RURAL-URBAN DIFFERENCES IN DENTAL OPIOID PRESCRIBING AMONG ADOLESCENT/YOUNG ADULT AND ADULT MEDICAID BENEFICIARIES

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Three Waves of Opioid Overdose Deaths

Source: https://www.cdc.gov/opioids/basics/epidemic.html
Prescription Opioid Use in Morphine Milligram Equivalents (MME) Bn, 1992–2020

Source: 2020 IQVIA Prescription Opioid Trends in the United States: Measuring and Understanding Progress in the Opioid Crisis
Number of Prescription Opioids Dispensed by Pay Type, Millions, 2011–2019

Source: 2020 IQVIA Prescription Opioid Trends in the United States: Measuring and Understanding Progress in the Opioid Crisis

Change in Opioid Prescriptions 2011–2019

- Total: -40%
- Cash: -63%
- Medicaid: -46%
- Medicare: +2%
- Commercial: -51%
Background

• The most common specialty groups among opioid prescribers are internal medicine (16.4%); dentists (15.8%); nurse practitioners (12.3%); and family medicine (10.3%).¹

• Dental index opioid prescriptions in opioid-naïve adolescents and young adults compared with age- and sex-matched controls were associated with a statistically significant 6.8% absolute risk increase in persistent opioid use and a 5.4% increase in the subsequent diagnosis of opioid abuse.²

• Rates for dental opioid prescriptions for Medicaid beneficiaries are declining.³

• There are racial disparities in dental-related opioid prescribing; Non-Hispanic white and Non-Hispanic black women are most likely to receive a prescription.⁴

¹ Guy and Zhang  Opioid Prescribing by Specialty and Volume in the U.S. doi:10.1016/j.amepre.2018.06.008
² Schroeder et al Association of Opioid Prescriptions From Dental Clinicians for US Adolescents and Young Adults With Subsequent Opioid Use and Abuse. doi:10.1001/jamainternmed.2018.5419
⁴ Janakiram et al Sex and race or ethnicity disparities in opioid prescriptions for dental diagnoses among patients receiving Medicaid. doi:10.1016/j.adaj.2019.06.016.
Opioid Use Following First Opioid Prescription in Opioid-Naive Youths and Young Adults

Dotted lines represent estimated trajectories, and solid lines represent observed trajectories.

Barriers to Care in Rural Communities

- Low provider-to-population ratios
- Number of dentists who accept Medicaid/CHIP or have discounted fee schedules
- Insufficient or lack of dental insurance benefits
- Poverty
- Geographic barriers to care and lack of transportation
- Lack of childcare
- Insufficient levels or lack of access to water fluoridation
- Lack of awareness and education about oral health
- Cultural barriers and stigma

Source: Rural Health Information Hub, Rural Oral Health Toolkit – Barriers to Oral Healthcare in Rural Communities
Objectives

• To assess the prevalence of dental opioid prescriptions among adolescent/young adult and adult Medicaid/CHIP beneficiaries with a dental visit

• To investigate the patient-related factors (gender, age, race/ethnicity) that increase the likelihood of receiving a dental opioid prescription

• To compare differences in dental opioid prescribing patterns between rural and urban areas and identify the county-level factors contributing to such disparities.
Data and Methodology

- 2021 Transformed Medicaid Statistical Information System (T-MSIS) Analytic Files (TAF) Medicaid and Children’s Health Insurance Program (CHIP) beneficiaries ages 12–20 (Adolescents/Young Adults) and 21–64 (Adults) who are non-dually eligible for Medicare.
- Economic Research Service Rural-Urban Commuting Area Codes.
- American Community Survey 5-year Estimates.
- DQ (Data Quality) Atlas.
  - Beneficiaries from states with “High Concern” or “Unusable” claims data were excluded from all analyses; eight states.
  - Beneficiaries from states with “High Concern” or “Unusable” race and ethnicity information were excluded from all analyses stratified by race and ethnicity; twenty states.
- Chi-square tests were used to test for significant differences in the rates; Multilevel logistic regression models were used to predict the odds of receiving a dental opioid prescription; Pooled t-tests were implemented to test whether the estimates are significantly different across the rural and urban models.
Rates of Adolescent/Young Adult Beneficiaries Receiving a Dental Opioid Prescription by State, 2021
Rates of Adolescent/Young Adult Beneficiaries Receiving a Dental Opioid Prescription by Age, 2021

- Rates are significantly different between age groups.
- Age group-specific rates are significantly different across rural and urban areas.
Rates of Adolescent/Young Adult Beneficiaries Receiving a Dental Opioid Prescription by Sex, 2021

❖ Rates are significantly different between males and females.
❖ Male and female-specific rates are significantly different across rural and urban areas.
Rates of Adolescent/Young Adult Beneficiaries Receiving a Dental Opioid Prescription by Race and Ethnicity, 2021

