While these hypotheses about evolution may be impossible to prove, they may serve as sources of ideas for future experiments.

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4. Fain JN. Release of interleukins and other inflammatory cytokines by human adipose tissue is enhanced in obesity and primarily due to the nonfat cells. Vitam Horm. 2006;74:443-477.

RESEARCH LETTER


To the Editor: High drug costs cause some elderly or disabled patients to take less medication than prescribed or forgo basic needs to pay for medicines.1-3 The 2006 Medicare Part D drug benefit was intended to increase economic access to medications.4 Data from 2006 indicated modest nationwide decreases in cost-related medication nonadherence (CRN) and forgoing basic needs following Part D implementation, but no decline in high rates of CRN among the sickest beneficiaries.5 We analyzed more recent data to determine whether the reductions remained stable in 2007.

Methods. The Medicare Current Beneficiary Survey6 (MCBS) is conducted by the Centers for Medicare & Medicaid Services to inform and evaluate health policies. In-person interviews collect data on health and medical care from a nationally representative, rotating panel of Medicare enrollees. All community-dwelling respondents from 2004 through 2007 were included (n=14 500 [2004], 14 701 [2005], 14 732 [2006], and 14 804 [2007]; 29 023 unique respondents).

The full MCBS interview includes questions regarding CRN,2,5 defined as ever (in the current year) skipping or taking smaller doses to make a medicine last longer or not filling a prescription because it was too expensive. Self-reports of ever spending less on food, heat, or other basic needs to afford medicine were also examined.

Prevalence rates of CRN and forgoing basic needs from 2004 to 2007 were calculated for the overall population and in 5 subgroups: elderly (aged ≥65 years) vs nonelderly disabled (aged <65 years) respondents, each group categorized as 0 to 2 vs 3 or more morbidities. Odds ratios (ORs) were estimated for 2007 vs 2005 and 2007 vs 2006 using survey-weighted logistic regression models controlling for defined covariates (age group, sex, race, income, general health status, survey participation) and number of morbidities (0-2 vs 3 or more).6 All analyses used Stata version 10 (StataCorp, College Station, Texas), 2-sided tests, and statistical significance of P < .05. Respondents provided oral informed consent. The study was approved by the human subjects committee of Harvard Pilgrim Health Care.

Results. Unadjusted prevalence rates and the adjusted ORs estimating changes in CRN and forgoing basic needs are shown in the Table. Prevalences were consistently higher for nonelderly disabled vs elderly beneficiaries and for sicker vs healthier beneficiaries per year during this period.6 Morbidity categories were described previously.5

Table. Prevalence Rates From 2004 to 2007 and Changes in Cost-Related Nonadherence and Forgoing Basic Needs Among Community-Dwelling Medicare Beneficiaries

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Observations, No.</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>Adjusted OR (95% CI)</th>
<th>P Value</th>
<th>Adjusted OR (95% CI)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall population</td>
<td>58 647</td>
<td>15.2</td>
<td>14.1</td>
<td>11.5</td>
<td>10.7</td>
<td>0.91 (0.84-0.99)</td>
<td>.02</td>
<td>0.71 (0.65-0.79)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Elderly, 0-2 morbidities</td>
<td>23 943</td>
<td>10.6</td>
<td>9.9</td>
<td>6.9</td>
<td>6.4</td>
<td>0.94 (0.80-1.10)</td>
<td>.41</td>
<td>0.63 (0.52-0.75)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Elderly, ≥3 morbidities</td>
<td>23 814</td>
<td>14.8</td>
<td>12.9</td>
<td>10.4</td>
<td>9.9</td>
<td>0.96 (0.85-1.08)</td>
<td>.49</td>
<td>0.76 (0.65-0.88)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Nonelderly disabled, 0-2 morbidities</td>
<td>5301</td>
<td>21.5</td>
<td>24.5</td>
<td>19.3</td>
<td>19.4</td>
<td>0.98 (0.74-1.30)</td>
<td>.91</td>
<td>0.74 (0.57-0.95)</td>
<td>.02</td>
</tr>
<tr>
<td>Nonelderly disabled, ≥3 morbidities</td>
<td>4723</td>
<td>35.4</td>
<td>33.4</td>
<td>34.0</td>
<td>28.0</td>
<td>0.74 (0.60-0.92)</td>
<td>.01</td>
<td>0.77 (0.60-0.96)</td>
<td>.046</td>
</tr>
</tbody>
</table>

Abbreviations: CI, confidence interval; OR, odds ratio.

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beneficiaries. Between 2006 and 2007, there was a very small but statistically significant decrease in CRN for the overall population; in the 4 subgroups, statistically significant decreases in CRN and forgoing basic needs occurred only for disabled beneficiaries with 3 or more morbidities. Compared with 2005, prior to Part D, the prevalences of CRN and forgoing basic needs in 2007 declined significantly for the overall population and for all 4 subgroups (ORs between 0.58 and 0.77; P values <.05).

Comment. Changes in CRN represent a crucial intermediate step between expanded economic access and potential health improvements. Previously, modest statistically significant reductions were found in CRN and forgoing basic needs for Medicare beneficiaries following implementation of Part D in 2006, controlling for historical changes. More recent data confirm that these reductions were sustained in 2007. The very small 2006 to 2007 reduction in CRN for the overall population was similar to that estimated between 2004 and 2005, prior to Part D. Study limitations include lack of utilization data, likely underestimation of CRN, and the possibility that contemporaneous phenomena could explain the changes observed.

Subgroup analyses suggest that sicker disabled beneficiaries experienced lagged improvements, apparent only in 2007; such patients may require more time to adapt to administrative changes and realize benefits. Nevertheless, post-Part D reductions in CRN were small in comparison with the persistent disparities in CRN associated with disability and multiple chronic conditions.

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Study concept and design: Madden, Ross-Degnan, Briesacher, Soumerai.

Acquisition of data: Madden, Soumerai.

Analysis and interpretation of data: Madden, Graves, Ross-Degnan, Briesacher, Soumerai.

Drafting of the manuscript: Madden.

Critical revision of the manuscript for important intellectual content: Madden, Graves, Ross-Degnan, Briesacher, Soumerai.

Statistical analysis: Madden, Graves, Ross-Degnan, Briesacher, Soumerai.

Obtained funding: Madden, Ross-Degnan, Soumerai.

Administrative, technical, or material support: Madden, Graves.

Study supervision: Madden, Soumerai.

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