Emeritus Professor David Ames
BA MD BS FRCPsych FRANZCP
National Ageing Research Institute
Uni of Melbourne Academic Unit of Psychiatry of Old Age
Melb Health CADMS, St George’s Hospital Aged Psychiatry
Epworth Camberwell
dames@unimelb.edu.au

Lancet Commission on Dementia prevention, intervention and care
Lancet commission

Dementia prevention, intervention, and care

Gill Livingston

Andrew Sommerlad, Vasiliki Orgeta, Sergi G Costafreda, Jonathan Huntley, David Ames, Clive Ballard, Sube Banerjee, Alistair Burns, Jiska Cohen-Mansfield, Claudia Cooper, Nick Fox, Laura N Gitlin, Robert Howard, Helen C Kales, Eric Larson, Karen Ritchie, Kenneth Rockwood, Elizabeth L Sampson, Quincy Samus, Lon S Schneider, Geir Selbæk, Linda Teri, Naaheed Mukadam

Partners UCL, AS, ESRC, ARUK
Why the commission?

• Dementia is a most feared disorder
• Currently nearly 50 million live with it
• Expected to rise to 132 million by 2050
• Cost $800 billion rising to $2 trillion by 2050
• Important and relatively neglected area
• Long regarded as neither preventable nor treatable
• 24 international experts on dementia prevention, intervention and care
  – assessed evidence,
  – undertook new research,
  – generated evidence-based recommendations
Key areas

- Prevention
- Intervention
- Care
Now is the time to act

Acting *now* on what we already know can

transform the future for society and vastly improve living and dying

– for individuals with dementia
– and their families,
Life course analysis

- Prevention is better than cure
  - It’s never too early
  - It’s never too late

- This is first life-course analysis
  - Defined mid life as age 45-65
  - Later life as >65
  - First analysis to conclude social isolation and hearing

- Any future disease modifying treatment will not remove need for prevention
Potentially modifiable risk factors

- Lifestyle has already made a difference
- Incidence ↓ (/1000 older people) about 20%
  - US, UK, Sweden, Netherlands, Canada
- **BUT** more dementia as more older people
- Half the number of people if onset delayed 5 years
Population Attributable Fraction

- Fraction theoretically prevented by eliminating risk factor

Risks considered

- Used NIH and NICE factors
  - less childhood education, hearing loss, hypertension, obesity, smoking, depression, physical inactivity, social isolation, and diabetes.
Mechanism of prevention – increasing brain resilience

Cholerton et al 2016
Mechanism – reduced damage and inflammation

**Increasing brain cognitive reserve**
- Preserved hearing
- Cognitive training
- Education

**Reducing brain damage** (vascular, neurotoxic, or oxidative stress)
- Reducing obesity
- Stopping smoking
- Treating diabetes, hypertension, and high serum cholesterol

**Reducing brain inflammation**
- Non-steroidal anti-inflammatories
- Adhering to Mediterranean diet
- Exercise

*Commission on dementia*
Calculations

- PAF calculated by
  - Relative risk (how much risk is increased) using meta-analyses
  - Prevalence (how common the risk is in the population)
- Often people have more than one risk factor and risk may not take into account all risk factors
- Calculated communality—we found substantial overlap and weighted results for overlap
Systematic review of the relative risk of hearing loss for developing dementia

Outcome 9-17 years later

<table>
<thead>
<tr>
<th>Study</th>
<th>RR</th>
<th>95%-CI</th>
<th>W(random)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lin 2011</td>
<td>2.32</td>
<td>[1.32; 4.07]</td>
<td>27.3%</td>
</tr>
<tr>
<td>Gallacher 2012</td>
<td>2.67</td>
<td>[1.38; 5.17]</td>
<td>21.3%</td>
</tr>
<tr>
<td>Deal 2016</td>
<td>1.55</td>
<td>[1.10; 2.19]</td>
<td>51.4%</td>
</tr>
<tr>
<td>Random effects model</td>
<td>1.94</td>
<td>[1.38; 2.73]</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Heterogeneity: I-squared=29%, tau-squared=0.0278, p=0.2445*
Potentially modifiable risk factors 35%
Nine factors

- **Early life** - education

- **Mid life** - hypertension, Obesity, Hearing loss

- **Late life** - Smoking, depression, physical inactivity, social isolation, diabetes
Other potentially modifiable risk factors

• Diet - Mediterranean diet may be protective
• Visual impairment
• Sleep disorders
• Particulate air pollutants

• NB APOE ε4 gene accounts for 7% risk
Be ambitious about prevention

• Public health interventions might prevent dementia for many people for years
  – but will not delay or prevent all potentially modifiable dementia

• These lifestyle factors may
  – provide more years of healthy life
  – or prevent dementia ever occurring

• Modifying risk factors could translate into a large effect on the global burden of dementia,

• And on social and healthcare costs.
Treatment of cognitive symptoms

- ChEIs have small but clinically important effects on cognition and function at all severities of AD but have side effects
- Rivastigmine and donepezil reduce hallucinations and help cognition in DLB/PDD
- Memantine has a small effect on cognition in moderate to severe AD
- Group cognitive stimulation improves cognition in mild to moderate dementia but cost effectiveness is unclear
- Exercise has a small beneficial effect on function
Neuropsychiatric symptoms

- Psychosis – exclude delirium, if distressing trial low dose risperidone REVIEW
- Agitation – establish physical comfort, communication, activities, sensory stimulation, low dose risperidone for severe aggression, citalopram for agitation?
- Depression – social and psychological stimulation, antidepressants only if no response or past history
- Sleep – light therapy and sleep hygiene
- Apathy – interventions that increase activity or methylphenidate
The algorithms – trying to make it clear
Care and support

- Carer interventions should be individually tailored, multicomponent, focus on active choices
- Improve professionals’ knowledge regarding abuse
- Optimise end of life care
- Case management may help
- Change culture in care homes
- Evaluate new technologies
Now is the time to act

Effective dementia prevention, intervention, and care could transform the future for society and vastly improve living and dying

– for individuals with dementia
– and their families,

Acting now on what we already know can make this difference happen
10 Key headline messages

- The number of PWD is increasing globally
- Be ambitious about prevention
- Treat cognitive symptoms
- Individualise dementia care
- Care for family carers
- Plan for the future
- Protect PWD
- Manage neuropsychiatric symptoms
- Consider end of life
- Technology