Trends and Disparities in Access to Buprenorphine Treatment Following an Opioid-Related Emergency Department Visit Among an Insured Cohort, 2014-2020

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Disclosures

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The content is solely the responsibility of the authors and does not represent the official views of the NIH.

Authors report no other relevant conflicts of interest
Overdose Deaths Reached Record High as the Pandemic Spread

More than 100,000 Americans died from drug overdoses in the yearlong period ending in April, government researchers said.
Racial Disparities in Opioid Overdose Deaths in Massachusetts

Annals of Emergency Medicine

Emergency Department Visits for Nonfatal Opioid Overdose During the COVID-19 Pandemic Across Six US Health Care Systems

William E. Soares III, MD, MS; Edward R. Melnick, MD, MHS; Bidisha Nath, MBBS, MPH; Anthony Napoli, MD, MHL; Jason A. Hoppe, DO; Molly M. Jeffery, PhD; Show all authors

Nonfatal Opioid Overdoses at an Urban Emergency Department During the COVID-19 Pandemic

Taylor A. Ochalek, PhD1; Kirk L. Cumpston, DO2; Brandon K. Wills, DO3; et al

Disparities by Sex and Race and Ethnicity in Death Rates Due to Opioid Overdose Among Adults 55 Years or Older, 1999 to 2019

Maryann Mason, PhD1,2; Rebekah Soliman1; Howard S. Kim, MD, MS1,4,5; et al

Association of Disability With Mortality From Opioid Overdose Among US Medicare Adults

Yong-Fang Kuo, PhD1,2,3; Mukaila A. Raji, MD1,2; James S. Goodwin, MD1,2,3

Disparities in Opioid Overdose Death Trends by Race/Ethnicity, 2018-2019, From the HEALing Communities Study

Marc R. Larochelle MD, MPH, Svetla Slavova PhD, Elisabeth D. Root PhD, Daniel J. Feaster PhD, Patrick J. Ward PhD, MPH, Sabrina C. Selk ScD, Charles Knott... (show all authors)

Evaluation of Increases in Drug Overdose Mortality Rates in the US by Race and Ethnicity Before and During the COVID-19 Pandemic

Joseph R. Friedman, MPH1,2; Helena Hansen, MD, PhD1

Soares et al., 2022, Ann Emer Med, Liao et al., 2022; JNO, Ochalek et al., 2020, JAMA; Mason, 2022, JNO; Khatri, 2021, JNO; Kuo et al., 2019, JNO; Larochelle et al., 2021, AJPH; Friedman et al., 2022, JAMA Psychiatry

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Background

Buprenorphine is a first-line medication for opioid use disorder (MOUD)

- Prevents cravings and withdrawals
- Approved by FDA in 2002

ED-Initiated Buprenorphine:

- Increased treatment engagement
- Decreased illicit opioid use

D’Onofrio et al., JAMA, 2015
Background

“This is part of emergency medicine now!”

1. The opioid crisis
   - Overdose deaths soared to 93K in 2020 (70K opioid)
   - Opioid overdose disparities are increasing

2. Medication treatment gaps
   - Less than 1 in 5 receive medication treatment
   - Disparities in access to MOUD

3. ED as critical access point
   - 5% mortality 1 year after overdose
   - ED OUD visits still rising

4. BUP-initiation in the ED
   - Safe & doubles engagement in treatment
   - Multiple barriers to adoption

Acad Emerg Med, 2021; NY Times, 2021; SAMHSA, 2020; Drug Alcohol Depend, 2016; Ann Intern Med, 2018; JAMA, 2015; NEJM, 2018
Purpose

Describe recent national trends in access to timely buprenorphine treatment and disparities in access following an opioid-related ED visit.
Method

Design: Cross-sectional analysis

Population: people with an opioid-related ED visit between 2014-2020 who had commercial or Medicare Advantage health insurance

Data source: OptumLabs® Data Warehouse (OLDW), longitudinal, real-world de-identified administrative claims and enrollment data

Cohort Identification: ED visits with a diagnosis code for opioid use, abuse, dependence and poisoning

Outcome: New buprenorphine fills within seven days following an opioid-related ED visit

Timeline

<table>
<thead>
<tr>
<th>Pre-Period</th>
<th>Opioid-Related ED Visit</th>
<th>Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days -14 to -1</td>
<td>Day 0</td>
<td>Days 0-7</td>
</tr>
</tbody>
</table>
Method

72,055 Eligible Opioid-Related ED Visits

- ED = Emergency Department
- CE = Continuous Enrollment
- MOUD = Medication for Opioid Use Disorder
## Method

### Analysis:
  - Rates reported per 10,000 opioid-related ED visits
  - Rates standardized for each subpopulation
- Percent changes calculated between 2014-2015 and 2018-2019
  - Poisson regression, clustering at the patient-level
  - 2020 as separate period due to Covid-19-related disruptions