- Rates are significantly different across race and ethnicity groups.
- Race and ethnicity-specific rates significantly differ across rural and urban areas, except for AI/AN.
Rates of Adult Beneficiaries Receiving a Dental Opioid Prescription by State, 2021
Rates of Adult Beneficiaries Receiving a Dental Opioid Prescription by Age, 2021

- Rates are significantly different between age groups.
- Age group-specific rates are significantly different across rural and urban areas.
Rates of Adult Beneficiaries Receiving a Dental Opioid Prescription by Sex, 2021

- Rates are significantly different between males and females.
- Male and female-specific rates are significantly different across rural and urban areas.
Rates of Adult Beneficiaries Receiving a Dental Opioid Prescription by Race and Ethnicity, 2021

- Rates are significantly different across race and ethnicity groups.
- Race and ethnicity-specific rates significantly differ across rural and urban areas, except for AI/AN.
## Multilevel Logistic Regression Models Predicting the Odds of Receiving a Dental Opioid Prescription, 2021

All model estimates are statistically significant unless noted with NS.

The T-test tests if the estimates are significantly different across the rural and urban models.

<table>
<thead>
<tr>
<th>Adolescent/Young Adult Beneficiaries</th>
<th>Rural Model N=773,733</th>
<th>Urban Model N=3,723,157</th>
<th>T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group (Ref: Age 12 to 14)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 15 to 17</td>
<td>6.4x</td>
<td>7.4x</td>
<td>NS</td>
</tr>
<tr>
<td>Age 18 to 20</td>
<td>13.8x</td>
<td>16.7x</td>
<td>Sig</td>
</tr>
<tr>
<td>Sex (Ref: Male)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>20%</td>
<td>16%</td>
<td>Sig</td>
</tr>
<tr>
<td>Race and Ethnicity (Ref: Non-Hispanic White)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>-7%</td>
<td>-11%</td>
<td>Sig</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>-12%</td>
<td>-17%</td>
<td>NS</td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>NS</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Multiracial/Other Race/Unknown</td>
<td>-4%</td>
<td>-9%</td>
<td>NS</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-24%</td>
<td>-19%</td>
<td>NS</td>
</tr>
<tr>
<td>County Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage Non-Hispanic Black</td>
<td>0.5%</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Percentage Hispanic</td>
<td>-0.4%</td>
<td>-1%</td>
<td>Sig</td>
</tr>
<tr>
<td>Concentrated Disadvantage</td>
<td>11%</td>
<td>18%</td>
<td>Sig</td>
</tr>
<tr>
<td>Residential Stability</td>
<td>-9%</td>
<td>NS</td>
<td>Sig</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adult Beneficiaries</th>
<th>Rural Model N=626,167</th>
<th>Urban Model N=3,119,173</th>
<th>T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group (Ref: Age 21 to 34)</td>
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<tr>
<td>Age 35 to 49</td>
<td>-11%</td>
<td>-8%</td>
<td>NS</td>
</tr>
<tr>
<td>Age 50 to 64</td>
<td>-24%</td>
<td>-16%</td>
<td>Sig</td>
</tr>
<tr>
<td>Sex (Ref: Male)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>-12%</td>
<td>-4%</td>
<td>Sig</td>
</tr>
<tr>
<td>Race and Ethnicity (Ref: Non-Hispanic White)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>10%</td>
<td>18%</td>
<td>Sig</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>-37%</td>
<td>-47%</td>
<td>Sig</td>
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<tr>
<td>American Indian/Alaskan Native</td>
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<td>-9%</td>
<td>NS</td>
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<tr>
<td>Multiracial/Other Race/Unknown</td>
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<td>-22%</td>
<td>Sig</td>
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<tr>
<td>Hispanic</td>
<td>-27%</td>
<td>-25%</td>
<td>NS</td>
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<tr>
<td>County Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage Non-Hispanic Black</td>
<td>2%</td>
<td>1%</td>
<td>Sig</td>
</tr>
<tr>
<td>Percentage Hispanic</td>
<td>-1%</td>
<td>-1%</td>
<td>Sig</td>
</tr>
<tr>
<td>Concentrated Disadvantage</td>
<td>23%</td>
<td>31%</td>
<td>NS</td>
</tr>
<tr>
<td>Residential Stability</td>
<td>-6%</td>
<td>NS</td>
<td>Sig</td>
</tr>
</tbody>
</table>
Summary

• The rates of dental opioid prescriptions among adolescents/young adults and adults are 36 and 96 per 1,000 Medicaid/CHIP beneficiaries with a dental visit.

• The patient-related factors (age, sex, race and ethnicity) have different effects on the odds of receiving an opioid prescription between adolescents/young adults and adults Medicaid/CHIP beneficiaries with a dental visit.

• There are significant geographic (rural/urban) disparities in the receipt of an opioid prescription between adolescents/young adults and adults Medicaid/CHIP beneficiaries with a dental visit.
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THANK YOU