

Responding to ageing and changing populations - international research and trends in healthcare

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Web: www.fbe.unsw.edu.au/CHAA

RESPONDING TO AGEING & CHANGING POPULATIONS

International Research and Trends in Healthcare

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ACHSE NSW - STATE CONFERENCE

8 APRIL 2005, SYDNEY



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OVERVIEW OF PRESENTATION

Steve Tipper:

- Brief Introduction to CHAA
- Technology convergence,
- Costs & rationing
- Ageing population
- Workforce capacity
- Organisational change

Jane Carthey:

- Health care trends driving facility design in International settings – US, Europe, UK
- Features of facility design responding to these
- Case Study – single (private) room provision



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CHAA VISION

- *To be* the Australasian focal point for research and knowledge creation in health facility asset management
- *To contribute* to the delivery of healthcare of the highest quality in Australia and New Zealand through research outcomes which enhance the design, procurement and management of health facilities



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CHAA - RESEARCH PROGRAMS



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CHAA - RESEARCH THEMES

1. Health Facility Guidelines:

1. NSW Health Guidelines,
2. National Guidelines

2. Health Facilities Benchmarking & Evaluation

3. Capacity Building:

1. Knowledge Infrastructure & Management;
2. Asset Managers Short Course;
3. Seminars & National Conference.



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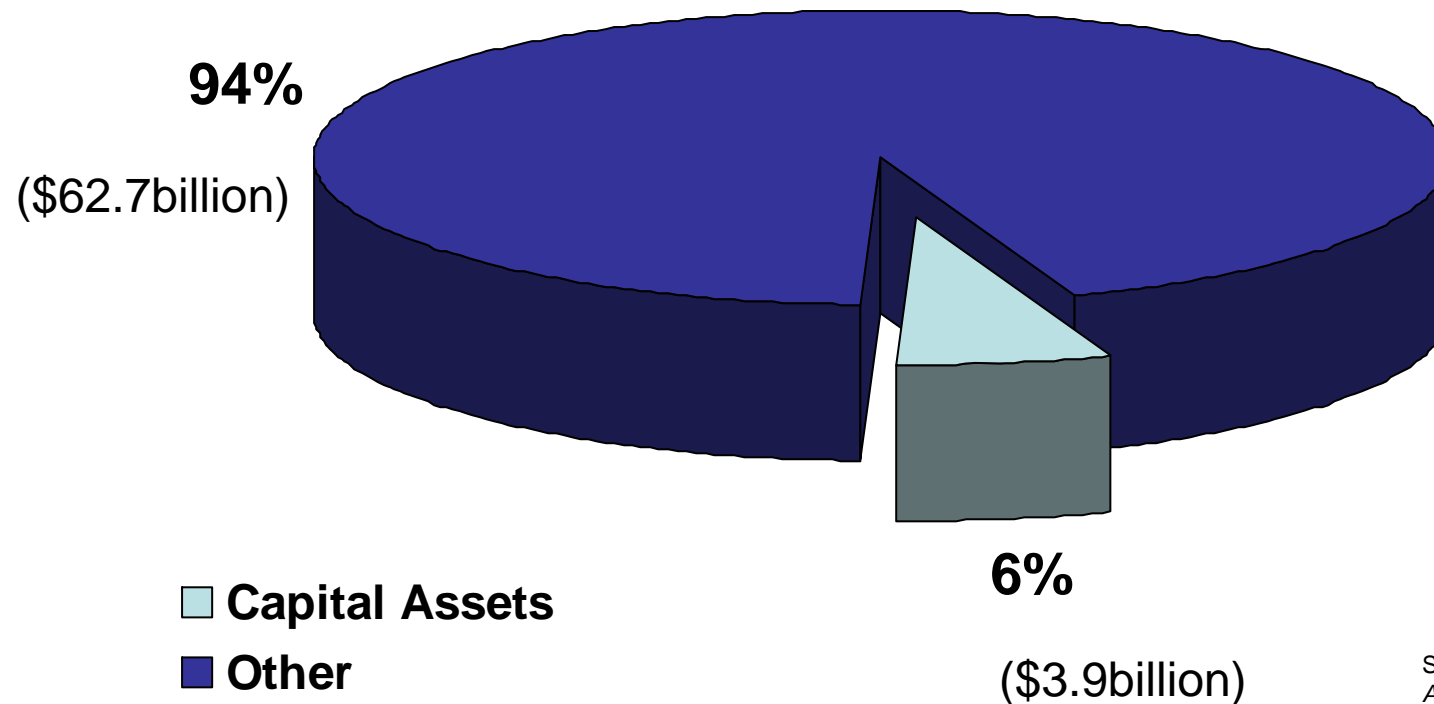
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CHAA - RESEARCH CONTEXT