### Study Periods

<table>
<thead>
<tr>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
<th>Period 4</th>
</tr>
</thead>
</table>
## Results

<table>
<thead>
<tr>
<th>Visit Characteristics (n, %)</th>
<th>Buprenorphine N=1,813 (2.5)</th>
<th>No Buprenorphine N=70,242 (97.5)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Male</td>
<td>1,104 (3.0)</td>
<td>35,259 (97.0)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>709 (2.0)</td>
<td>34,983 (98.0)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>18-25</td>
<td>307 (3.1)</td>
<td>9,568 (96.9)</td>
<td></td>
</tr>
<tr>
<td>26-40</td>
<td>547 (3.9)</td>
<td>13,376 (96.1)</td>
<td></td>
</tr>
<tr>
<td>≥41</td>
<td>959 (2.0)</td>
<td>47,298 (98.0)</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>1,330 (2.6)</td>
<td>49,338 (97.4)</td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>208 (2.0)</td>
<td>10,406 (98.0)</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>138 (2.1)</td>
<td>6,390 (97.9)</td>
<td></td>
</tr>
</tbody>
</table>

**Take home points**

- From 2014 to 2020, buprenorphine fills were lower for female (vs male), people aged at least 41 years (vs aged 18-25 years and 26-40 years) and Black and Hispanic (vs White) populations.
Results

Commercial and MA: Percent Change
- Overall: 53.3% (31.0%, 79.4%)
- Commercial: 48.6% (22.1%, 81.0%)
- Medicare Advantage: 67.7% (29.3%, 117.7%)

Take home points
- From 2014-2015 to 2018-2019, buprenorphine fills per 10,000 opioid-related ED visits increased for Commercial and Medicare Advantage.
- Buprenorphine fills were lower for Medicare Advantage (vs Commercial)
Results

Commercial and MA: Percent Change

Overall: 53.3% (31.0%, 79.4%)

Sex
- Male: 48.6% (22.1%, 81.0%)
- Female: 67.7% (29.3%, 117.7%)

Age
- 18 to 25: 64.0% (19.0%, 126.1%)
- 26 to 40: 64.6% (25.7%, 115.5%)
- 41+: 90.3% (47.2%, 146.1%)

Race/Ethnicity
- White: 60.5% (34.1%, 92.2%)
- Black: 42.4% (-11.3%, 128.6%)
- Hispanic: 44.0% (-18.5%, 154.6%)

Take home points

From 2014-2015 to 2018-2019, buprenorphine fills per 10,000 opioid-related ED visits:

- increased from 197 to 301 (53.3% [95% CI, 31.0%-79.4%])

- lower for female, age 41+, and non-Hispanic Black and Hispanic populations
### Results

#### Commercial and MA: Percent Change

<table>
<thead>
<tr>
<th>SUD Diagnoses</th>
<th>MH Diagnoses</th>
<th>Inpatient/2 Outpatient (no SUD/MH):</th>
<th>No Inpatient/2 Outpatient:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUD: 66.5% (32.8%, 108.8%)</td>
<td>Depression: 67.5% (22.8%, 128.6%)</td>
<td>36.7% (-2.1%, 90.9%)</td>
<td>98.4% (37.0%, 187.2%)</td>
</tr>
<tr>
<td>Alcohol: 67.7% (29.3%, 117.7%)</td>
<td>SMI: 55.1% (18.1%, 103.8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Drug: 116.6% (56.8%, 199.1%)</td>
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</tr>
</tbody>
</table>

#### Take home points

- Compared to OUD, buprenorphine fills were lower for alcohol, other drug, SMI, and depression diagnoses.
Discussion

- **Timely buprenorphine fills** following an opioid-related ED visit increased but exhibit disparities.

- **People with socioeconomic advantages**—male, younger, non-Hispanic White, commercially insured, no serious mental illness or other drug-related diagnosis—were more likely to receive this life-saving treatment.
Discussion

- **Policy**: “X-the X Waiver”

- **Clinical Practice**:
  - User-centered decision tools (e.g., EMergency Department-Initiated BuprenorphinE for OUD (EMBED))

- **Multifaceted approach**: Policy and practice interventions with focus on widespread adoption and addressing key disparities

D’Onofrio G, Melnick ER, Hawk KF, 2021 Ann Emerg Med; Stringfellow, 2021, Health Affairs
“X the X-Waiver”

Annals of Emergency Medicine
An International Journal

Improve Access to Care for Opioid Use Disorder: A Call to Eliminate the X-Waiver Requirement Now

