Policy modelling and demographic ageing: *Long-term health and social care*

7th COMPASS Colloquium, Statistics NZ, Wellington
30 August 2013

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Outline

- Section 1 (Rationale)
  - What is BCASO?
  - Policy purpose

- Section 2 (Methods)
  - Construction

- Section 3 (Policy application)
  - Policy scenario testing
  - Conclusion
What is BCASO?

BCASO = Balance of Care in an Ageing Society

- Data-driven simulation model of health and social care in older people

- BCASO is funded by the Health Research Council
- Investigators: Prof Peter Davis, Prof Ngaire Kerse, Prof Laurie Brown (Canberra), et al
- Project team: Roy Lay-Yee (Co-investigator), Janet Pearson (Statistician), Martin von Randow (Analyst), et al
Policy purpose

- Basic model accounting for core processes involved in determining levels of health and social care in older people

- Representative of the NZ population

- Can be used to test policy scenarios, e.g. what happens if we change the balance of care
NZ model: Architecture

Starting sample 65+ (2001/2)

LONG-TERM ILLNESS (yes/no)

DISABILITY (ADL): none mild (no assistance) moderate (non-daily) severe (daily)

Health Care

GP, Other Providers, Hospital

Informal / Formal / Residential

Social Care

Costs?
What can the model produce?

- **Description** - range & balance of care in NZ 65+ population (base year=2001/2)

- **Projection** – impact of demographic ageing (to 2021 and beyond)

- **Scenario testing** – ‘what if’ questions, esp. re balance of care
Policy questions: Health and social care

- What will be future levels of health and social care use for older people under the status quo?

- How will changing the prevalence of / transition to long-term illness / disability affect levels of health and social care use for older people?

- How will changing the balance among providers affect levels of health and social care use?
Questions

Section 1 (Rationale)

- What is BCASO?
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Construction

- Data sources
- Creating a virtual cohort using microsimulation
- 2 modules: ‘Health’ & ‘Social’ care
- Each module has:
  - A change element (2001 to 2006, etc)
  - A constant, cross-sectional element
Data Sources

- No longitudinal data available – repeated cross-sectional surveys only – health (MoH) & disability (SNZ)

- Age group: 65+ (450,000, 12% of NZ pop in 2001)

- Starting sample (n=2400):
  - NZHS 2002 – living in households (n=1500)
  - + NZDS 2001 – residential (n=900)

- Deriving parameters (for the simulation):
Creating a virtual cohort (that is representative)

- We use a starting cohort of 2400 older people representing the 65+ NZ population
- We apply statistical rules to ‘age’ the cohort (at 5-year intervals)
- We apply mortality based on health expectancy, disability-adjusted
- We rejuvenate the cohort by bringing in new entrants to the youngest 65-69-year age group in proportion to the population
- In future years, we re-weight by demographics according to official projections
Health Care module

2001

LONG-TERM ILLNESS

No

- GP visit
- Nurse
- Hospital

No

- GP visit
- Nurse
- Hospital

Yes

- GP visit
- Nurse
- Hospital

Yes

- GP visit
- Nurse
- Hospital

2006
Health Care module – modes of care

- **Practice nurse visit (yes/no)**
  - long-term illness + age + gender + ethnicity + deprivation + partnership status

- **GP visit (ordinal categories)**
  - practice nurse visit + long-term illness + age + gender + ethnicity + deprivation + partnership status

- **(Hospital admission)**
Social Care module: a continuum of care

- Informal care (y/n)
  - disability + age + gender + ethnicity + deprivation + partnership status

- Formal care (y/n)
  - informal care + disability + age + gender + ethnicity + deprivation + partnership status

- (Residential care)
Questions

Section 2 (Methods)

Construction
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Policy scenario testing

- **Base simulation** (projection of status quo) - people live longer but suffer same pattern of illness (~ expansion of morbidity)

- **Morbidity scenario** - years of disability at end of life are reduced by improvement in health (~ compression of morbidity)

- **Care scenario** – changing the balance of care
Reprise … Policy questions: Health care

- What will be future levels of health service use for older people under the status quo?

- How will changing the prevalence of / transition to long-term illness / disability affect levels of health service use for older people?

- How will changing the balance among providers affect levels of health service use?
Health Care: scenarios (What if?)

- Long-term illness; disability
  - health service use (practice nurse, GP, hospital)

- Practice nurse (only) visit
  - GP visits

- Outcome: proportion visiting or admitted
Reprise … Policy questions: Social care

- What will be future levels of social care use for older people under the status quo?

- How will changing the prevalence of / transition to long-term illness / disability affect levels of social care use for older people?

- How will changing the balance among providers affect levels of social care use?
Social Care: scenarios

- Long-term illness; disability
  → social care use (informal, formal)

- Informal care → formal care

- Outcome: proportion in care
Conclusion: Technical

- We model long-term illness, disability & a range of care in older people 65+
- We use microsimulation to bring together real data from various sources
  - adding value to data in the process
  - starting cohort made from NZHS (householders) and NZDS (resid)
  - having to use repeated cross-sectional surveys (5-yrly)
- Strength – representative of NZ pop.
- Limitation - lack of rich detail, finer grain
- We create a virtual cohort – data platform - that can be:
  - enhanced with richer data, e.g. longitudinal cohort studies of ageing
  - used to test policy-relevant scenarios
Conclusion: Substantive

- Projection to 2021 – small increase in morbidity & use of care
- Morbidity scenario - decreasing morbidity slightly reduces health & social care use
  → demographic ageing may not have the assumed disastrous impact on system resources, esp. with healthier ageing?

- Health care scenario - increasing practice nurse use has little effect on GP use
- Social care scenario - increasing informal care slightly reduces formal care
  → changing the balance of social care may make better use of limited system resources?
Questions

- Section 3 (Policy application)
  - Policy scenario testing
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- Anything else?