AUSTRALIA - HEALTH EXPENDITURE 2002



Source:
Australia's Health, 2002



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REAL GAPS IN PLANNING HEALTH FACILITIES & TECHNOLOGY

Planning to maximise the impact of healthcare delivery outcomes should not ignore planning for:

- **PHYSICAL FACILITIES:** space, building use re-design potential, service changes, implementation time, building/plant & technology asset management;
- **HUMAN RESOURCES:** communication processes, organisational culture, workforce skills & training, change management
- **FINANCIAL RESOURCES:** capital, RMR, contingency \$, maintenance & evolutionary costs



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SYSTEM COMPLEXITY

- Healthcare is a complex socio-technical system
- The changes in the healthcare system stem from multiple points in conceptualisation, design, service planning, clinical & administrative service delivery and
- Some think healthcare is just three (?) components: the patient, the disease and the doctor at follow-up intersections of time.
- Healthcare facilities are the built environment in which healthcare delivery occurs (an envelope)



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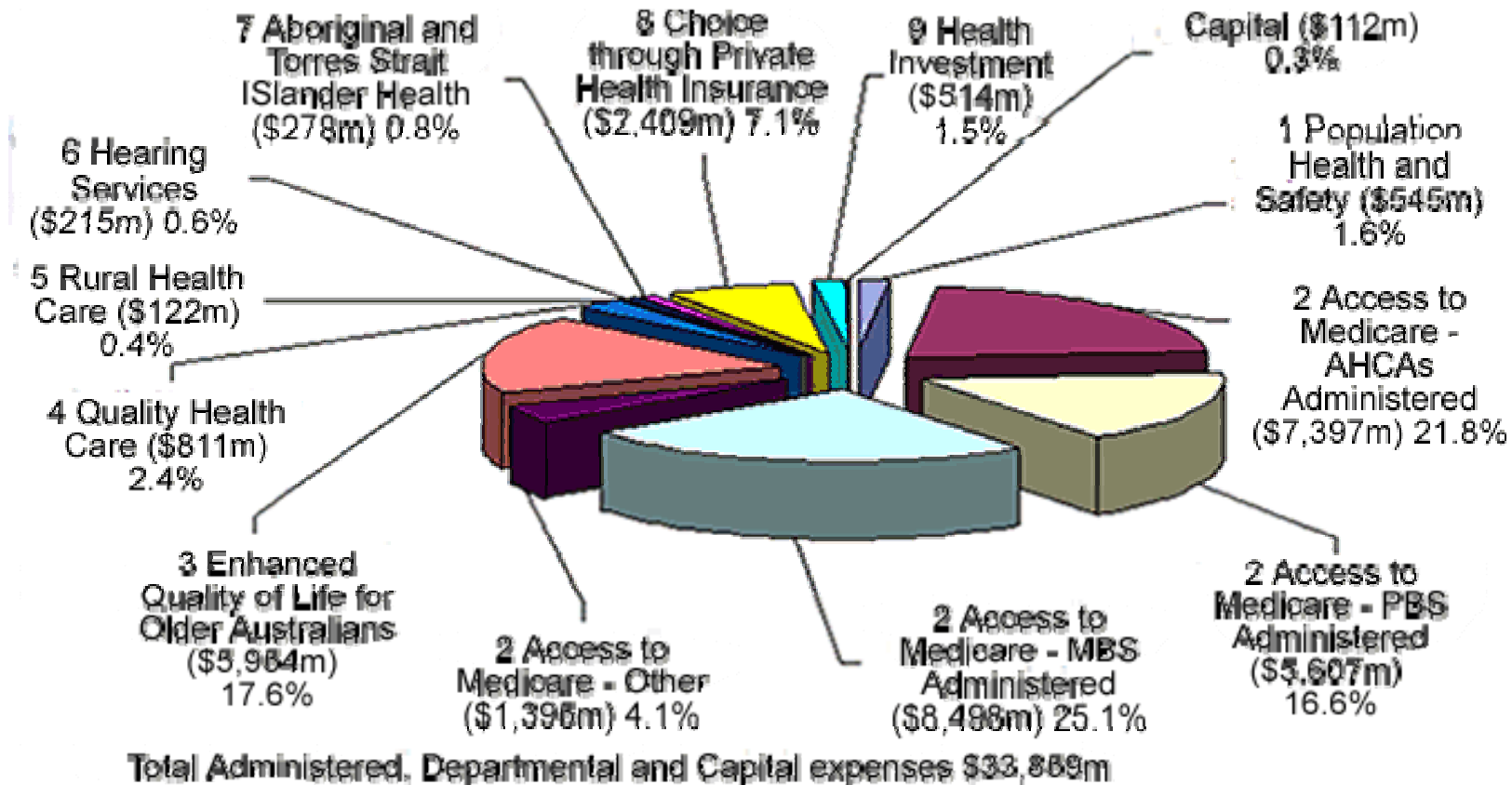
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HEALTH AND AGEING PORTFOLIO EXPENSES BY OUTCOME 2003-04

Figure 1 Health and Ageing Portfolio Expenses by Outcome 2003-04



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1. TECHNOLOGY CONVERGENCE

- Medical
- Information
- Communication

Technologies are converging!

