Antidepressant Use Among Commercially Insured Adults from 2009 to 2016
Aaron Bloschichak, MPH, Anna Milewski, BA, William C. Johnson, PhD

Background

Motivation

• Previous survey research suggests that antidepressant use has been increasing over the last two decades
• A 2017 NCHS Data Brief showed antidepressant use increased from 7.7% to 12.7% from 1999 to 2014

Research Question:

• Do we observe an increase in antidepressant use?
• If we do, how has antidepressant use increased?

Results

• Antidepressant use increased 58 days’ supplied from 165 days in 2009 to 223 days in 2016.

• Five active ingredients accounted for 93 percent of the increase in antidepressant use from 2009 to 2016
• SSRI and Antidepressants, Miscellaneous accounted for the majority of the increase in days’ supplied

• Out of the Three Most Common AHFS Classes, Two Showed Substantial Increase in Use Over Time

• Across age groups, men and women had similar increases in antidepressant use

• Female and male members had similar increases in days’ supplied per member

Methods

Data Source:

• Claims data from the Health Care Cost Institute commercial claims data base from 2009 to 2016

Sample:

• Individuals, ages 0 to 64 with a full year of employer coverage from 2009 to 2016 diagnosed with a mood disorder using clinical classification software designation (level 2 category of 5.8)
• Repeated cross section of between 550,000 to 710,000 enrollees in each year from 2009 to 2016

AHFS Classes

• SSRI: selective serotonin reuptake inhibitors; prevent the reabsorption of serotonin by neurons in the brain
• SNRI: serotonin and norepinephrine reuptake inhibitors; prevent reabsorption of serotonin and norepinephrine by neurons in the brain
• Antidepressants, Miscellaneous: includes active ingredients that don’t fit neatly into traditional antidepressant classes
Out-of-Pocket Spending on Insulin by Individuals with Type 1 Diabetes
Jeannie Fuglesten Biniek, PhD and William C. Johnson, PhD

Research Objectives
• Describe variation and year-over-year trends in out-of-pocket spending on insulin.
• Determine point-of-sale prices and how frequently patients are liable for this amount.
• Compare trends in out-of-pocket spending based on enrollment in consumer directed health plan (CDHP).

Data and Study Design
Sample: T1 diabetics enrolled in employer-sponsored insurance plan in the HCCI data.
Measures: For full sample and stratified by enrollment in a consumer-directed health plan:
• Monthly out-of-pocket spending on filled insulin Rx.
• Average point-of-sale prices for insulin products.

Findings
Point-of-sale price of a unit of insulin nearly doubled between 2012 and 2017

- About one-quarter of filled insulin Rx had $0 cost sharing, 3% had 100% cost sharing in 2017.
- Recent discussions over insulin prices have often focused on the "net price" of these products after accounting for manufacturer rebates. However, the point-of-sale price is the relevant measure for individuals who have not yet met their deductible, and are thus required to pay the full "allowed amount" at the time of purchase. This was the case for 3 percent of fills on average from 2012 to 2017.
- Rapidly rising point-of-sale prices for insulin correspond to large increases in out-of-pocket spending for these products at the beginning of the year for enrollees CDHPs. Additionally, as individuals hit their deductibles sooner, a larger share of fills required $0 in patient cost sharing.
- Policies aimed at improving insulin affordability are likely to have widely varying effects on out-of-pocket spending throughout the year. The full range of these effects across individuals, in addition to average effects, are important to consider.

Discussion
Point-of-sale price of a unit of insulin nearly doubled between 2012 and 2017

- CDHP Enrollees
- Non-CDHP Enrollees

Most insurance plans require beneficiaries to meet a deductible before covering medical or prescription drug costs. If prices rise sharply, this may shift the distribution of out-of-pocket spending over the calendar year, so a larger share of these costs are incurred earlier. Between 2012 and 2017, OOP spending on insulin rose modestly. In this study we examine corresponding changes in the distribution of these costs over the year.

Enrollees in CDHPs had greater variation in average monthly OOP spending and it increased over time

The 90th percentile of each spending distribution had greater variation than the mean
Prenatal Care Utilization Trends in the Privately Insured Population from 2009-2015
Aaron Bloschichak, MPH and John Hargraves, MPP

Background

Expand upon literature on the explanations for variation in prenatal care.

This study examines utilization of specific prenatal care services (lab testing and obstetric ultrasounds) and compares the variation in utilization across age groups and individual risk characteristics.

Methods

Study Design and Population

We study a sample of women with employer sponsored insurance (ESI) who had a claim for a delivery (normal or C-section) within the years of 2009 and 2015.

Further classified into individuals with one lab or ultrasound visit based on first and last date of a claim. Our resulting sample contained 3.25 million individuals consisting of 450,000 to 480,000 women per year.

We analyzed the frequency of medical claims related to a lab test or ultrasound condensed to the first and last date of a claim to act as 1 visit.

CPT Codes and Risk Categories

Lab Test Codes: From our population, we acquired the 100 most frequent CPT codes related to a lab visit

Ultrasound Codes: Presence of one of 23 CPT codes

Risk Categories: Patient risk was categorized by age categories (<26, 26-34, >35) or presence of an ex-ante ICD code relating to diabetes mellitus, hypertension, multiple gestation, obesity, and/or previous C-section.

