RESEARCH LETTER

Emergency Department Visits by Children, Adolescents, and Young Adults in California by Insurance Status, 2005-2010

Concerns regarding cost, continuity of care, and crowding continue to bring emergency department (ED) use under nationwide scrutiny. Although many hope that increasing insurance coverage through the Affordable Care Act will lead to decreases in ED visits, recent evidence in adults suggests that increasing access to specifically Medicaid insurance may actually be associated with increased ED use. This ongoing discussion regarding the association between insurance coverage and ED use, however, has focused primarily on adults.

Most prior research on trends in ED use in children, adolescents, and young adults predates the recent economic downturn and associated changes in insurance coverage, or analyzes reported use per person rather than actual visit rates.

Methods | We conducted a retrospective analysis of all ED visits by youths (children, adolescents, and young adults aged ≤18 years) to nonfederal general, acute care hospitals across California between 2005 and 2010, using nonpublic versions of the California Office of Statewide Health Planning and Development’s Emergency Discharge and Patient Discharge data sets. We excluded records with missing sex (0.05%), scheduled admissions (17.4%), admissions not from the hospital’s ED (0.5%), and visits covered by Medicare (0.5%). This study was approved by the University of California, San Francisco, Committee on Human Research.

We grouped ED visits into 4 categories: Medicaid, private insurance, uninsured, and other. To construct rates of ED visits per 1000 youths for insurance groups, we used data from the State Health Access Data Assistance Center, derived from the US Census Bureau’s current population survey.

Using Stata version 11 (StataCorp), we compared the distribution of visits by payer across years using the χ² test, and tested for the significance of trends in visit rates by payer using an ordinary least-squares regression allowing for payer-specific linear trends in rates. Statistical significance was assessed using 2-sided tests with a critical value of .05.

Results | The number of visits to California EDs by youths increased from 2.5 million in 2005 to 2.8 million in 2010, a change of 11% (Table). Children covered by Medicaid accounted for 44% of all ED visits. The distribution of visits across payer groups changed significantly between 2005 and 2010, with Medicaid accounting for a larger share over time (P < .001).

After adjusting for population (given a 3% decrease in the pediatric population during the study period) to obtain ED visit rates, the rate of ED use increased significantly across all insurance groups (P < .001 in all cases), with a notable increase during 2009 (Figure).

Uninsured youths living in California exhibited the fastest increase in ED visit rates (from 202 to 248 visits/1000; 22.7%) followed by those privately insured (from 176 to 202 visits/1000; 15.0%). The rate of ED use among youths covered by Medicaid exhibited the slowest growth, with an increase from 341 to 366 visits per 1000 (7.4%), but remained the highest in absolute terms.

Table. Characteristics of California Emergency Department (ED) Visits by Children, Adolescents, and Young Adults (≤18 Years), 2005-2010