Technology in healthcare facilities:

- *increases* with discovery, diffusion, adoption;
- *is enabled* by funding + management decisions and is measurable by utilisation of resources e.g. ROI, TCO.



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2. AGEING: A DEMAND COST-DRIVER?

Costly Ageing or Costly Deaths? Understanding Health Care Expenditure Using Australian Medicare Payments Data

- Yong et al (2004): results suggest that once proximity to death is accounted for, population ageing has either a negligible or even negative effect on health care demand
- Proximity to death rather than ageing that is driving health care costs

[Zweifel et al. (1999) and Felder et al. (2000)] cited by Yong J & Johnson D in [Econometric Society 2004 Australasian Meetings](#) series,number 238, 11 August 2004.



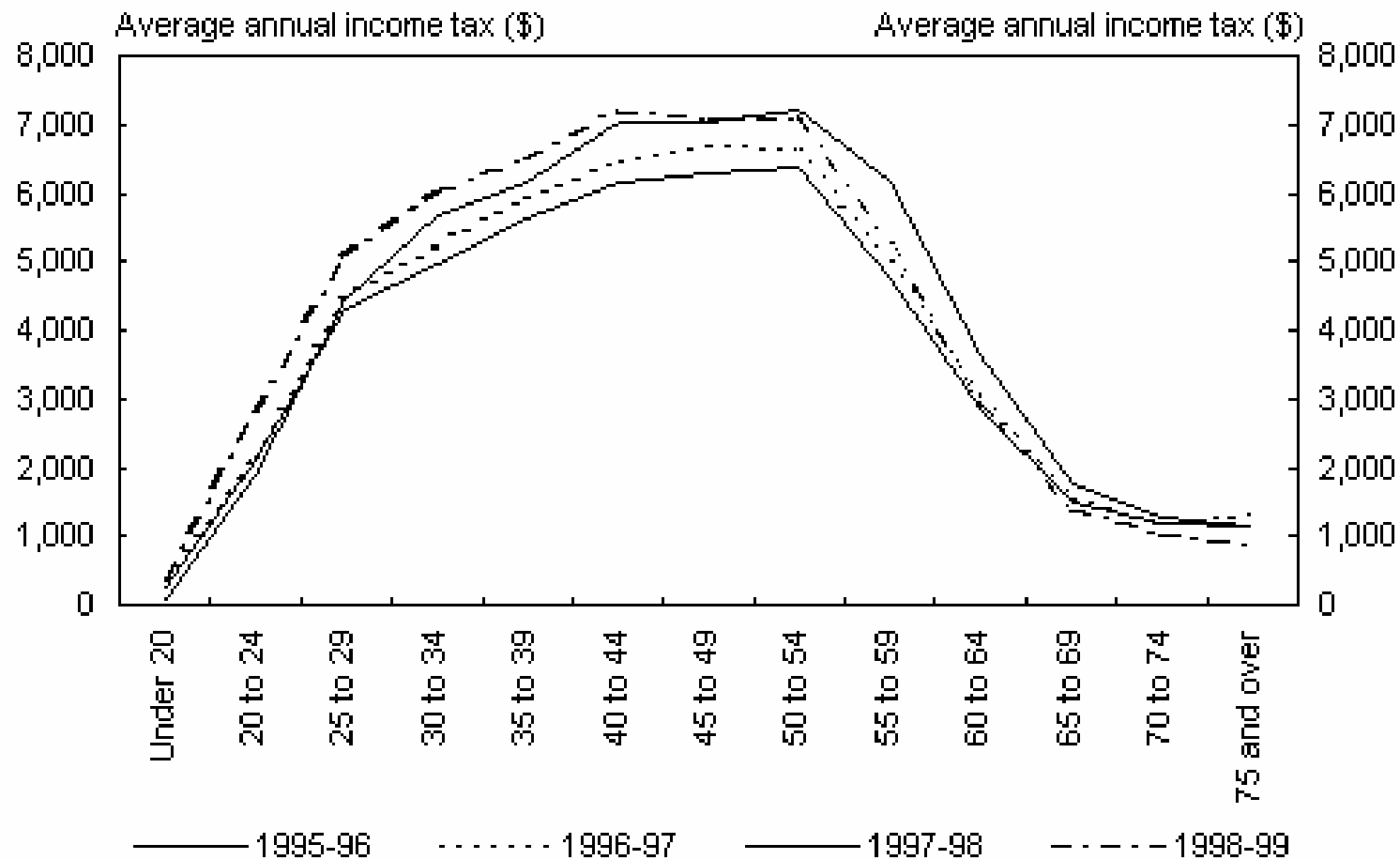
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ANNUAL INCOME TAX PAID BY AGE GROUP



