Technology, older people and social inclusion

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Plan

A. Challenges of an ageing population
B. Responses?
C. Roles for technology?
D. The WSD trials
E. Older adults, ICT & their support networks
F. Dementia & ICT - an economic case?
G. Final thoughts
Challenges
Population estimates & projections (millions)

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<tr>
<th>Year</th>
<th>0-14</th>
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</table>
Population age structure, 2017

England

55,414,500 people in 2017

27,384,100 males  49.4%
28,030,400 females  50.6%

London

8,870,600 people in 2017

4,414,100 males  49.8%
4,456,400 females  50.2%

ONS data from 2012; from SSCR conference presentation by Chris Witty, Apr 2016
Population age structure, 2037

England

62,166,000 people in 2037

30,975,500 males 49.8%
31,190,500 females 50.2%

London

10,662,200 people in 2037

5,387,500 males 50.5%
5,274,600 females 49.5%

ONS data from 2012; from SSCR conference presentation by Chris Witty, Apr 2016
NE England, population structure, 2037

Northumberland
324,700 people in 2037
159,100 males (49.0%)
165,600 females (51.0%)

Newcastle upon Tyne
305,100 people in 2037
156,800 males (51.4%)
148,300 females (48.6%)

ONS data from 2012; from SSCR conference presentation by Chris Witty, Apr 2016
Challenge: implications for care needs

Projected numbers in England & Wales aged 80+ by interval-need dependency, 2010-2030

- 75% in care homes
- Main carer: child

- 33% in care homes
- Main carer: spouse (34%), child (31%)

- 4% in care homes
- Main carer: child (37%), no-one (18%)

Jagger et al *BMC Geriatrics* 2011; Jagger for Foresight 2015
Changes in life expectancy & healthy life expectancy: males, UK, 2000-02 to 2009-11

For males at birth (in years and as a proportion of life)

- **2000-2002**: 60.7 / 80% healthy life expectancy, 15 / 20% years in poor health
- **2009-2011**: 64.2 / 82% healthy life expectancy, 14.2 / 18% years in poor health

A falling number and proportion of years spent in poor health, when measured from birth.

For 65 year old males (in years and as a proportion of life)

- **2000-2002**: 9.5 / 60% healthy life expectancy, 6.4 / 40% years in poor health
- **2009-2011**: 10.7 / 59% healthy life expectancy, 7.3 / 41% years in poor health

A growing number and proportion of years spent in poor health, when measured from 65.

Foresight report 2016 - DRAFT - data from ONS (2014)
HLE & LE, men at age 65 by national deciles of area deprivation, England 2012-14

Foresight report 2016 - DRAFT - data from ONS (2016)
Projected public expenditure on health & long-term care as % of GDP, 2014/15 to 2064/65

Challenge: working & pensionable age pop’n (millions), & old age support ratio

Foresight report 2016 - DRAFT - data from ONS
B Responses?
Although the age-specific prevalence rate might now be slowing (... *although very unevenly*...), the total number with dementia will increase hugely. This will put a huge strain on family carers & communities; and a huge strain on public spending.
Scenarios of dementia care:
What are the impacts on cost and quality of life?

Martin Knapp, Adelina Comas-Herrera, Raphael Wittenberg, Bo Hu, Derek King, Amritpal Rehill and Bayo Adelaja

Personal Social Services Research Unit,
London School of Economics and Political Science

June 2014
Can we make dementia more ‘affordable’ by improving treatment & care?

Macro-simulation model to examine the effects of these scenarios on costs and quality of life.