Gail D’Onofrio, MD, MS  Edward R. Melnick, MD, MHS  Kathryn F. Hawk, MD, MHS

Open Access  Published: May 07, 2021  DOI: https://doi.org/10.1016/j.annemergmed.2021.03.023

Removing The X-Waiver Is One Small Step Toward Increasing Treatment Of Opioid Use Disorder, But Great Leaps Are Needed

Erin J. Stringfellow, Keith Humphreys, Mohammad S. Jalal

APRIL 22, 2021  10.1377/forefront.20210419.311749

D’Onofrio G, Melnick ER, Hawk KF, 2021 Ann Emerg Med; Stringfellow, 2021, Health Affairs
Discussion

- **Policy**: “X-the X Waiver”

- **Clinical Practice**:
  - User-centered decision tools (e.g., EMergency Department-Initiated BuprenorphinE for OUD (EMBED))

- **“Multifaceted approach”:** Policy and practice interventions with focus on widespread adoption and addressing key disparities

D’Onofrio G, Melnick ER, Hawk KF, 2021 Ann Emerg Med; Stringfellow, 2021, Health Affairs
EMBED: EMergency Department-Initiated BuprenorphinE for OUD

User-centered design to simplify the process...

From a complicated, unfamiliar practice...

...to a simple, automated application

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Melnick et al., 2019, JAMIA Open; Melnick et al., 2019, BMJ Open; Holland et al., 2020, Acad Emerg Med
EMBED: EMergency Department-Initiated BuprenorphinE for OUD

EMBED App: Automated workflow, never leaving the EHR

1) In patient’s chart
2) Click the EMBED button
3) 1-click to launch
4) Automates EHR tasks

- Care Pathway #1
- Care Pathway #2
- Care Pathway #3
- Care Pathway #4

1. Diagnose OUD
2. Assess withdrawal severity
3. Motivate readiness
4. Orders
5. Notes
6. Prescriptions
7. Referral
8. Discharge instructions

Melnick et al., 2019, JAMIA Open; Melnick et al., 2019, BMJ Open; Holland et al., 2020, Acad Emerg Med
Discussion

- **Policy**: “X-the X Waiver”

- **Clinical Practice**:  
  - User-centered decision tools (e.g., EMergency Department-Initiated BuprenorphinE for OUD (EMBED))

- **Multifaceted approach**: Policy and practice interventions with focus on widespread adoption and addressing key disparities
# National Institute on Minority Health and Health Disparities Framework

<table>
<thead>
<tr>
<th>Domains of Influence (Over the Lifecourse)</th>
<th>Levels of Influence*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological</td>
<td>Individual</td>
</tr>
<tr>
<td>Biological</td>
<td>Biological Vulnerability and Mechanisms</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Interpersonal</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Caregiver-Child Interaction Family Microbiome</td>
</tr>
<tr>
<td>Physical/Built Environment</td>
<td>Community</td>
</tr>
<tr>
<td>Personal Environment</td>
<td>Community Illness Exposure Herd Immunity</td>
</tr>
<tr>
<td>Sociocultural Environment</td>
<td>Societal</td>
</tr>
<tr>
<td>Sociodemographics Limited English</td>
<td>Policies and Laws</td>
</tr>
<tr>
<td>Cultural Identity Response to Discrimination</td>
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</tr>
<tr>
<td>Health Care System</td>
<td>Health Outcomes</td>
</tr>
<tr>
<td>Insurance Coverage</td>
<td>Individual Health</td>
</tr>
<tr>
<td>Health Literacy</td>
<td>Family/Organizational Health</td>
</tr>
<tr>
<td>Treatment Preferences</td>
<td>Community Health</td>
</tr>
<tr>
<td>Health Care Policies</td>
<td>Population Health</td>
</tr>
<tr>
<td>Patient- Clinician Relationship</td>
<td>Community Norms</td>
</tr>
<tr>
<td>Medical Decision-Making</td>
<td>Local Structural</td>
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<tr>
<td>Availability of Services</td>
<td>Societal Structural</td>
</tr>
<tr>
<td>Safety Net Services</td>
<td>Discrimination</td>
</tr>
<tr>
<td>Quality of Care</td>
<td>Social Norms</td>
</tr>
<tr>
<td>Health Care Policies</td>
<td>Societal Structural</td>
</tr>
</tbody>
</table>

*Levels of Influence include Individual, Interpersonal, Community, and Societal.
Limitations

• Inability to observe prescriptions and health services not submitted to the insurance plan (e.g., from methadone clinics)

• Describes associations rather than causation

• Results may not be generalizable beyond the commercial and Medicare Advantage population.
Conclusion

Use of buprenorphine in ED settings holds promise for addressing the treatment gap for patients with OUD.

Clinical and policy remedies are needed to increase buprenorphine treatment for OUD in and outside of EDs with a focus on disparities.