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Health Workforce: Future Issues
Global forces shaping and challenging the health workforce

**EXTERNAL**
- Universal Health Coverage
- Population Ageing
- Multimorbidities
- Changing disease patterns
- Expanding middle class
- Global mobility
- Technological Innovation

**INTERNAL**
- Discordant workforce
- Maldistribution
- Skills mismatches
- Regulatory requirements

HEALTH WORKFORCE
Geographic context

- Rural is very diverse, even in Australia
- Construct of Rural, Remote, Indigenous, Tropical provides some delineation
- Challenges to the health workforce are being driven by epidemiological transitions;
- Transitions are the same across many countries, including those of our near neighbors in the Asia Pacific;
- Lessons learnt in providing a rural/remote workforce in Australia are of relevance to many countries looking to provide universal health coverage to underserved areas.
Rural, Remote, Indigenous, Tropical Health Workforce

- Rural, remote, Indigenous and tropical health typified by workforce shortages;
- Shortages first evident in these areas…. ‘when the tide goes out’
- Skill sets required are horizontal (vs vertical) specializations…..i.e. generalism;
- Australia has come a long way in developing the rural/remote workforce:
  - Concept of generalism
  - Increasing student places
  - Rural Clinical Schools, UDRHs
- Epidemiological transitions are presenting new challenges to the health workforce
Epidemiologic Transitions

• Seminal theories of epidemiological transitions insufficient to describe the transition in many economies;

• For most economies the transition is more like:

  • End of pandemics
  • Infectious diseases
  • Cardiovascular and metabolic syndrome, cancers
  • Injuries, mental health disorders;
  • Multimorbidity; and
  • Disease patterns associated with transition overlap.

New phases:

• Intermeshed economies viz international travel and trade, e.g. H1n1 2009, facilitating:
  • New infectious diseases - HIV, ebola, legionnaires’, Marburg (many arising from animals – ‘OneHealth’)
  • Re-emerging infections - malaria, TB, parasitic diseases, dengue
Epidemiologic Transitions

- **End of pandemics**
- **Infectious diseases**
- **Cardiovascular and metabolic syndrome, cancers**
- **Injuries, mental health disorders**;
- **Multimorbidity**; and
- **Disease patterns associated with transition overlap**.

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Multimorbidity and the Patterns of Disease

- Multimorbidity is the emergent, predominant disease pattern;
- Overlap of disease is not the same across or within societies;

The prevalence of complex multimorbidity in Australia

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Ageing populations (frailty)

• Australia’s population is ageing;
• Asia and the Pacific experiencing unprecedented population ageing; older population in less developed economies growing faster than in more developed economies;
• Sequelae of population aging, multimorbidity and frailty

Example: Frailty

Data were sourced from the UK Biobank. Frailty phenotype was based on five criteria (weight loss, exhaustion, grip strength, low physical activity, slow walking pace). Sociodemographic characteristics and long-term conditions were examined. Frailty was significantly associated with multimorbidity (prevalence 18% [4435/25 338] in those with four or more long-term conditions; odds ratio [OR] 27·1, 95% CI 25·3–29·1) socioeconomic deprivation, smoking, obesity, and infrequent alcohol consumption. (Hanlon et al. The Lancet Public Health, Volume 3, Issue 7, e323-e332)
Personalised Medicine

• Personalised medicine is highlighting differences in individuals within the taxonomy of organ and system based diseases, e.g. heart, kidney, liver, circulatory

Example: Cancer Genomics Service Provision

To broaden access to and implementation of precision medicine in the care of pancreatic cancer patients, the Know Your Tumor (KYT) program was initiated using a turn-key precision medicine system. Patients undergo commercially available multi-omic profiling to determine molecularly rationalized clinical trials and off-label therapies. Tumor samples were obtained for 640 patients from 287 academic and community practices covering 44 states. A tumor board reviewed the results for every patient and found actionable genomic alterations in 50% of patients (with 27% highly actionable) and actionable proteomic alterations (excluding chemopredictive markers) in 5%. Among patients with highly actionable biomarkers, those who received matched therapy (n=17) had a significantly longer median progression-free survival (PFS) than those who received unmatched therapy (n=18; PFS = 4.1 vs. 1.9 months; HR: 0.47; 95% CI: 0.24-0.94; adjusted P-value = 0.03).
Technology

• New technologies and innovations will drive increased demand for health services:
  • Augmented reality
  • Drone delivery of pharmaceuticals
  • Nanosatellites
  • Telehealth/telemedicine
  • Personalised medicine, driven by advances in genetics

• Remote practitioners will become ‘nodes’ in an increasingly integrated system.
Health system financing

• Focus on episode of care by disease
• Need to move to patient-centred and integrated care delivery;
• How to provide patient-centred and integrated care in rural/remote areas where the care team may be geographically dispersed? E.g. communication between local primary care physician and acute care providers in different locations

Example: Medicare Australia Chronic Disease Management items

Billing codes that allow GPs to choose items for GP-managed care planning and/or team-assisted care planning. Meant to encourage a more coordinated approach to chronic disease management and a shift away from billing for individual treatments and episodes of care. Uptake and use has been low.
Health workforce evolution

• The health system and workforce need new models to adapt to the sequelae of multimorbidity, population ageing and frailty;
  • Increased role for Allied Health and Aboriginal Health Workers
  • Construct of Remote Area Nurses as a horizontal specialization
  • Horizontal vs vertical specialization – reinvigoration of ‘general specialists’
  • Use of technology in an increasingly integrated system
  • Expansion of the Academic Health Centre
Health Workforce development in our region

- Asia Pacific experiencing similar epidemiological transitions
- Lessons learned in rural and remote areas can be applied to underserved areas in our wider region:
  - E.g. expansion of generalism to other countries, such as Japan, Canada

- A workforce for outbreaks........intersection between universal health care and global health security
Health Workforce composition in Asia Pacific

- Adoption of generalism across different contexts

- Expanded scope of practice for nurses.....the Nurse Practitioner
- The role of allied health (independent allied health professionals?)
- Assistants
- Community health workforce
Thank you

Questions?
## Negative impacts of public health messages

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<tr>
<th>Organization</th>
<th>Recommendation</th>
<th>Year</th>
<th>Adverse Effect</th>
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<tr>
<td>American Heart Association</td>
<td>Low fat, low saturated fat, hi CHO diet</td>
<td>1993*</td>
<td>Promoted overweight/obesity</td>
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<tr>
<td>National Academy of Medicine</td>
<td>Liberalize use of opiates for pain</td>
<td>2011</td>
<td>Facilitated opioid crisis</td>
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<td>American Heart Association &amp; American College of Cardiology</td>
<td>Lower the blood pressure definition for diagnosis of hypertension</td>
<td>2017</td>
<td>Errant diagnosis and unnecessary treatment, side effects, cost</td>
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![Blood Pressure Categories](http://example.com/blood-pressure-categories.png)

* Dietary recommendations of very low fat stem back to 1973

Source: Eric Topol
5 Aug 2018:
[https://twitter.com/EricTopol/status/1026121209073754112/photo/1](https://twitter.com/EricTopol/status/1026121209073754112/photo/1)