Letters

RESEARCH LETTER

Financial Burden of Employer-Sponsored High-Deductible Health Plans for Low-Income Adults With Chronic Health Conditions

High-deductible health plans have increased significantly over the last decade. Adults in low-income families or with chronic health conditions are more likely to face high out-of-pocket spending on health care as a percentage of family income when they are enrolled in high-deductible health plans, compared with adults in higher-income families or healthier adults. The extent of the financial burden at the national level of high-deductible health plans among adults who are low income and have chronic health conditions is not well-known. This study examines the prevalence of high out-of-pocket health care spending across health plans with different deductible levels among adults in low-income families who have chronic conditions.

Methods | We used 2011-2015 Medical Expenditure Panel Survey Household Component data on adults 19 to 64 years of age enrolled in employer-sponsored insurance plans throughout the year. The main sample focuses on low-income adults (family income <250% of the federal poverty level). We identified 20 chronic conditions based on the classification method described in the Clinical Classification of Diseases, Ninth Revision, codes and then translated into the web-based version of the National Bureau of Economic Research TAXSIM model.

Table 1. Family Out-of-Pocket Health Care Burden Among Adults 19 to 64 Years of Age With Employer-Sponsored Insurance, 2011-2015a,b

<table>
<thead>
<tr>
<th>Population Subgroup</th>
<th>High-Deductible Plan</th>
<th>Low-Deductible Plan</th>
<th>No-Deductible Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Individuals (n = 3,3619)</td>
<td>Disposable family income, mean (95% CI), 2015 $</td>
<td>76,046 (73,639-78,452)</td>
<td>72,418 (70,830-74,006)</td>
</tr>
<tr>
<td>Family out-of-pocket expenditure, mean (95% CI), 2015 $</td>
<td>Health care services</td>
<td>19,864 (18,566-21,161)</td>
<td>14,815 (14,141-15,514)</td>
</tr>
<tr>
<td></td>
<td>Health insurance premiums</td>
<td>35,373 (33,866-36,899)</td>
<td>32,173 (31,110-33,232)</td>
</tr>
<tr>
<td>Adults with total family out-of-pocket health care burden &gt;20% of disposable income, mean (95% CI), %</td>
<td>7.3 (6.4-8.3)</td>
<td>5.9 (5.2-6.6)</td>
<td>4.3 (3.7-4.9)</td>
</tr>
<tr>
<td>Among Low-Income Enrollees (family income &lt;250% of FPL) With No Chronic Conditions or Only 1 Chronic Condition (n = 5,888)</td>
<td>Disposable family income, mean (95% CI), 2015 $</td>
<td>34,452 (32,985-35,920)</td>
<td>32,386 (31,467-33,305)</td>
</tr>
<tr>
<td>Family out-of-pocket expenditure, mean (95% CI), 2015 $</td>
<td>Health care services</td>
<td>13,116 (11,451-14,871)</td>
<td>10,846 (9,505-12,175)</td>
</tr>
<tr>
<td></td>
<td>Health insurance premiums</td>
<td>31,253 (28,583-33,933)</td>
<td>28,273 (25,838-30,853)</td>
</tr>
<tr>
<td>Adults with total family out-of-pocket health care burden &gt;20% of disposable income, mean (95% CI), %</td>
<td>20.6 (16.6-24.6)</td>
<td>17.5 (15.0-20.3)</td>
<td>11.0 (8.5-13.1)</td>
</tr>
<tr>
<td>Among Low-Income Enrollees (family income &lt;250% of FPL) With ≥2 Chronic Conditions (n = 1,099)</td>
<td>Disposable family income, mean (95% CI), 2015 $</td>
<td>27,561 (25,142-29,980)</td>
<td>27,454 (25,806-29,102)</td>
</tr>
<tr>
<td>Family out-of-pocket expenditure, mean (95% CI), 2015 $</td>
<td>Health care services</td>
<td>29,673 (27,067-38,585)</td>
<td>20,973 (16,756-25,250)</td>
</tr>
<tr>
<td></td>
<td>Health insurance premiums</td>
<td>29,803 (23,070-36,354)</td>
<td>31,313 (27,023-35,733)</td>
</tr>
<tr>
<td>Adults with total family out-of-pocket health care burden &gt;20% of disposable income, mean (95% CI), %</td>
<td>46.9 (37.5-56.3)</td>
<td>36.9 (31.3-42.5)</td>
<td>22.0 (14.9-29.0)</td>
</tr>
</tbody>
</table>