Budget Papers 2002/03: Intergenerational Report



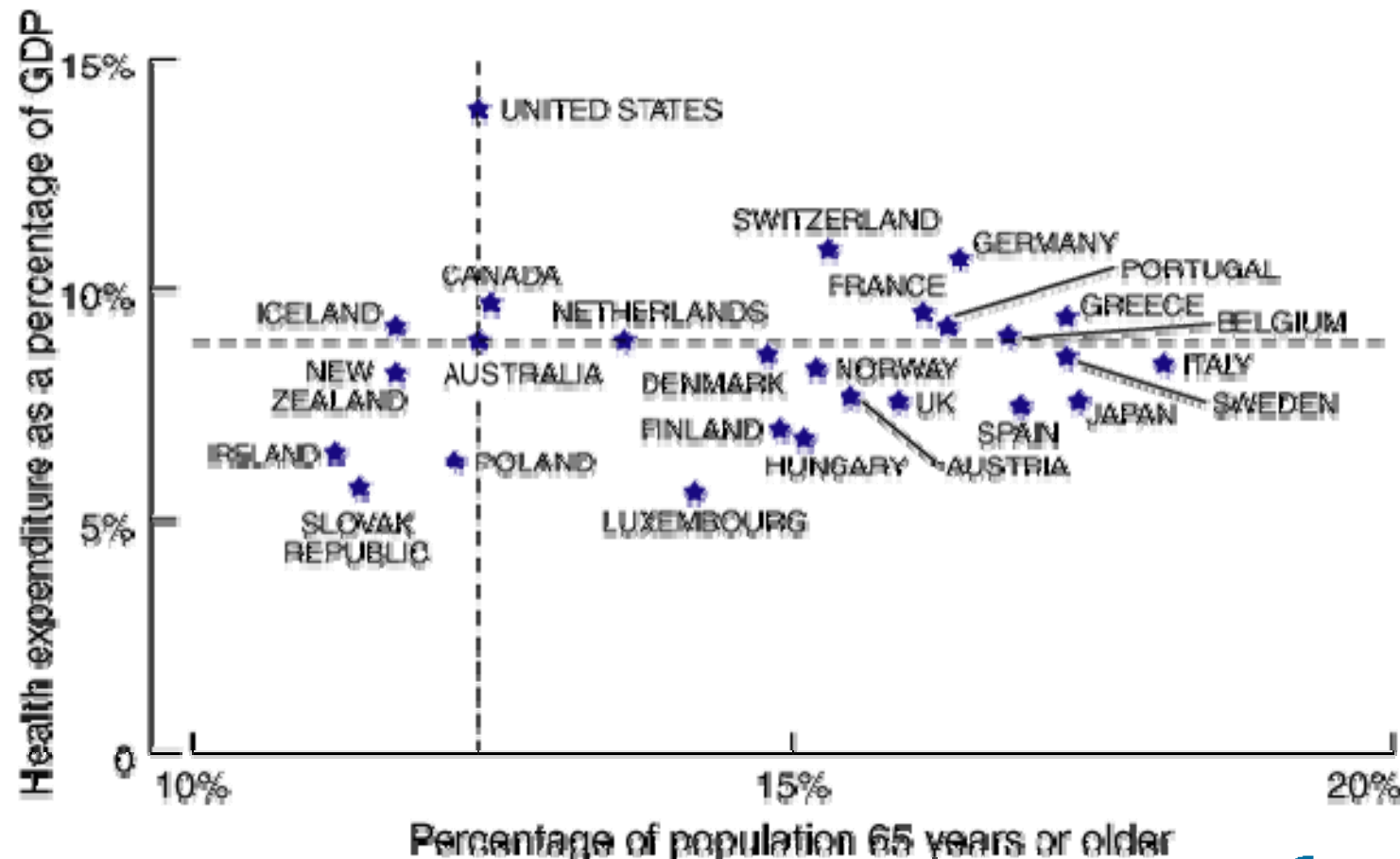
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AGEING: REAL EXPENDITURE x AGE = PESSIMISM & POLICY ERROR?



