Direct Acting Antiviral Uptake for Hepatitis C Virus among Medicaid Members with Substance Use Disorder

Karen M. Clements, ScD1,2, Parag Kunte, MPH1, Sharina Person, PhD2, Bonnie C. Greenwood, PharmD, BCP1,2, Deborah Gurewich, PhD2, Laura Sefton, MPP1, Carter Pratt, MPH1, and Melissa Clark, PhD2
1UMass Chan Medical School, Commonwealth Medicine, Shrewsbury, MA, 2UMass Chan Medical School, Worcester, MA, 3VA Boston Healthcare System, Boston, MA

Background
- Substance use disorder (SUD) is a risk factor for contracting hepatitis C virus (HCV).
- Direct acting antivirals (DAAs), introduced in late 2013, are highly effective in treating HCV regardless of SUD status.
- Many state Medicaid agencies initially imposed SUD–related prior authorization (PA) requirements mandating a period of abstinence or SUD treatment.

Research Objective
HCV treatment with DAAs among Medicaid members was examined to: 1) compare treatment among members with and without SUD; and 2) assess the effect of SUD-related PA requirements over time in predicting treatment among members with SUD.

Study Design
- Data source: Enrollment, medical, and pharmacy claims from Medicaid enrollees in three New England states. SUD-related PA requirements were obtained from state Medicaid agencies.
- Population: Medicaid members ages 18-64 years with HCV (2+ claims with ICD-9/10 code for HCV or 1+ claim for chronic HCV) from 2014–2017.
- Measures:
  - DAA uptake: 1+ pharmacy claim for a DAA
  - SUD: 1+ claim with an ICD-9/10 code for SUD
  - Age, gender, clinical characteristics
  - Plan Category: Medicaid plans categorized by SUD PA requirements over time
- Analysis:
  - Chi-square compared treatment by SUD status and, among those with SUD, by plan category. Adjusted risk ratios (aRR) from generalized estimating equations identified the role of SUD PA requirements in predicting uptake, adjusting for demographic and clinical variables.
  - Segmented regressions examined uptake over time among members in plans with and without SUD PA requirements.

Principal Findings

Table 1. Member demographics and clinical characteristics by SUD status, 2014-2017

<table>
<thead>
<tr>
<th>Gender</th>
<th>Any SUD N= 29,522</th>
<th>No SUD N= 24,013</th>
<th>P value, chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>N(%)</td>
<td>N(%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11,854 (40.2%)</td>
<td>9,566 (39.8%)</td>
<td>0.46</td>
</tr>
<tr>
<td>Female</td>
<td>17,668 (59.8%)</td>
<td>14,447 (60.2%)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>18-34</td>
<td>10,303 (34.9%)</td>
<td>5,217 (21.7%)</td>
<td></td>
</tr>
<tr>
<td>35-49</td>
<td>9,876 (33.5%)</td>
<td>6,943 (28.9%)</td>
<td></td>
</tr>
<tr>
<td>50-64</td>
<td>9,343 (31.6%)</td>
<td>11,853 (49.4%)</td>
<td></td>
</tr>
<tr>
<td>Advanced Disease*</td>
<td>4,728 (16.0%)</td>
<td>1,052 (4.4%)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Table 2. SUD PA Requirements over time and percentage treated, by plan category

<table>
<thead>
<tr>
<th>Plan Category</th>
<th>Members with SUD(N)</th>
<th>Dates of SUD PA Requirement</th>
<th>Details of SUD PA Requirement</th>
<th>N(%) with SUD treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>13,224</td>
<td>none</td>
<td>6 mo. abstinence or active treatment</td>
<td>15.2%</td>
</tr>
<tr>
<td>B</td>
<td>1,821</td>
<td>1/14-15/15</td>
<td>20.2%</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>12,657</td>
<td>1/14-6/16</td>
<td>8.9%</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>2,083</td>
<td>1/14-12/17</td>
<td>12.1%</td>
<td></td>
</tr>
</tbody>
</table>

*Advanced Disease: hepatic decomposition, cirrhosis, or liver transplant
SUD: Substance use disorder; Dx: diagnosis; OUD: Opioid use disorder;

Figure 1: Percentage treated by year, members with and without SUD, 2014-2017

Figure 2: Percentage of members with SUD treated for HCV each month, plans with and without SUD-related PA requirements over time, 2014-2017

Conclusions
- Of members with HCV, 55% had a SUD diagnosis. Those with SUD were younger but more likely to have advanced disease than those without. (Table 1)
- In all years, DAA uptake was higher among those without SUD. (Figure 1) Cumulatively, 13.4% with SUD vs 34.1% without SUD (p<0.0001) were treated.
- SUD PA requirements in Categories B and C lifted during the study period. Category A and B plans had the highest cumulative uptake (Table 2)
- In multivariable analyses, members with SUD were less likely to be treated in a month during which SUD PA requirements were in place in their plan relative to months with no SUD PA requirement (aRR = 0.42, 95% CI 0.38-0.47).
- Trends in uptake by plans’ SUD PA requirements changed over time. (Figure 2)
- Among members not subject to PA requirements, uptake increased through 1/2015 (aRR = 1.07, 95% CI 1.00-1.02) then remained flat through 2017. Among members under PA requirements, monthly uptake was flat through July 2016, then increased 5% per month (aRR = 1.05, 95%CI 1.02-1.08).

Relevance to Policy
- Despite evidence that HCV treatment is effective among individuals with SUD, Medicaid members with SUD were less likely to be treated for HCV than their peers without SUD. SUD-related PA requirements exacerbated the discrepancy.
- The increase in treatment from 6/2016 - 12/2017 among members subject to these requirements suggests a clinical, cultural and/or policy shift towards facilitating HCV treatment in this population.
- Future research ought to explore the merits of continued SUD-related PA requirements.

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