Linking Physiology with Dementia Symptoms

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Let’s Talk about Dementia
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Outline

- Dementia
- Clinical Diagnosis
- Neuropathological Diagnosis
- Research
Dementia

A change in:

• Cognition

• Behaviour
Dementia

- Interferes with the ability to function
- Decline from previous level
- Not due to delirium or psychiatric disorder
Dementia

Cognitive impairment is detected by:

• History

• Cognitive assessment
Impairment involves at least two domains

- Ability to acquire and remember
- Language functions
- Visuospatial abilities
- Reasoning and complex tasks
- Personality or behaviour
Ability to Acquire and Remember Memory
Language Functions

Paul Broca
1824-1880

Carl Wernicke
1848-1905
Language Functions
Writing

The cat sat on the mat.

The cat also ran.
Visuospatial Abilities
VISUOSPATIAL FUNCTION

FREE DRAWN HOUSE

FREE DRAWN CUBE
Reasoning and Complex Tasks

• Sequencing
• Organization
• Abstraction
• Planning
Personality and Behavior
The Diagnosis
SPECT Scan

N

AD
The diagnosis of dementia due to Alzheimer’s disease: Recommendations from the National Institute on Aging-Alzheimer’s Association workgroups on diagnostic guidelines for Alzheimer’s disease

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- **History**
- **Clinical Examination**
- **Neuropathological Examination**
Magnitude of the Problem
Rising Tide: The Impact of Dementia on Canadian Society

Executive Summary

A study commissioned by the Alzheimer Society

Now
Within a Generation

500,000
1,100,000
Canadians with Alzheimer's disease or a related dementia

$15 billion
$153 billion
Cost to Canadians for dementia care

231 million hours
756 million hours
The time Canadians will be providing in informal care

Alzheimer Society
Monetary Costs of Dementia in the United States

Michael D. Hurd, Ph.D., Paco Martorell, Ph.D., Adeline Delavande, Ph.D., Kathleen J. Mullen, Ph.D., and Kenneth M. Lang, M.D., Ph.D.

ABSTRACT

BACKGROUND
Dementia affects a large and growing number of older adults in the United States. The monetary costs attributable to dementia are likely to be similarly large and to continue to increase.

METHODS
In a subsample (89% persons) of the population in the Health and Retirement Study (HRS), a nationally representative longitudinal study of older adults, the diagnosis of dementia was determined with the use of a detailed in-home cognitive assessment that was 3 to 4 hours in duration and a review by an expert panel. We then imputed cognitive status in the full HRS sample (10,933 persons, 31,290 person-years) on the basis of measures of cognitive and functional status available for all HRS respondents, thereby identifying persons in the larger sample with a high probability of dementia. The market costs associated with care for persons with dementia were determined on the basis of self-reported out-of-pocket spending and the utilization of nursing home care; Medicare claims data were used to identify costs paid by Medicare. Hours of informal (unpaid) care were valued either as the cost of equivalent formal (paid) care or as the estimated wages forgone by informal caregivers.

RESULTS
The estimated prevalence of dementia among persons older than 70 years of age in the United States in 2010 was 14.7%. The yearly monetary cost per person that was attributable to dementia was either $56,290 (95% confidence interval [CI], $42,746 to $69,834) or $41,689 (95% CI, $31,017 to $52,360), depending on the method used to value informal care. These individual costs suggest that the total monetary cost of dementia in 2010 was between $157 billion and $215 billion. Medicare paid approximately $11 billion of this cost.

CONCLUSIONS
Dementia represents a substantial financial burden on society, one that is similar to the financial burden of heart disease and cancer. (Funded by the National Institute on Aging.)

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<table>
<thead>
<tr>
<th>Year</th>
<th>Autopsy Rate</th>
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<tbody>
<tr>
<td>1940’s</td>
<td>~50%</td>
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<tr>
<td>1995</td>
<td>&lt;7%</td>
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Lowry, 1995
Wood and Guha, 2001
Research
The Maritime Brain Tissue Bank

http://braintissuebank.dal.ca/