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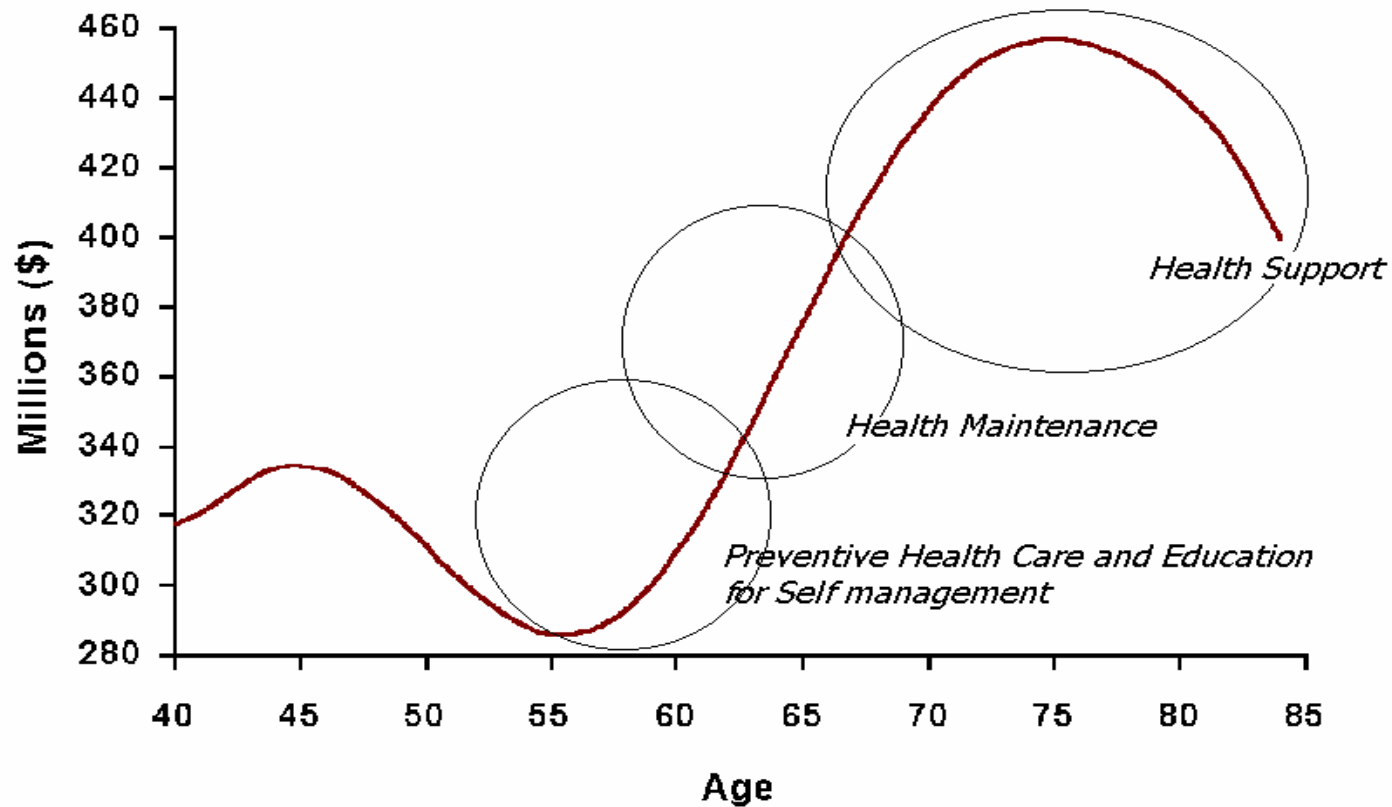
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AGEING: A DEMAND COST-DRIVER?