A. Current care: Care and support as currently provided.

B. No diagnosis (B), no post-diagnostic support (C) - both increase costs and worsen quality of life.

D. So did scenarios D and E reduce costs (total and government) and/or improve quality of life?

E. Prevention or disease-modification: Interventions available to slow progression or delay onset.

Knapp et al. Scenarios of Dementia Care 2014
## Improving dementia care: modest effects on costs (£ millions, 2012 prices, UK)

<table>
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<th>Scenario</th>
<th>Unpaid care</th>
<th>Social care</th>
<th>Health care</th>
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<tr>
<td>Current care (A)</td>
<td>7470</td>
<td>9550</td>
<td>4150</td>
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<tr>
<td>Donepezil (D1)</td>
<td>7620</td>
<td>9160</td>
<td>4140</td>
</tr>
<tr>
<td>Cognitive stimulation (D2)</td>
<td>7530</td>
<td>9340</td>
<td>4300</td>
</tr>
<tr>
<td>Case management (D3)</td>
<td>8840</td>
<td>8480</td>
<td>4060</td>
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<tr>
<td>Carer support (D4)</td>
<td>7850</td>
<td>9310</td>
<td>4200</td>
</tr>
</tbody>
</table>

Knapp et al. *Scenarios of Dementia Care* 2014
Improving dementia care: modest effects
D1 to D4 each improve quality of lives, UK
life - although not always hugely

Limitations:
- poor quality of life data
- didn’t examine changes within cells
- distributional impacts ignored
- didn’t examine resource targeting
- didn’t stack/combine interventions

We are doing better in MODEM, 2014-18; [www.modem-dementia.org.uk](http://www.modem-dementia.org.uk)

Knapp et al. Scenarios of Dementia Care 2014
Risk-reduction or disease-modification: effects on costs (£m, 2012 prices, UK)

The implementation costs are unknown, but unless they are well-targeted they could quickly wipe out any savings from delayed onset or slowed progression.
Population-attributable risk (PAR) of Alzheimer’s disease:
- Diabetes
- Midlife hypertension
- Midlife obesity
- Physical inactivity
- Depression
- Smoking
- Low educational attainment

Combined worldwide PAR, adjusting for interdependence, was 28%

“Around a third of AD cases worldwide might be attributable to potentially modifiable risk factors”
Interpretation?

Rolling out evidence-based treatment & care to every eligible person does not reduce cost, but improves QOL.

Preventing or delaying onset, and slowing progression, will potentially reduce overall costs considerably. But can only do so very slowly.

Recommended actions:

- **Prevent** - Yes, but plan early
- **Cure** - Yes, but not found yet ...
- **Care** - We need to do much better - find new cost-effective approaches

Scenarios of dementia care:
What are the impacts on cost and quality of life?
MODEM: better evidence (but not right now)

- How many people with dementia - up to 2040?
- Costs & outcomes under present care arrangements?
- How might costs & cost-effectiveness change if evidence-based interventions were widely available & accessed?

**Methods - integrated series of models:**

- Comprehensive evidence review of what works - online toolkit available April/May 2016
- Micro-simulation, macro-simulation, intervention simulation, care pathways (data from previous studies & new cohort to cross-walk measures)

*Project ends early 2018*
Roles for technology?
Three sources of evidence from my own work (with other colleagues):

- WSD trials (Whole System Demonstrator) trials of telehealth & telecare for older people
- Evidence review for Government’s Foresight Programme *Future of an Ageing Population* (report due out soon) “Older Adults, ICT and their support networks”
- Review for DH on dementia and ICT (economic case)

**Note:** This is NOT a systematic evidence review, although it is quite comprehensive and wide-ranging
The WSD trials
Involved 6191 patients, 238 GP practices, 3 sites (Newham, Kent, Cornwall). Research questions:

- Does introduction of telehealth (TH) and/or telecare (TC) reduce service use & costs?
- Do TH & TC improve quality of life, well-being, self-care, and carer impact (clinical effectiveness)?
- Are TH & TC cost-effective?
- What organisational factors impact sustainable adoption and integration of TH & TC?
- What are user & carer experiences with TH & TC?
- What are professionals’ attitudes & engagement to TH & TC?

• Telehealth associated with lower mortality rate and emergency admission rates (n=3230)
• Not effective on health-related QOL, anxiety, depression (n=1573)
• Not cost-effective (n=1573)

Steventon et al *BMJ* 2012
Cartwright et al *BMJ* 2013
Henderson et al *BMJ* 2013
Largest ever RCT of telecare - compared to standard treatment. Cluster RCT design (GP practices) For older people with social care needs.

