The Value of Delaying Onset of Alzheimer’s Disease for Individuals, Caregivers, Society

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Innovations to Treat or Prevent Alzheimer’s Disease will be Expensive but Likely Valuable

SPENDING

New treatments will be expensive, but may reduce other health care costs and need for caregiving

HEALTH

Longer, better, healthier lives for persons with the disease and their caregivers
We Built the AD-FEM to Aid in Quantifying Burden and Impact of Treatment, Interventions, Policies

The Future Elderly Model for Understanding Alzheimer’s Disease (AD-FEM)

- Onset of Alzheimer’s disease
- Medical spending (by payer type)
- Caregiving hours $\times$ rate ($21.00$

Projected

Aggregate individual outcomes for population prevalence and costs
We Estimate the Value of Innovation in Treatment and Prevention of Alzheimer’s Disease

Two different scenarios

**Baseline**
Medical technology remains as it is today (treat symptoms of AD)

**Delay Onset**
Americans develop Alzheimer’s disease 5 years later than they would have without innovation
Value of Unpaid Caregiving is $31,000 and 40% of Combined Health and Caregiving Costs

SOURCE: FEM simulation results using data from HRS, ADAMS, MCBS

Per Capita Health Care Cost and Dollar Value of Unpaid Family Caregiving
Costs Are Higher for Non-White Caregivers than White Caregivers

**Per Capita ‘Caregiving Costs’ by Race/Ethnicity**

- **Hispanic**: $41,059
- **Black**: $34,703
- **White**: $27,111

**Per Capita Dollar Value of Unpaid Family Caregiving in 2019**

**SOURCE:** FEM simulation results using data from HRS, ADAMS, MCBS
Average Economic Value of Onset Delay to a 70 Year-Old Who Would Have Acquired AD is $511,000

Value calculated as $ value of additional AD-free life years ($100,000 per year) plus/minus changes in health care and caregiving costs

2.5 More Life Years, 4.8 More AD-free Life Years

Per capita health care spending over remaining life years

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<thead>
<tr>
<th>Onset delayed by 5 years</th>
<th>Age 70</th>
<th>Baseline</th>
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<td>169</td>
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5-year delay

- 30% People 70-74 who get AD
- 70% People 70-74 who never get AD
A 5-Year Delay Reduces Number of Americans 70+ Years Old with Alzheimer’s Disease by 41%

Number of Americans Age 70+ with AD, 2018-2050, Two Scenarios

Status quo
5-year delay

41% reduction
By 2050

4.1 million
2.2 million

SOURCE: FEM simulation results using data from HRS, ADAMS, MCBS
Aggregate Costs in 2050 are $1.5 Trillion and Innovation Saves $640 Billion

**Cost to Society from AD in 2050, Two Scenarios**

**Status quo**
- $1,558 B
- Health Care Costs: $1,197 B
- Caregiving Costs: $361 B

**Onset delayed by 5 years**
- $918 B
- Health Care Costs: $715 B
- Caregiving Costs: $203 B

$640 B in savings with onset delay

**SOURCE:** FEM simulation results using data from HRS, ADAMS, MCBS
No New Treatments but Policy Changes May Reduce Burden Now

N = Numbers with AD
D = Duration of AD
C = Cost of AD

Treatment reduces N X D

Burden = N x D x C

What policies reduce costs? Shift costs? For whom?
- Paying family caregivers may reduce burden but may also shift costs to others if financed through taxes;
- Reimbursement incentives to reduce post-acute institutional care reduce costs to Medicare but shift costs to families;
- Better coordination of dementia care may reduce hospitalizations, delay nursing home entry

Health care and caregivers’ time ($) but other ‘costs’ to caregivers: physical, mental health, productivity, wealth loss....
Using Dynamic Simulation Modeling to Evaluate Benefit of Policies, Interventions and Treatments

Intervention

Intermediate endpoint (cognition, function, caregiver health, well-being)

End intervention, enter AD-FEM

Change in functional status

Intensity of caregiving

Institutionalization

Health care costs & value of treatment for society

Change assumptions: take-up, discontinuation, heterogeneity of effects

Caregiver health