HOW WELL CAN MEDICARE RECORDS IDENTIFY SENIORS WITH COGNITIVE IMPAIRMENT NEEDING ASSISTANCE WITH FINANCIAL MANAGEMENT?

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University of Michigan
Retirement Research Consortium Annual Meeting
August 3, 2018

This research was supported by a grant from the U.S. Social Security Administration (SSA) as part of the Retirement Research Consortium (RRC). The findings and conclusions are solely those of the authors, and do not represent the views of SSA, any agency of the Federal Government, the NBER Retirement Research Center, the Center for Retirement Research at Boston College (CRR), or the University of Michigan Retirement Research Center (MRRC). The Health and Retirement Study is sponsored by the National Institute on Aging (grant number NIA U01AG009740) with additional co-funding from SSA and is conducted by the University of Michigan.
OUTLINE

• Why cognitive impairment is a big problem
• Use HRS for:
  • Some basic facts about lives of people with cognitive impairment
  • Evaluation of Medicare records as indicators of cognitive impairment
  • Correspondence of cognitive impairment and need for assistance with financial management
POPULATION AGING AND DEMENTIA

- Both AD pathology (buildup of proteins amyloid beta and tau; plaques and tangles) and vascular pathology (hardening, narrowing and occlusion of arteries) develop with age
- Incidence and prevalence of dementia rise sharply with age
- Currently, around 10% of the 50 million people 65 and older in the US have severe cognitive impairment
- Absent medical progress, population aging over the next 30 years will nearly triple the number of persons with dementia—in the US and around the world

POLICIES TO PROTECT FINANCIAL WELL-BEING

• Cognitive impairment increases vulnerability to fraud, bad financial decisions

• Vulnerability is far greater for wealth stocks (retirement accounts, home equity) than for annuities (DB pensions, Social Security)

• But Social Security is the main source of income at older ages, especially among those with impairment
SHARE OF SOCIAL SECURITY IN TOTAL HOUSEHOLD INCOME, BY COGNITIVE STATUS AND BY SELF-REPORTED DIFFICULTY MANAGING MONEY

HRS2014, persons 70 and older. Social Security income includes imputed amounts of Medicare premia; household income includes in addition imputed required minimum distributions from IRAs.
HRS AS A RESOURCE TO EVALUATE COGNITIVE IMPAIRMENT

• HRS has direct measures of cognitive abilities, and functional limitations due to cognitive problems

• HRS includes proxy interviews for persons too impaired to participate directly

• We have developed a method to assign a diagnostic status of normal, mild impairment, or severe impairment (dementia) using HRS cognition and proxy data, based on the detailed ADAMS substudy of dementia.
RESIDENTIAL LIVING ARRANGEMENTS, BY COGNITIVE STATUS

HRS2016 early release, persons 65 and older, author’s sampling weights
AVAILABILITY OF SPOUSE/PARTNER, BY COGNITIVE STATUS

HRS2016 early release, persons 65 and older, author’s sampling weights
LOCATION OF NEAREST CHILD, BY COGNITIVE STATUS

HRS2016 early release, persons 65 and older, author’s sampling weights
PROXIMITY OF ANY ASSISTANCE, BY COGNITIVE STATUS

HRS2016 early release, persons 65 and older, author’s sampling weights
NUMBER OF MEN AND WOMEN WITH SEVERE COGNITIVE IMPAIRMENT, BY PROXIMITY TO CARE (000s)

HRS2016 early release, persons 65 and older, author’s sampling weights
SUMMARY OF THE PROBLEM

• Cognitive impairment is a significant problem in the elderly population.

• It is strongly related to age, which means that absent medical advances it will become even more significant with population aging.
  • Improvement in modifiable risk factors cannot offset the demographic effect.

• Most seniors with severe cognitive impairment live in the community, most with local potential family support (see also Belbase, et al 2018).
SUPPOSE YOU WANTED TO FIND PEOPLE WITH COGNITIVE IMPAIRMENT,

HOW WOULD YOU DO IT?
WHY MEDICARE RECORDS?

- SSA and CMS have an established system of data exchange for eligibility, premium payments, etc.
- Medicare covers most older SSA beneficiaries
HOW CAN MEDICARE RECORDS IDENTIFY PERSONS WITH COGNITIVE IMPAIRMENT?

• Part A and B claims (health care providers seeking reimbursement under fee-for-service Medicare) must provide diagnostic codes for services provided

• Chronic Conditions Warehouse provides algorithms for identifying 27 common chronic conditions from Medicare claims

• Includes Alzheimer’s disease and a broader category of all dementias

• Part D prescription drug data
HRS AS A RESOURCE TO EVALUATE MEDICARE RECORDS

• HRS has direct measures of cognitive abilities, and functional limitations due to cognitive problems

• HRS has administrative linkage to Medicare records
MEDITCARE LINKAGE RATES IN HRS, BY AGE

HRS2016 early release, persons 65 and older, author’s sampling weights
HRS SAMPLE TO BE USED