AUSTRALIAN HEALTH CARE EXPENDITURE BY AGE



Source: Celler_2001



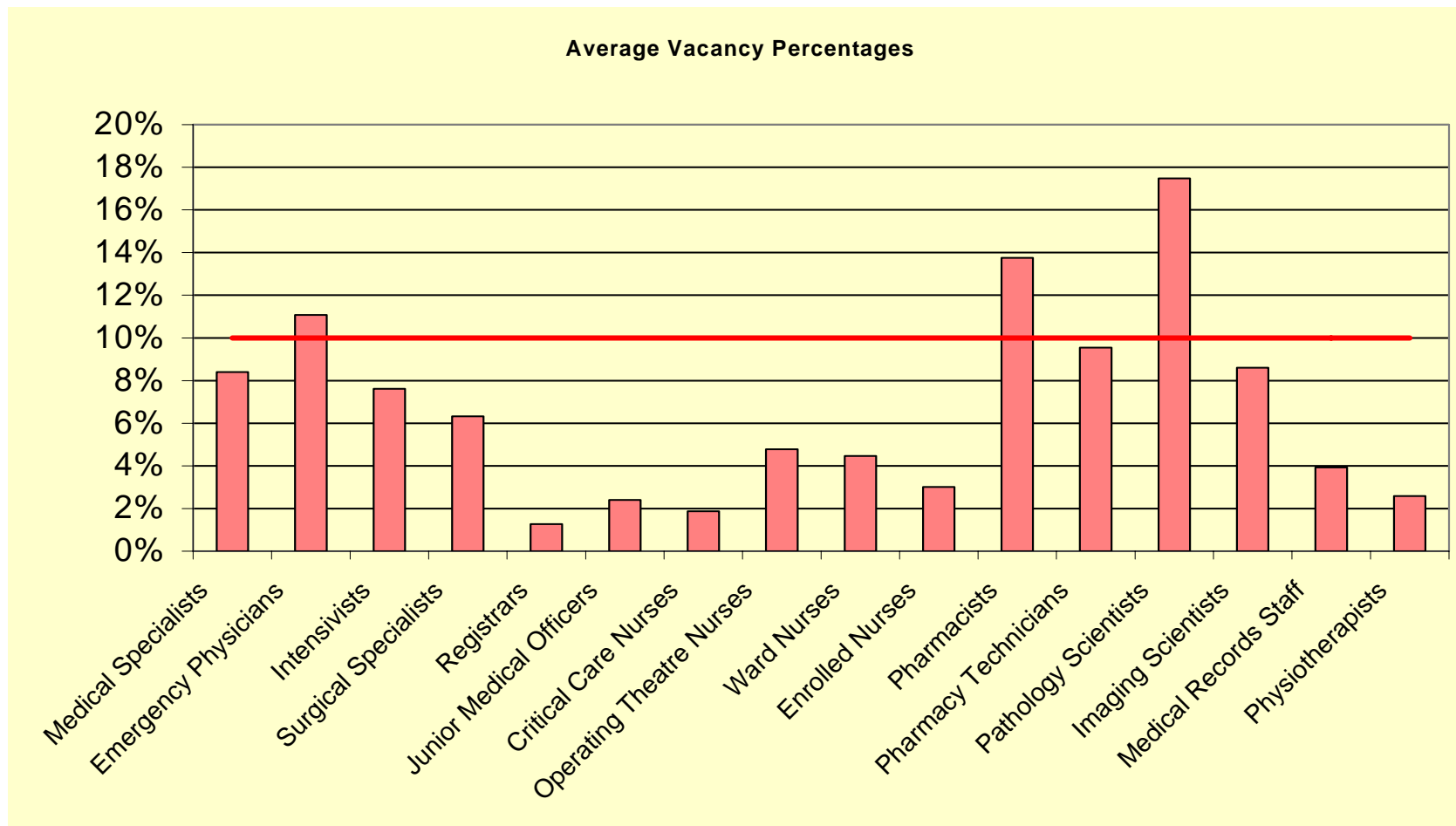
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3. WORKFORCE: CAPACITY BUILDING (NUMBERS, SKILLS, VACANCIES, etc)



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4. ORGANISATIONAL CHANGE

- Healthcare dynamics of change are poorly understood (much research & application is needed)
- Health is not a 'closed system' despite modeling traditions of discrete boundaries
- Facilities have very long 'lifetimes' for maintenance, repair & (eventually) replacement
- Planning for changes is usually reactive



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KEY MESSAGES

- Health System complexity requires innovative thinking based on research & its implementation for cost-effective health information technology use in health facilities
- Designing environments that support 'future care' for baby boomers is worth doing (complexity vs adaptive demand needs)
- Consumers have demands that must be met.
- There is growing interest in 'Evidence Based' design of healthcare facilities, yet where is the 'evidence' to be found?



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CONSUMERISM

- The rise of consumerism means that the public now demands health services, rather than accepts what is on offer.
- The health service will need to become almost unrecognisable in its role and function to survive...in a health system with constantly increasing demands.

(Roach, J BMJ 2001;322:1610 (30 June) accessed 02-Aug-2001
<http://bmj.com/cgi/content/full/322/7302/1610/a>