Funded by DH, 2011-14.

- Telecare did not reduce service use over 12 months (n=2600)
- Does not transform lives but may have small benefits on some psychological & HRQOL outcomes (n=1189)
- Not cost-effective

Steventon et al Age & Ageing 2013
Hirani et al Age & Ageing 2014
Henderson et al Age & Ageing 2014
Organisational analysis

- Implementation requires organic evolution, responsiveness & adaptability to local systems ...
- ... driven by support from front-line staff & management.

Participation & adoption

- Findings go beyond concerns re privacy & dislike of technology
- Staff need to provide better information & discussion time
- Potential recipients need opps to discuss expectations

Hendy et al *BMC Health Services Research* 2012
Sanders et al *BMC Health Services Research* 2013
Elder adults, ICT & their support networks
Evidence Review commissioned by the Foresight Programme

Older Adults, ICT and their support networks

Jacqueline Damant and Martin Knapp
Proportion of people feeling lonely ‘some of the time’ / ‘often’ by age & gender 2009-10

Foresight report 2016 - DRAFT - from DCLG (2011)
Internet use by life stage, 2003 to 2013

% who use the internet

Year

2003 2005 2007 2009 2011 2013

Students Employed Retired

Foresight report 2016 - DRAFT - from >>>>
Internet non-users as % of population, 2014

Internet non-users % of population 2014

- 25.0 to 29.2 (1)
- 20.0 to 24.9 (7)
- 15.0 to 19.9 (29)
- 10.0 to 14.9 (54)
- 4.8 to 9.9 (33)
Summary of findings from review #1

- Age-related decline in capacity (cognition, sensory, dexterity) for some people
- Generational divide in familiarity, skills etc. Yes, there is a cohort effect but ‘gap’ will not disappear.
- Older people willing & capable - may still need help; usually obtained from family & friends, but Third sector too
- Attitudes to ICT affect take-up, but many older people have negative attitudes & anxieties (especially women, but narrowing).
- ICT ‘not relevant for my age group’ - lack of interest
- Industry-wide focus on ‘youth (culture) market’ - blame older people for lack of engagement rather than ICT design
- But increasingly attractive ‘silver market’?

Damant & Knapp Foresight Evidence Review 2015
Summary of findings from review # 2

• Lack of trust, fears about loss of privacy, personal security, fraud (justified but exaggerated?) → low social media use?

• Older people using ICT gain social support, maintain friendships, have better intergenerational relationships, have better wellbeing

• Effect on loneliness unclear - many studies not designed well - but recent ELSA evidence that internet use reduces loneliness

• Spending on ICT - reluctance, seen as ‘luxury good’ or ‘unaffordable’, worried about ongoing costs

• Care settings - very poor connectivity (25% of care homes)

• Broadband access worst in rural areas with high older pop’n

• Rapidity of technological change - an enduring barrier?

Damant & Knapp Foresight Evidence Review 2015
Dementia & ICT – an economic case?
Is there an economic case for accelerated investment in technology that might deliver savings on overall cost of care for people with dementia.

• Short study
• Rapid review of international evidence on effectiveness and cost-effectiveness of technology
• Conditions for successful adoption
• Interviews with industry, academia, government, third sector, people with dementia & carers
• Modelling to examine economic case
• Roles for state investment / action - to accelerate use of technology? - to deliver wellbeing & economic benefits.
**Economic case (using PSSRU lifetime model)**

**Scenario #1** - based on Riikonen et al (*Gerontechnology* 2010)
Assistive & safety technologies postponed care home admission by 8 mths. Modelled in UK context. Health & care costs over 4.5 yrs were reduced by £13,000, but unpaid care costs increased by £21,000 → not cost-saving unless unpaid care hours could be trimmed.

