Patterns of use of non-ambulatory care services in patients with attention-deficit/hyperactivity disorder

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Patterns of Use of Non-Ambulatory Services in Pediatric Patients with Attention Deficit/Hyperactivity Disorder

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Acknowledgements

- Sarah Soden, MD
- Hongying Dai (Daisy), PhD
- Suman Sahil, E. Eng and the Center for Health Insights (CHI) at University of Missouri Kansas City (UMKC), Kansas City, Missouri
- Children’s Mercy Developmental and Behavioral Sciences Fellowship Program. Sarah Nyp, MD, (Program Director)
- Carla Allan, PhD, Trista Perez-Crawford, PhD and J.C. Cowden, MD
Conflict of interest

- No conflict of interest to declare
ADHD affects 1 out of 11 children (ages 4-17)

Cost of psychiatric disorders:
- Limited investigation in children and adolescents.
- Limited studies on economic burden of ADHD in the US

A recent study showed increased cost of healthcare in $USD for patients with ADHD in United States.

Hypothesis:

- Costly non-ambulatory services contribute to this discrepancy

Gupte-Singh et al 2017. “Economic burden of Attention Deficit Hyperactivity Disorder among Pediatric Patients in the United States”
To compare non-ambulatory health care utilization patterns of patients with and without ADHD in a large socioeconomically, racially and geographically diverse population.
Methods

- Retrospective review of data from Cerner Health Facts®.
- A total of 190,365 patients with ADHD and 131,473 patients without ADHD who received non-ambulatory care across the United States.
  - Ages 3-19 years
  - Three year period (2014-2016)
Methods

- 4,000 patients on each group
- Looking at the most expensive aspects of care
- Statistical analysis:
  - Two-sided independent t-tests for continuous variables.
  - Chi-square or Fisher's exact test for categorical variables.
**Demographics**

<table>
<thead>
<tr>
<th>Table 1. Sample Characteristics (N=8000)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Frequency missing</td>
</tr>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td>3-6 years</td>
</tr>
<tr>
<td>7-10 years</td>
</tr>
<tr>
<td>11-14 years</td>
</tr>
<tr>
<td>15-19 years</td>
</tr>
</tbody>
</table>
## Demographics

<table>
<thead>
<tr>
<th>Race</th>
<th>NO ADHD (n=4000)</th>
<th>ADHD (n=4000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>50.08%</td>
<td>66.33%</td>
</tr>
<tr>
<td>African American</td>
<td>30.38%</td>
<td>22.13%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2.20%</td>
<td>0.93%</td>
</tr>
<tr>
<td>Native American</td>
<td>1.75%</td>
<td>0.98%</td>
</tr>
<tr>
<td>Asian</td>
<td>1.13%</td>
<td>0.30%</td>
</tr>
<tr>
<td>Other</td>
<td>14.48%</td>
<td>9.35%</td>
</tr>
</tbody>
</table>
Distribution per region
ADHD group

- South: 40%
- Northeast: 30%
- Midwest: 18%
- West: 12%
Results
Visit type in ADHD group

VISIT TYPE DISTRIBUTION IN ADHD GROUP

- Inpatient: 44%
- Observation: 11%
- Emergency Room: 45%

P-value <0.0001
Results

Visit type in NO ADHD group

VISIT TYPE DISTRIBUTION NO ADHD GROUP

- Emergency Room: 80%
- Inpatient: 16%
- Observation: 4%

P-value <0.0001
Length of Stay

Mean 1.11 days; SD ± 4.37
Mean 3.36 days; SD ± 11.84

P-value <0.0001
In the ADHD group, non-ambulatory care was disproportionately comprised of high-cost/high-burden care, namely inpatient admissions and observation stays.

- Inpatient admissions: 43.9% vs 15.5% of non-ADHD cases (p<0.0001)
- LOS was twice as long: 3.36 days vs 1.11 days (p<0.0001)
Our study suggested that when non-ambulatory care services are used by patients without ADHD:

- There is increased use of the Emergency room compared to other care
- ER > Inpatient > observation
Discussion

- Possible contributor
  - Comorbidities commonly associated with ADHD

- Future directions:
  - Second study looking and variables not listed
  - Compare patients from different settings in database
Limitations

- All patients used non-ambulatory services
- High volume of patients accounts for statistical significance differences
- Variables studied did not include chief complaint or reason for admission
- No further stratification according to concomitant diagnoses
Non-ambulatory care use by children with ADHD is likely to be the high cost services; patients are likely to be admitted and stay longer in the hospital.