus outpatient – balance can be very different for certain specialties)

Needs-based models

- Information about current and future disease patterns on their own cannot imply workforce requirements
- Geographic disparities in service use may highlight the necessity for a needs-based approach more than patterns of disease
- More challenging to apply to some specialties
- Need to establish a reference level to indicate 'sufficiency' of service
- Can be useful to supplement utilisation-based approaches and aid understanding of workforce and service gaps

Discussion points

- The modelling presented is focused on doctors but could be adapted for multiple workforce groups (but inevitable increase in complexity)
- Accounting for substitution and complementarity
- Accounting for different service models
- Value-add of complex models over simpler?

Conclusion

Casemix measures can be used to improve workforce planning models.

The needs-based method can be adapted for other specialties, workforce groups, and for service planning. It will continue to be refined as the understanding between population health need and service requirements improve.

Contacts: erobertson@healthpolicy.com.au
pmcelduff@healthpolicy.com.au
jpearse@healthpolicy.com.au

HPA
HEALTH POLICY ANALYSIS