**Scenario #2** - based on Torkamani et al (*J Alz Disease* 2014)
Computerised platform to reduce carer burden & stress - improved their QOL. Modelled impact on QALYs, valued at NICE thershold. If technology cost <£3,000 or £4,500 (depending on threshold value) over 4.5 years. But no reduction in service costs unless it delayed care home admission.

**Scenario #3** - ‘threshold’ analysis
If a technology cost £5,000 over 4.5 years (including assessment & support) - it would need to postpone care home admission by >3 mths to be cost-effective from health & social care perspective; and reduce unpaid care hours by 8% or improve carer QOL by 0.06 to 0.08 QALYs p.a. to be cost-effective from societal perspective

Knapp et al *Dementia & ICT* report 2016
No real evidence of ‘market failure’ on supply side, and lots of imaginative technologies being developed (for general use). Barriers relate to ‘system readiness’ re technologies in care:

• Under-developed technologies (for dementia specifically)
• Weak evidence base - a simple lack of good evaluative data on what works, when and for whom
• Price / cost - procurement model hasn’t reached cost-minimising scale; private market very price-sensitive
• Design - not suitable given capabilities of people with dementia (or maybe their carers); technological literacy
• Trust & preferences - same findings as in Damant & Knapp review

Knapp et al *Dementia & ICT* report 2016
Barriers still to be overcome #2

- Limited awareness among people with dementia & carers about the potential for useful technology (cf. baby monitor, iPads ...)
- Need for technologies to be individualised ... expensive; technology and/or market as yet under-developed
- Commissioners (health & social care) unconvinced (or far too easily convinced in some cases ...)
- Societal attitudes - stigma, lack of support etc.
- Staff skills, awareness and attitudes - assessments not adequate, staff with negative attitudes or simply lacking technology skills

Knapp et al *Dementia & ICT* report 2016
Final thoughts
Final thoughts - summary of evidence

- Population ageing is a great achievement …
- … but also brings many challenges
- Concerns as to whether current health & care systems are affordable in the long term
- Technology seen as a potential solution
- But trials of (now old) telehealth & telecare with older people didn’t find hugely positive evidence
- Review of ICT use to support social networks also not hugely encouraging, although undoubted cohort effects
- Review of dementia care & ICT similarly raises doubts about (short-term) technological solution to growing needs

Knapp et al *Dementia & ICT report 2016*
Actions by the state? #1

- Encourage industry to see the ‘dementia market’ as attractive
- Be alert to barriers to market entry that limit consumer choice
- Support generation of reliable evidence on technologies
- Help make that evidence widely available and accessible
- Encourage commissioner awareness of technologies; and to overcome boundary-related disincentives
- Encourage greater attention to how carers can use technology
- Support efforts to help the market reach a viable size
- Improve broadband coverage across the country
- Support efforts to help older people gain technological literacy
- Encourage involvement of people with dementia & carers in development of new technologies

Knapp et al *Dementia & ICT* report 2016
Actions by the state? #2

- Require technologies purchased publicly to meet design standards.
- Take actions to allay (well-founded) fears about fraud/crime.
- Recognise the high value that many people with dementia & carers place on face-to-face service contacts.
- Note that cashable savings are more likely to be achieved if care home admission can be delayed.
- Ensure that assessments are person-centred & integrated rather than technology-dominated and separate.
- Encourage development of personalised technologies that respond to individual needs, circumstances & preferences.
- Raise awareness of dementia to change social attitudes.
- Improve awareness, attitudes and skills of key health & care professionals in relation to digital and other technologies through training, qualifications & CPE.

Knapp et al. Dementia & ICT report 2016
Some of the work presented here was supported by grants to LSE from:

• the Department of Health (DH) for England
• the National Institute for Health Research (NIHR)
• the Economic and Social Research Council
• the Alzheimer’s Society.

Both I and my Centre have received funding from Janssen, Lundbeck, Pfizer and Takeda for research and advice.

All views expressed in this presentation are those of the presenter, and are not necessarily those of any funding body.

I have no conflicts of interest to report that are relevant to this presentation.

Thank you for your attention

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