<table>
<thead>
<tr>
<th>Insurance status</th>
<th>2005 (n = 2523)</th>
<th>2006 (n = 2483)</th>
<th>2007 (n = 2583)</th>
<th>2008 (n = 2626)</th>
<th>2009 (n = 3037)</th>
<th>2010 (n = 2802)</th>
<th>Total (n = 16 055)*</th>
<th>Change in ED Visits From 2005-2010, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>1074 (43)</td>
<td>1034 (42)</td>
<td>1059 (41)</td>
<td>1077 (41)</td>
<td>1190 (47)</td>
<td>1139 (41)</td>
<td>6505 (41)</td>
<td>−0.3</td>
</tr>
<tr>
<td>Medicaid</td>
<td>1020 (40)</td>
<td>1014 (41)</td>
<td>1089 (42)</td>
<td>1160 (44)</td>
<td>1429 (47)</td>
<td>1359 (48)</td>
<td>7071 (44)</td>
<td>33.2</td>
</tr>
<tr>
<td>Uninsured</td>
<td>276 (11)</td>
<td>288 (12)</td>
<td>298 (12)</td>
<td>277 (11)</td>
<td>296 (10)</td>
<td>263 (9)</td>
<td>1698 (11)</td>
<td>−4.7</td>
</tr>
<tr>
<td>Other</td>
<td>153 (6)</td>
<td>147 (6)</td>
<td>138 (5)</td>
<td>111 (4)</td>
<td>122 (4)</td>
<td>110 (4)</td>
<td>780 (5)</td>
<td>−28.4</td>
</tr>
<tr>
<td>Age group, y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>0-5</td>
<td>1264 (50)</td>
<td>1241 (50)</td>
<td>1315 (51)</td>
<td>1335 (51)</td>
<td>1524 (50)</td>
<td>1423 (51)</td>
<td>8103 (50)</td>
<td>12.6</td>
</tr>
<tr>
<td>6-18</td>
<td>1259 (50)</td>
<td>1241 (50)</td>
<td>1268 (49)</td>
<td>1291 (49)</td>
<td>1513 (50)</td>
<td>1379 (49)</td>
<td>7952 (50)</td>
<td>9.6</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1354 (54)</td>
<td>1333 (54)</td>
<td>1389 (54)</td>
<td>1404 (53)</td>
<td>1615 (53)</td>
<td>1489 (53)</td>
<td>8585 (53)</td>
<td>10.0</td>
</tr>
<tr>
<td>Female</td>
<td>1169 (46)</td>
<td>1150 (46)</td>
<td>1195 (46)</td>
<td>1222 (47)</td>
<td>1422 (47)</td>
<td>1313 (47)</td>
<td>7470 (47)</td>
<td>12.3</td>
</tr>
<tr>
<td>Change from previous y</td>
<td>NA</td>
<td>−40 (−1.6)</td>
<td>101 (4.1)</td>
<td>43 (1.7)</td>
<td>411 (15.7)</td>
<td>−235 (−7.7)</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Abbreviation: NA indicates data not applicable.

* The distribution of ED visits by insurance status in each year 2006-2010 is different from the distribution of visits in 2005 (P < .001 in all cases; pairwise tests). The χ² tests also indicate that the distributions are jointly significantly different across years (P < .001). The total change in ED visits from 2005-2010 was 11.1%.
Discussion | In contrast to older literature documenting decreases or no change in children’s rates of ED use in the 1990s and the early 2000s,4,5 we found that rates of ED use by youths have increased across all payer categories. Even though Medicaid patients have the fastest-growing rates of ED use among adults,3 the largest increases in ED visit rates for youths are not among Medicaid beneficiaries but rather among those individuals who are privately insured or uninsured. Shifts in insurance (from private and no insurance to Medicaid) during the recession (December 2007–June 2009) likely influenced the trends during this time.

These findings suggest that the drivers for ED use differ significantly between youths and adults and that policies regarding insurance expansion may also have varying effects. The divergence from older trends in ED use among youths may also reflect the increasingly central role of the ED in the US health care system, especially during a period of severe economic recession, and could signal an overall deterioration in access to primary care across payer groups, or that even privately insured youths with greater access to primary care physicians are being directed to the ED for care.

Our findings are limited by our use of administrative data, which are self-reported by hospitals to the state and may not be generalizable outside California. In addition, we evaluated unique visits rather than unique patients.

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Author Contributions: Drs Hsia and Baker had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

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Acquisition, analysis, or interpretation of data: Hsia, Nath.

Drafting of the manuscript: Hsia, Nath.

Critical revision of the manuscript for important intellectual content: Nath, Baker.

Statistical analysis: All authors.

Obtained funding: Hsia.

Administrative, technical, or material support: Hsia, Nath.

Conflict of Interest Disclosures: The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.

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COMMENT & RESPONSE

Benefits and Risks Associated With Thrombolysis for Pulmonary Embolism

To the Editor Dr Chatterjee and colleagues1 performed a meta-analysis comparing thrombolysis with anticoagulation for pulmonary embolism using the Peto method to determine pooled odds ratios (ORs) because of low expected event rates among included trials. We suggest that this method is flawed for several reasons.

First, although simulation suggests that the Peto method may outperform standard Mantel-Haenszel OR estimates when event rates are less than 1%,2 the overall risk of mortality after pulmonary embolism is higher (approximately 3%). The Peto method may produce biased estimates with higher event rates.2 Second, the Peto and other methods ignore trials with zero events, creating another source of bias away from no effect.3 Third, the Peto fixed-effects model assumes that included studies measured a single underlying effect. It seems unlikely that thrombolytic trials spanning more than 30 years and using different selection criteria and outcome measures would generate 1 treatment effect.