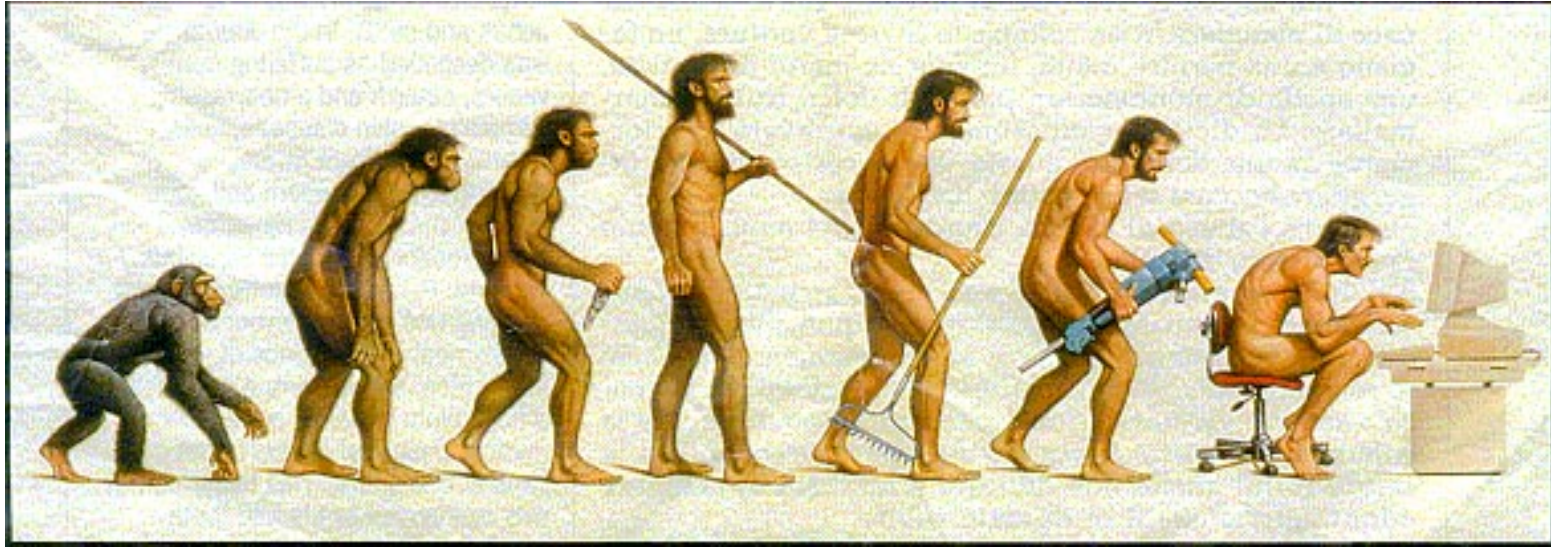


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The 'architect' of the future will be required to not only plan and construct physical space, as in traditional facility building, but also the cyberspace that is part of an expanded conceptualization of health based on a socio-technical health informatics approach.

[S.Tipper]



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OVERVIEW OF FINDINGS: USA

Key industry trends :

- Growth + ageing of 'baby boomers'
- Technological/pharmaceutical advances
- Rise in consumerism + availability of information
- Staff shortages
- More stringent building codes, regulatory requirements for patient safety & privacy.



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OVERVIEW OF FINDINGS: USA

- **Market characteristics:**
increasing competition, limited financial resources, reduced access to capital, continued emphasis on cost control.
- **Investments must:**
extend project lifecycles, increase operational efficiencies, improve market position.
- *Reference: Johnson, Tracy K., How trends will affect health care facilities design and construction, Health Care Strategic Management, Chicago, January 2004, Vol. 22, Iss. 1, p15.*



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OVERVIEW OF FINDINGS: EUROPE

Increasing demands on health systems resulting from:

- Rapid changes in health technologies
- Demographic and epidemiological changes and trends - including growing needs of the elderly, chronic diseases
- Rising public expectations
- Cost inflation in healthcare
- Call for solidarity and equality in health provision across Europe.



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OVERVIEW OF FINDINGS: EUROPE

Other issues:

- New (predatory) infectious diseases are emerging and
- Patients are becoming more vulnerable (due to generally being older and sicker when admitted)

- *Reference: European Union Health Property Network, 2004.*



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OVERVIEW OF FINDINGS: EUROPE

Nature of responses across Europe:

- *Consistency:*
 - Increasing *adoption* of ‘market’ principles in leveraging better value, quality and cost efficiency
 - *Priorities shifting* towards greater levels of investment in public health initiatives, and meeting the long-term needs of people with chronic conditions.
- *Tensions:*
 - *Conflict between volatile and unpredictable nature of service change, emerging strategies* and the more permanent *inflexible nature of capital asset investments*.
 - Between 5% and 8% of annual health expenditure now spent on capital assets, *complexity is increasing*.
 - *Embedded technology* can now represent up to 80% of hospital project cost and *value declines rapidly*.
 - Many countries are *looking to PPP/PFI* (Private Financing Initiative)
 - *Obtaining better investment value from capital assets* is now a high priority for governments throughout Europe.