Abbreviation: FPL, federal poverty level.

a The sample includes adults 19 to 64 years of age who were enrolled in employer-sponsored health insurance plans throughout the year and did not have any other type of private or public insurance. The estimates are population weighted, and standard errors are adjusted for the complex design of the Medical Expenditure Panel Survey. All dollar values were adjusted to 2015 dollars using the Consumer Price Index for All Urban Consumers.

b Based on household-reported conditions that were coded into International Classification of Diseases, Ninth Revision, codes and then translated into Clinical Classification Software codes, we identified the following 20 chronic conditions: hypertension, congestive heart failure, coronary artery disease, cardiac arrhythmias, hyperlipidemia, stroke, arthritis, asthma, autism spectrum disorder, cancer, chronic kidney disease, chronic obstructive pulmonary disease, dementia (including Alzheimer disease and other senile dementias), depression, diabetes, hepatitis, HIV, osteoporosis, schizophrenia, and substance abuse disorders (drug and alcohol). This list of chronic conditions developed by a working group of the Office of the Assistant Secretary for Health in the US Department of Health and Human Services. We examined only treated conditions (ie, conditions for which individuals reported receiving any medical care).

c Base group.

d Family is defined as Health Insurance Eligibility Units, which include adults plus family members, including children, who would typically be eligible for coverage under the adults’ private health insurance family plans. Family disposable income is defined as after-tax family income. (We adjusted family disposable income for income taxes and Social Security and Medicare taxes using the web-based version of the National Bureau of Economic Research TAXSIM model.)

e Statistically significantly different, based on 2-sample t tests, from the no-deductible health plan enrollees at the 5% level.

f Statistically significantly different, based on 2-sample t tests, from the no-deductible health plan enrollees at the 0.1% level.

g Statistically significantly different, based on 2-sample t tests, from the no-deductible health plan enrollees at the 5% level.

h Statistically significantly different, based on 2-sample t tests, from the no-deductible health plan enrollees at the 1% level.

i Total family out-of-pocket health care burden = (family out-of-pocket health care services expenditure + family out-of-pocket health insurance premium)/family disposable income.
Abbreviation: FPL, federal poverty level.

d Family is defined as Health Insurance Eligibility Units, which include adults plus base group.
b We only examined treated conditions (ie, conditions for which individuals with employer-sponsored insurance and with selected chronic conditions, 2011-2015).

Table 2. Family Out-of-Pocket Health Care Burden Among Low-Income (Family Income <250% of FPL) Adults 19 to 64 Years of Age With Employer-Sponsored Insurance and With Selected Chronic Conditions, 2011-2015

<table>
<thead>
<tr>
<th>Population Subgroup</th>
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<th>Low-Deductible Plan</th>
<th>No-Deductible Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean disposable family income, mean (95% CI), 2015 $</td>
<td>30 774 (26 750-34 798)</td>
<td>28 041 (26 212-29 869)</td>
<td>30 980 (28 099-33 861)</td>
</tr>
<tr>
<td>Mean disposable family income, mean (95% CI), 2015 $</td>
<td>28 641 (26 450-30 833)</td>
<td>28 121 (26 614-29 628)</td>
<td>30 624 (28 513-32 734)</td>
</tr>
<tr>
<td>Health care services</td>
<td>3041 (1828-4255)*</td>
<td>2386 (1579-3194)*</td>
<td>1482 (1153-1810)</td>
</tr>
<tr>
<td>Health insurance premiums</td>
<td>3129 (2153-4105)</td>
<td>2716 (2211-3222)</td>
<td>2774 (2156-3391)</td>
</tr>
<tr>
<td>Adults with total family out-of-pocket health care burden &gt;20% of disposable income, mean (95% CI), %</td>
<td>42.4 (27.8-57.1)*</td>
<td>31.9 (24.5-39.3)*</td>
<td>19.1 (10.9-27.4)</td>
</tr>
</tbody>
</table>

Abbreviation: FPL, federal poverty level.