Results

Lab Utilization Distribution

Low Risk Pregnancies

High Risk Pregnancies

Ultrasound Utilization Distribution

Low Risk Pregnancies

High Risk Pregnancies

Utilization Descriptive Statistics

<table>
<thead>
<tr>
<th>Risk</th>
<th>Age</th>
<th>Mean Lab Visits</th>
<th>Mean Ultrasound Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Under 26</td>
<td>7.8</td>
<td>4.9</td>
</tr>
<tr>
<td></td>
<td>26-34</td>
<td>8.1</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>Over 34</td>
<td>9.1</td>
<td>8.2</td>
</tr>
<tr>
<td>High</td>
<td>Under 26</td>
<td>9.0</td>
<td>6.1</td>
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</tr>
</tbody>
</table>

Discussion

Age categories had a greater effect on the number of mean visits for ultrasounds than labs

Presence of an ex-ante risk characteristic affected both ultrasounds and labs similarly

Large distribution in both types of prenatal care warrants further research
10 Years of Emergency Room Spending for the Commercially Insured
John Hargraves and Kevin Kennedy

**Background**

Medical bills from the Emergency Room (ER) are a mystery to many patients in the US health system. From incredibly high, varying charges to surprise bills resulting from in/out of network confusion, many Americans have no idea what to expect when it comes to the cost of this necessary service. To shed some light on the issue, we examined the 5, successive Current Procedural Terminology (CPT) codes for an ER visit which are designed to capture the level of severity and complexity of the ER visit.

**Key Findings**

Spending per Person more than doubled in 10 years

Overall ER Use did not change over the 10 years, but the mix of CPT codes billed did

**Methods**

Data: HCCI claims database 2008-2017

Population: people under the age of 65 with employer-sponsored insurance in a non-capitated health plan

Calculations:
1. Identified all claim lines with Current Procedural Terminology (CPT) codes 99281-99285 in professional and outpatient facility claims
2. Aggregated claim lines by unique patient idea, dates of service, and CPT code to create an estimate of ER visits for each CPT code–this combines facility and physician costs when billed separately and also accounts for any adjustments that occur during claims adjudication
3. Estimated 5 measures: spending per person (total spending divided by average annualized members in population); visits per 1,000 people; average price (average allowed amount paid, negotiated price); average charge (average amount charged by providers for visit); and average out-of-pocket (average amount paid out-of-pocket for a visit)

**Discussion**

While average prices increased for all five ER CPT codes over the 10 years studied, the average prices for higher severity codes (99284 and 99285) rose at a faster rate than low severity codes (99281, 99282, and 99283). Combined with the greater use of high severity codes (despite little change in overall ER use), these price increases contributed to increased spending.

A visit to the ER is typically an unplanned event, leaving patients with little or no time to shop for the best price or check if the closest ER facility is in- or out-of-network. Recent increases in prices and charges have a direct impact on patients in the form of higher out-of-pocket costs and higher premiums.
Primary Care Spending in the Commercially Insured Population

Julie Reiff, BA and Jeannie Fuglesten Biniek, PhD

Background
Research suggests that primary care is associated with more timely receipt of care, fewer preventable emergency department visits and hospital admissions, and lower risk of overtreatment. Given the benefits of primary care, several policy and payment model reforms focus on expanding access to primary care providers and routine and preventive health care services. We calculated the percentage of total medical and prescription drug spending accounted for by primary care among individuals with employer-sponsored insurance (ESI) over time.

Methods

Study Design and Population
- We analyzed claims in the Health Care Cost Institute (HCCI) database for individuals ages 0-64 with ESI from 2013 to 2017; approximately 11.6 million individuals were included in the analysis annually.
- Individuals were included if they had medical and prescription drug coverage for 12 months in a given year and had positive health care spending in that year.
- We calculated the utilization and percentage of total medical and prescription drug spending accounted for by primary care, using two definitions:
  - Defined by provider
  - Defined by services

Primary Care Definitions
- By Provider: The share of spending accounted for by primary care providers (PCPs), defined as providers with a specialty of family practice, geriatric medicine, gynecology, internal medicine, pediatrics, preventative medicine, physician assistant, or nurse practitioner indicated on at least 50% of their professional services claims; hospitalists were excluded.
- By services: The share of spending on primary care services, including evaluation and management visits, preventative medicine and vaccination administrations, counseling and care planning, and other related services.

Results

Utilization of primary care increased
- To better understand if the decline in spending was due to lower utilization, we calculated the percent of individuals with an interaction with a PCP and those with at least one primary care service.
- For both measurements, utilization increased slightly from 2013 to 2017.

Dollars spent on primary care services increased
- The nominal spending per individual on primary care services increased annually from 2013 to 2017.
- PCPs accounted for a steady share of this spending, declining from 13.7% in 2013 to 12.5% in 2017.

Discussion
- The percentage of health care spending declined as utilization increased, indicating that spending on non-primary care providers and services increased at a faster rate.
- Despite policy and payment model reform focusing on allocating more resources to primary care, we’ve seen a decline in the percentage of total healthcare spending on these providers and services.
- Understanding the use of primary care, as both a set of providers and services, can inform policy makers and clinicians of how best to use these resources.

Graphs and Figures
- Bar charts and line graphs showing trends in primary care spending, utilization, and dollars spent over time by age and specialty.
- Pie charts illustrating the distribution of spending across different specialties.

Other specialties
- Cardiologists
- Dermatologists
- OB-GYNs
- Otolaryngologists
- Psychiatrists
- Other specialists

Budgets
- The top six specialties accounting for a similar share of spending per person on primary care services rendered by specialists, at around 45% annually.

Table: Percent of spending on PCPs varied by age
- 0-17: 8% to 8%
- 18-24: 9% to 9%
- 25-34: 8% to 8%
- 35-44: 78%
- 45-54: 78%
- 55-64: 79%
- 65+: 80%

Table: Dollars spent on primary care services increased

Figure: Budgets
- Bar graph showing spending primary care services rendered by specialists.