• Because Medicare linkage consent is obtained only after eligibility for Medicare, coverage is necessarily spotty at ages under 70
• We will use persons 70 and older
• Weights are created to adjust for selectivity of Medicare linkage
  • Mostly age and race/ethnicity; no relationship to health or cognition
SAMPLE RESTRICTIONS DUE TO LIMITATIONS OF MEDICARE CLAIMS

• (Until recently), Medicare Advantage (Part C HMO) plans did not have to report diagnostic or other information about patient encounters
• Most research involving diagnosis limits the analysis to persons with no (or very limited) time in MA plans
• This is the “best case” approach for evaluating accuracy of Medicare diagnosis
PERCENT OF HRS MEDICARE LINKED PERSONS MEETING CRITERIA FOR FEE-FOR-SERVICE COVERAGE, BY AGE

N=6,676 HRS2016 early release persons 70 and older with Medicare linkage
SAMPLE RESTRICTIONS DUE TO LIMITATIONS OF MEDICARE CLAIMS

- FFS defined as 85% of months in FFS in previous five years
- Sampling weights created to adjust for this selection (as well as selection into Medicare linkage)
PERCENT WITH DEMENTIA, BY AGE; CMS FFS COMPARED TO HRS

N=3,599 HRS 2016 respondents aged 70 and older with linked CMS records and at least 85% of covered months in fee-for-service Medicare in 2011-15, author’s weights
## INDIVIDUAL-LEVEL COMPARISON OF CMS FFS DIAGNOSIS VS HRS CATEGORY

<table>
<thead>
<tr>
<th>HRS</th>
<th>CMS</th>
<th>No dementia</th>
<th>Dementia</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>No dementia</td>
<td>79.5</td>
<td>5.2</td>
<td>84.6</td>
<td></td>
</tr>
<tr>
<td>Dementia</td>
<td>6.7</td>
<td>8.7</td>
<td>15.4</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>86.1</td>
<td>13.9</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

N=3,599 HRS 2016 respondents aged 70 and older with linked CMS records and at least 85% of covered months in fee-for-service Medicare in 2011-15, author’s weights
LIMITATIONS OF FEE-FOR-SERVICE CMS DIAGNOSIS

- ~40% of Medicare beneficiaries in a 5-year window have significant time in Medicare Advantage (HMO) plans that don’t have diagnosis reporting
- ~37% of people with dementia don’t have a diagnosis even if they are in fee-for-service
- ~44% of people with a diagnosis in FFS don’t have dementia (yet)
CAN PART D (PRESCRIPTION DRUGS) HELP?

• Most Medicare Advantage plans combine Parts C and D
  • Prescriptions are reported to CMS
• A few drugs are prescribed only for dementia
• Limitations
  • Only about half of people with dementia take drugs for it
  • About one-third of FFS don’t participate in Part D (get drug coverage outside)
ADDING PART D

• Three-year window 2013-15
  • 84% of MA; 66% of FFS have Part D data
• Any use of dementia drugs
  • Donepezil (Aricept), galantamine (Razadyne), rivastigmine (Exelon), or memantine (Namenda)
  • 5.3% of people with Part D have use
• High specificity (98%); low sensitivity (31%)
  • If you take the drugs you have the condition
  • Not everyone with the condition takes the drugs
## COMBINING PARTS A, B, AND D

<table>
<thead>
<tr>
<th>Coverage Type</th>
<th>% of ben</th>
<th>Parts A/B</th>
<th>Part D</th>
<th>total</th>
<th>HRS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MA no PartD</strong></td>
<td>5.4%</td>
<td>2.2%</td>
<td>0.0%</td>
<td>2.2%</td>
<td>2.6%</td>
</tr>
<tr>
<td><strong>MA+PartD</strong></td>
<td>41.2%</td>
<td>7.0%</td>
<td>4.7%</td>
<td>9.3%</td>
<td>11.2%</td>
</tr>
<tr>
<td><strong>FFSonly</strong></td>
<td>18.4%</td>
<td>12.3%</td>
<td>0.0%</td>
<td>12.3%</td>
<td>9.1%</td>
</tr>
<tr>
<td><strong>FFS+PartD</strong></td>
<td>34.8%</td>
<td>15.2%</td>
<td>6.4%</td>
<td>15.9%</td>
<td>14.8%</td>
</tr>
<tr>
<td><strong>All</strong></td>
<td>100.0%</td>
<td>10.6%</td>
<td>4.2%</td>
<td>11.7%</td>
<td>11.6%</td>
</tr>
</tbody>
</table>

N=6,676 HRS 2016 Early Release respondents 70 and older with Medicare linkage, author’s weights
PERCENT WITH DEMENTIA, BY AGE; ALL CMS COMPARED TO HRS

N=6,767 HRS 2016 respondents aged 70 and older with linked CMS records
INDIVIDUAL-LEVEL CROSS-TABULATION OF ALL CMS DIAGNOSIS VS HRS CATEGORY

<table>
<thead>
<tr>
<th></th>
<th>CMS</th>
<th>No dementia</th>
<th>Dementia</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>No dementia</td>
<td>83.3</td>
<td>5.0</td>
<td>88.3</td>
<td></td>
</tr>
<tr>
<td>Dementia</td>
<td>5.2</td>
<td>6.6</td>
<td>11.8</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>88.4</td>
<td>11.6</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