* The sample includes adults 19 to 64 years of age who were enrolled in employer-sponsored health insurance plans throughout the year and did not have any other type of private or public insurance. The estimates are population weighted, and standard errors are adjusted for the complex design of the Medical Expenditure Panel Survey. All dollar values were adjusted to 2015 dollars using the Consumer Price Index for All Urban Consumers.

i We only examined treated conditions (ie, conditions for which individuals reported receiving any medical care).

j Base group.

k Family is defined as Health Insurance Eligibility Units, which include adults plus family members, including children, who would typically be eligible for coverage under the adults’ private health insurance family plans. Family disposable income is defined as after-tax family income. (We adjusted family disposable income for income taxes and Social Security and Medicare taxes using the web-based version of the National Bureau of Economic Research TAXSIM model.)

l Statistically significantly different, based on 2-sample t tests, from the no-deductible health plan enrollees at the 5% level.

m Total Family Out-of-Pocket Health Care Burden = (family out-of-pocket health care services expenditure + family out-of-pocket health insurance premium)/family disposable income.

n Statistically significantly different, based on 2-sample t tests, from the no-deductible health plan enrollees at the 1% level.

o Statistically significantly different, based on 2-sample t tests, from the no-deductible health plan enrollees at the 0.1% level.

Results | Among all adults (n = 33 619), the prevalence of a 20% burden was 7.3% (95% CI, 6.4%-8.3%; P < .001) for those enrolled in a high-deductible health plan vs 5.9% (95% CI, 5.2%-6.6%; P = .001) for those enrolled in a low-deductible health plan and 4.3% (95% CI, 3.7%-4.9%) for those enrolled in a no-deductible health plan (Table 1). Among low-income adults with no chronic condition or only 1 chronic condition, the prevalence of 20% burden among those enrolled in a high-deductible plan was 20.6% (95% CI, 16.6%-24.6%; P < .001) and the prevalence of 20% burden among those enrolled in a low-deductible plan was 17.5% (95% CI, 15.0%-20.0%; P < .001), compared with 11.0% (95% CI, 8.5%-13.4%) among those enrolled in a no-deductible plan. The prevalence of 20% burden was higher among low-income adults with 2 or more chronic conditions, at 46.9% (95% CI, 37.5%-56.3%; P < .001) for those enrolled in a high-deductible plan and 36.9% (95% CI, 31.3%-42.5%; P = .001) for those enrolled in a low-deductible plan, compared with 22.0% (95% CI, 14.9%-29.0%) among those enrolled in a no-deductible plan. The differences in burden across deductible levels remained similar when sociodemographic factors and self-reported health status were controlled for. Among low-income adults, those with high-deductible or low-deductible plans were more likely to face 20% burdens than those with no-deductible plans among individuals with diabetes (42.4% [95% CI, 27.8%-57.1%]; P = .005; and 31.9% [95% CI, 24.5%-39.3%]; P = .03; vs 19.1% [95% CI, 10.9%-27.4%]) and those with hypertension (38.2% [95% CI, 29.6%-46.8%] and 31.5% [95% CI, 26.4%-36.6%] vs 18.0% [95% CI, 12.6%-23.4%]; P < .001) (Table 2).