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OVERVIEW OF FINDINGS: UK

In addition to the above European constraints:

- NHS is moving to a *payment by results* system – transitional process.
- moving from a ‘cost control’ ethos to a ‘return on investment’ (and cost sensitive) regime based on *cost effectiveness of capital and workforce investment*.
- Decisions about new capital investment will be influenced by new factors that include the *patient choice agenda* – patients will have guaranteed rights and will exercise this.....
- Choice will be backed up payments under fixed tariff arrangements...*payment by results will introduce the reality of appraising capital projects against more rigorous ‘return on investment’ principles*.....
- *Greater involvement of the local population* in the management of hospitals.....
- Reference: Dowdeswell, B., Erksine, J., Heasman, M., *Hospital Ward Configuration – Determinants Influencing Single Room Provision, Report for NHS Estates, England by the EU Health Property Network, November 2004.*



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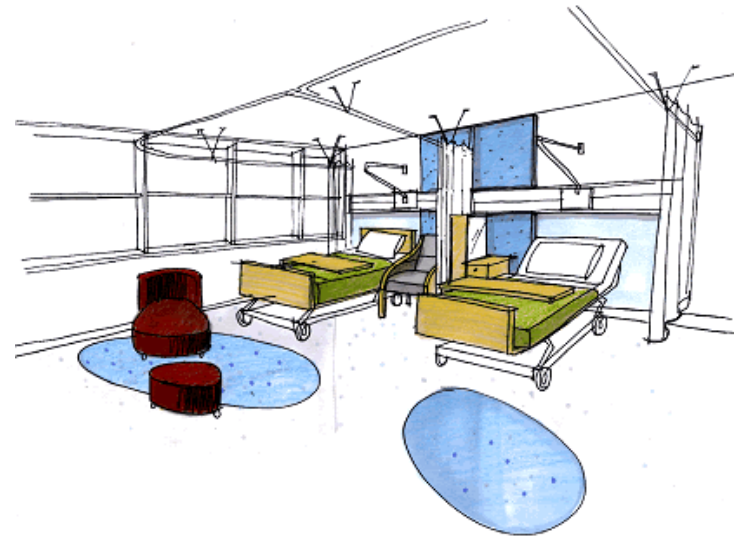
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SUMMARY - GENERAL DIRECTIONS

Design response to changing demands:

- More *flexible designs*:
 - universal room design – acuity adaptable spaces
 - rooms large enough to accommodate increasing technology needs
 - adequate floor to floor heights to accommodate changing uses
 - ‘soft’ spaces (eg admin) located near clinical/patient care spaces to allow for future expansion
- *Increasing amenity levels* for patients and their families:
 - more single (private) rooms
 - family support spaces
- *Decentralised nursing stations* and care
- Increasing use of *information technology*
- Design *standardisation*



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FACILITY HOT SPOTS

Will be:

- the nursing units
- emergency departments
- surgery
- imaging
- ambulatory services.



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CASE STUDY – NURSING UNITS

Main design issues:

- Design changes required to support *increasingly scarce nursing staff*
- Units should be *configured for family-centred care*
- Universal rooms wherever possible i.e. *acuity-adaptable*, plus system-wide monitoring capabilities
- *Move away from traditional centralised nursing stations* to decentralised stations serving smaller clusters of 2 – 8 beds – maximise care delivered in patient's room
- Move towards *greater proportion of all single (private) rooms* (in some places up to 100%)



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CASE STUDY – NURSING UNITS

Arguments for Single Room Provision:

USA versus Europe/UK Perspective

- *USA:* Patients will choose the facility with higher amenity i.e. more single rooms, resulting in better utilisation & more return on investment to the owners.
- *Europe/UK:* Better upfront 'return on facility investment' from single rooms because patients get better faster; therefore more patients treated for same money invested.



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CASE STUDY – NURSING UNITS

Single Room Provision – Main Issues:

- Better risk management of health care acquired infection (HAI) – ‘evidence based design’
- Rising public expectation for improved quality and associated cultural responsiveness
 - Quality standards include issues of patient privacy and dignity, and confidentiality
- Operational factors and revenue cost
 - Flexibility of use
- Capital cost



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SINGLE ROOM PROVISION

- Better risk management of health care acquired infection (HAI) – ‘evidence based design’
 - No hard ‘evidence’ of this as yet: circumstantial and intuitive evidence only.
 - European study disagrees with US Study.
- Does this rule out a higher ratio of single rooms or is further investigation warranted?



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SINGLE ROOM RATIOS

EUHPH/NHS Study recommendations:

- Promote good practice range of *50% - 100% single rooms* – strong ‘confidence base’ for this judgement.
- Relate design decisions to hospital profile and local catchment population, not HAI ‘evidence’, make these translatable to design brief.
- Develop practical risk matrix scale as aid to profile analysis.
- Support hospitals changing focus towards cost effectiveness model of capital investment & design.
- Further research in Europe and abroad (including Australia and NZ) into HAI and hospital design.
- (EUHPN, Nov 2004)



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