N=6,676 HRS 2016 respondents aged 70 and older with linked CMS records, author’s weights.
USING PART D TO INCLUDE ALL BENEFICIARIES

• Allows much greater coverage of population
• Increases percent of impaired without a diagnosis from 37 to 44%
  • This may improve when Part C encounter data is available
• Lowers percent of diagnosed without impairment from 44 to 43%
## Are the HRS Measures of Impairment Really Better Than CMS Record? : Detailed Cognitive Measures from HCAP

N=2,360 HRS-HCAP 2016 respondents 70 and older with Medicare linkage. Unreleased HCAP data, author’s weights

<table>
<thead>
<tr>
<th>Impairment</th>
<th>MMSE</th>
<th>Jorm IQCODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>27.4</td>
<td>3.18</td>
</tr>
<tr>
<td>CMS only</td>
<td>25.3</td>
<td>3.49</td>
</tr>
<tr>
<td>HRS only</td>
<td>20.6</td>
<td>3.76</td>
</tr>
<tr>
<td>Both</td>
<td>17.2</td>
<td>4.40</td>
</tr>
</tbody>
</table>
DOES COGNITIVE IMPAIRMENT IMPLY A NEED FOR ASSISTANCE WITH FINANCIAL MANAGEMENT?
HRS ALSO HAS MEASURES OF DIFFICULTY MANAGING MONEY

• In HRS, “do you have any difficulty with managing your money—such as paying your bills and keeping track of expenses?”
• In HCAP, informants are asked multiple items about whether the subject has difficulty managing money.
• HRS also has a 3-item numeracy test

<table>
<thead>
<tr>
<th>Informant report</th>
<th>Respondent report</th>
<th>No diff (HRS)</th>
<th>Some diff (HRS)</th>
<th>All (HRS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No diff</td>
<td></td>
<td>77.3</td>
<td>2.3</td>
<td>79.6</td>
</tr>
<tr>
<td>1 mild</td>
<td></td>
<td>5.1</td>
<td>0.7</td>
<td>5.8</td>
</tr>
<tr>
<td>Some diff</td>
<td></td>
<td>6.3</td>
<td>2.0</td>
<td>8.2</td>
</tr>
<tr>
<td>Severe diff</td>
<td></td>
<td>2.2</td>
<td>4.2</td>
<td>6.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>90.9</td>
<td>9.1</td>
<td>100.0</td>
</tr>
</tbody>
</table>

N=3,178 HRS-HCAP 2016 respondents 65 and older. Unreleased HCAP data, author’s weights.
### CHARACTERISTICS OF PEOPLE BY DIAGNOSIS TYPE: REPORTED DIFFICULTY WITH FINANCIAL MANAGEMENT AND NUMERIC ABILITY

N=6,676 HRS 2016 Early Release respondents 70 and older with Medicare linkage.
N=2,360 HRS-HCAP 2016 informants. Unreleased HCAP data, author’s weights

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Zero correct on numeracy</th>
<th>Respondent</th>
<th>Informant</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>20.5%</td>
<td>3.3%</td>
<td>8.9%</td>
</tr>
<tr>
<td>CMS only</td>
<td>31.2%</td>
<td>13.9%</td>
<td>37.5%</td>
</tr>
<tr>
<td>HRS only</td>
<td>67.1%</td>
<td>49.6%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Both</td>
<td>61.7%</td>
<td>76.6%</td>
<td>89.2%</td>
</tr>
</tbody>
</table>
### NEED FOR FINANCIAL ASSISTANCE, COGNITIVE STATUS, AND MEDICARE DIAGNOSES-NUMBER OF PERSONS (000s)

<table>
<thead>
<tr>
<th>Need status</th>
<th>CMS diagnosis</th>
<th></th>
<th></th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Need financial assistance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1,511</td>
<td></td>
<td>1,067</td>
<td>2,578</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>28,087</td>
<td></td>
<td>2,785</td>
<td>30,872</td>
</tr>
<tr>
<td><strong>Don't need assistance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severely impaired</td>
<td>757</td>
<td></td>
<td>437</td>
<td>1,194</td>
</tr>
<tr>
<td>Mildly impaired</td>
<td>5,610</td>
<td></td>
<td>634</td>
<td>6,244</td>
</tr>
<tr>
<td>No impairment</td>
<td>20,208</td>
<td></td>
<td>646</td>
<td>20,854</td>
</tr>
</tbody>
</table>

N=6,676 HRS 2016 Early Release respondents 70 and older with Medicare linkage.
NEED TO RESPECT AUTONOMY

• Medicare records are not very good for identifying cognitive impairment and worse for finding who needs assistance with financial management

• Outside of institutional settings, Medicare records identify fewer than half the people needing assistance with financial management

• And point to a substantial number of people who say they do not

• Suggests we need policies to offer help, not to impose requirements
THANK YOU!

http://hrsonline.isr.umich.edu/