Discussion | Among low-income adults enrolled in employer-sponsored insurance who had multiple chronic conditions and were less likely to be enrolled in high-deductible plans, the prevalence of a 20% burden was 22.0% (95% CI, 14.9%-29.0%) vs 36.9% (95% CI, 31.3%-42.5%) for those enrolled in low-deductible plans and 46.9% (95% CI, 37.5%-56.3%) for those enrolled in no-deductible plans. The differences in burden across deductible levels remained similar when sociodemographic factors and self-reported health status were controlled for. Among low-income adults, those with high-deductible or low-deductible plans were more likely to face 20% burdens than those with no-deductible plans among individuals with diabetes (42.4% [95% CI, 27.8%-57.1%]; P = .005; and 31.9% [95% CI, 24.5%-39.3%]; P = .03; vs 19.1% [95% CI, 10.9%-27.4%]) and those with hypertension (38.2% [95% CI, 29.6%-46.8%] and 31.5% [95% CI, 26.4%-36.6%] vs 18.0% [95% CI, 12.6%-23.4%]; P < .001) (Table 2).
were enrolled in high-deductible health plans, almost half (46.9%) had a family out-of-pocket health care burden exceeding 20% of family disposable income. Although only 22% of the overall low-income population had full-year employer-sponsored insurance, their financial burden is of concern because, owing to the fact that they have offers of employer-sponsored insurance, they are likely not eligible for the premium and cost-sharing subsidies in the health care Marketplace that other adults in this income group can access. Moreover, they may not be eligible for Medicaid depending on their income and whether their state expanded Medicaid. For clinicians and patients, high out-of-pocket costs for low-income adults with employer-sponsored insurance may create a barrier to achieving effective treatment to manage multiple chronic conditions.

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Concept and design: Both authors.

Acquisition, analysis, or interpretation of data: Both authors.

Drafting of the manuscript: Abdus.

Critical revision of the manuscript for important intellectual content: Both authors.

Statistical analysis: Abdus.

Obtained funding: Abdus.

Administrative, technical, or material support: Abdus.

Supervision: Abdus.

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Trends in Emergency Department Visits and Admission Rates Among US Acute Care Hospitals

Hospital-based care accounts for approximately one-third of US health expenditures, and increasingly, most hospitalizations originate from emergency departments (ED). Value-based payment programs have focused on decreasing avoidable ED visits and hospitalizations. We describe trends in ED visits and admission rates among US acute care hospitals from January 1, 2006, through December 31, 2014.

Methods | We performed a retrospective observational study of the National Emergency Department Survey, using sampling weights and strata to generate national estimates. We examined patient-level characteristics, including age, sex, insurance, median income of patient zip code, and Elixhauser comorbidity score. Admission rate from the ED was defined as the number of admissions originating in the ED divided by the number of ED visits. We excluded visits of those 18 years or younger; those who left without being seen or against medical advice, transferred, or died on arrival in the ED; and those missing disposition. Data were analyzed from January 1, 2006, through December 31, 2014. Use of this publicly available dataset does not constitute human subjects research, and therefore did not require review by our institution's review board.

Results | From 2006 through 2014, annual ED visits increased by 18.4%, from 89.6 to 106.0 million, and total ED hospitalizations increased by 6.8%, from 17.4 to 18.6 million. During the same period, ED admission rates fell from 19.4% to 17.5%, a 9.8% relative decline.

The proportion of ED visits by patients older than 50 years, with Medicare or Medicaid insurance, with 1 or more comorbid Elixhauser conditions, and from lower income areas increased from 2006 to 2014 (Figure 1). Patients of increasing age experienced larger reductions in ED admission rates, and ED admission rates decreased the most among Medicare-reimbursed ED visits relative to other insurance types (Figure 2). Patients with the most comorbid illness experienced the largest magnitude decrease in admission rates from the ED—by 15% among patients with at least 3 comorbid Elixhauser conditions, and by 11% among patients with 1 to 2 comorbid Elixhauser conditions.

Discussion | From 2006 to 2014, ED visits increased 18.4%, and ED admission rates decreased 9.8%. The increase in ED visits, outpacing population growth, underscores an unabating demand for acute, unscheduled care. Declining ED admission rates represent a significant reduction in hospital-based care that has received little attention to date.

Our findings are unlikely to be explained by lower acuity ED visits, given the increase in age and comorbidities. In fact, ED visits with the highest burden of comorbid illness experienced the largest reductions in ED admission rates. Decreasing ED admissions may be attributed to a combination of clinical factors, such as outpatient clinical pathways (eg, diagnostic protocols for chest pain), and policy factors, such as the 2010 Recovery Audit Contractor program and 2014 Two-Midnight Rule, which increased...