

MODEM

A comprehensive approach to
modelling outcome and costs
impacts of interventions for
dementia

A collaborative study

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What do we know?

- In future will need to spend much more on the care of people with dementia than we are spending today
- Demographic and cost pressures mean that, by 2022, public expenditure on social care and continuing health care for older people will need to increase by 37% (Wittenberg et al., 2012)
- Around 43% of this is associated with the care of people with dementia (Comas-Herrera et al., 2007).
- Life expectancy, prevalence rates and type/quality of care will impact future funding requirements.

What are our questions?

- How many people with dementia will there be between now and 2040?
- What will be the costs (and outcomes) of their treatment, care and support under present arrangements?
- How do these costs (and outcomes) vary with characteristics and circumstances of people with dementia and caregivers?
- How could costs change (in level and distribution) if evidence-based interventions were more widely implemented?

Interventions and costs

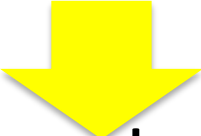
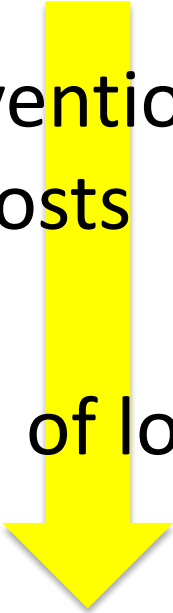
- **Interventions**

- Prevention (e.g. lifestyle, nutrition, exercise etc.)
- Treatment interventions (e.g. medications, cognitive stimulation and other therapies)
- Care and support arrangements (e.g. telecare/telehealth, respite, carers training and support programmes, training for care staff)

- **Costs**

- The full set of resource impacts, across health, social care and other systems, including the resources of people with dementia, families and local communities.

Empirical models

- Dynamic micro-simulation projection model on disabling consequences of dementia
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- Care pathways model of how interventions impact on the use of services and costs
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- Macro-simulation projection model of long-term care need and costs

What goes into the models?

- Existing models
- Large-scale datasets (CFAS II, ELSA, NCDS)
- Literature review
- Completed and ongoing trials
- Analysis of data on dementia & social participation/ isolation
- ‘Cross walking’ study of 300 people with dementia and their caregivers
- Focus groups with people with mild dementia and caregivers
- Advisory group and user and carer reference group

Micro-simulation model

- epidemiological macro-simulation model **SIMPOP13** (CFAS I), 65+
 - links multiple diseases with disability
 - projects future disability burden and disability-free life expectancy
- Australian **DynoptaSim** micro-simulation model, 45+
 - health and functional status
 - potential impact of risk reduction interventions

Micro-simulation model

- **baseline characteristics:** socio-demographic, lifestyle and disease (CFAS II & ELSA, 65+) to 2040
- **interventions** that prevent or delay cognitive and/or functional impairment
- **tabulations of expected duration in different health states** in presence of dementia, with w/out other diseases and by key characteristics, e.g. gender, age)

Care pathways model

- a coherent model of different interventions and impact on service use and costs
- Identify **packages of care** associated with sets of clinical and other circumstances
- estimate **lifetime costs** of care for different sets of needs and circumstances given:
 - existing treatment and care pathways
 - alternative care pathways (wider roll-out of interventions)

Macro-simulation model

PSSRU macro-simulation projection model:

- future numbers of people with dementia
- severity and physical disability (CFAS II)
- long-term care service use
- associated public expenditure

under variant assumptions about:

- trends in mortality rates
- cognitive impairment
- supply of informal care
- patterns of care services
- unit costs of care.

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And finally – a legacy tool

We will develop a publicly available legacy model (and associated media) for others to use.

Commissioners, providers, advocacy groups, individuals and families will be able to access our findings and methods, and make their own projections of needs for care and support, outcomes and costs.

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