It’s not easy being Buprenorphine
Identifying unique substance use patterns associated with buprenorphine

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Disclosures

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• There are no conflict of interests to report
Buprenorphine

• Evidence-based treatment for opioid use disorder
  • Continued growth in waivered providers

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  - Continued growth in waivered providers
  - Waivered doesn’t always equate to dispensing

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Buprenorphine

- Evidence-based treatment for opioid use disorder
  - Continued growth in waivered providers
  - Waivered doesn’t always equate to dispensing
  - Accessibility is increasing and will likely continue to do so
    - COVID-related changes
    - Expansion of telemedicine
    - Possible elimination of waiver
Non-therapeutic use of buprenorphine

Questions about buprenorphine

• Has non-therapeutic use changed as buprenorphine in OUD treatment expanded?

• What is the relationship between buprenorphine therapy and non-therapeutic use?

• How is non-therapeutic use of buprenorphine associated with the use of non-opioid substances?
Methods

- Data from two national opioid surveillance programs from substance use treatment centers
  - Survey of Key Informants’ Patients (SKIP) Program
  - Opioid Treatment Program (OTP)
  - Treatment Center (TC) Combined
Methods

• SKIP Program

  • ~120 treatment programs for opioid use disorder in 47 states/DC

  • Blend of private, public and treatment modalities

  • 12,198 respondents from 2015-2020
Methods

• OTP Program

• ~75 medication-assisted opioid treatment programs, predominantly methadone, in 33 states

• 32,300 respondents from 2015-2020
Methods

• Treatment Center (TC) Combined
  • Both SKIP and OTP utilize the same survey
  • 44,498 respondents from 2015-2020
Past month non-therapeutic use of buprenorphine
Past month non-therapeutic use of buprenorphine, 2015-2020

- OTP: 16.8%
- TC COMBINED: 22.5%
- SKIP: 37.7%
### Past month non-therapeutic use of buprenorphine

<table>
<thead>
<tr>
<th>Formulation</th>
<th>OTP</th>
<th>TC Combined</th>
<th>SKIP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SINGLE-INGREDIENT TABLETS</strong></td>
<td>6.5%</td>
<td>10.1%</td>
<td>19.7%</td>
</tr>
<tr>
<td><strong>COMBINATION TABLETS</strong></td>
<td>6.8%</td>
<td>10.6%</td>
<td>20.4%</td>
</tr>
<tr>
<td><strong>ORAL FILMS</strong></td>
<td>9.6%</td>
<td>14.2%</td>
<td>26.3%</td>
</tr>
<tr>
<td><strong>UNKNOWN FORMULATION</strong></td>
<td>7.5%</td>
<td>10.9%</td>
<td>19.7%</td>
</tr>
</tbody>
</table>

Legend:
- OTP
- TC Combined
- SKIP
Past month non-therapeutic use of buprenorphine, OTP

<table>
<thead>
<tr>
<th>Year</th>
<th>Single-ingredient tablets</th>
<th>Combination tablets</th>
<th>Oral Films</th>
<th>Unknown formulation</th>
<th>Any</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>13.2%</td>
<td>13.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>13.2%</td>
<td>13.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>17.5%</td>
<td>8.1%</td>
<td></td>
<td>8.1%</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>21.0%</td>
<td>9.7%</td>
<td></td>
<td>9.7%</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>19.8%</td>
<td>9.7%</td>
<td></td>
<td>9.7%</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>15.6%</td>
<td>7.8%</td>
<td></td>
<td>5.4%</td>
<td></td>
</tr>
</tbody>
</table>
Past month non-therapeutic use of buprenorphine, SKIP

<table>
<thead>
<tr>
<th>Year</th>
<th>Single-ingredient tablets</th>
<th>Combination tablets</th>
<th>Oral Films</th>
<th>Unknown formulation</th>
<th>Any</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>18.0%</td>
<td>17.1%</td>
<td>21.4%</td>
<td>24.3%</td>
<td>20.6%</td>
</tr>
<tr>
<td>2016</td>
<td>18.7%</td>
<td>17.5%</td>
<td>21.6%</td>
<td>24.9%</td>
<td>21.3%</td>
</tr>
<tr>
<td>2017</td>
<td>26.4%</td>
<td>25.0%</td>
<td>28.0%</td>
<td>29.3%</td>
<td>27.5%</td>
</tr>
<tr>
<td>2018</td>
<td>36.2%</td>
<td>35.5%</td>
<td>40.5%</td>
<td>42.4%</td>
<td>38.8%</td>
</tr>
<tr>
<td>2019</td>
<td>21.3%</td>
<td>22.3%</td>
<td>24.7%</td>
<td>24.0%</td>
<td>18.6%</td>
</tr>
<tr>
<td>2020</td>
<td>16.0%</td>
<td>16.9%</td>
<td>17.8%</td>
<td>20.3%</td>
<td>15.0%</td>
</tr>
</tbody>
</table>
Past month non-therapeutic use of buprenorphine

<table>
<thead>
<tr>
<th>Method</th>
<th>OTP</th>
<th>TC Combined</th>
<th>SKIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swallowed</td>
<td>18.8%</td>
<td>21.7%</td>
<td>25.7%</td>
</tr>
<tr>
<td>Chewed</td>
<td>17.3%</td>
<td>20.0%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Dissolved</td>
<td>80.6%</td>
<td>77.6%</td>
<td>73.5%</td>
</tr>
<tr>
<td>Snorted</td>
<td>14.3%</td>
<td>21.2%</td>
<td>29.6%</td>
</tr>
<tr>
<td>Smoked</td>
<td>2.2%</td>
<td>3.2%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Injected</td>
<td>13.3%</td>
<td>22.1%</td>
<td>32.4%</td>
</tr>
</tbody>
</table>

**Department of Psychiatry**

Washington University School of Medicine in St. Louis
Past month non-therapeutic use of buprenorphine

- **SINGLE-INGREDIENT TABLETS**
  - Dissolved: 62.1%
  - Snorted: 27.0%
  - Injected: 24.3%

- **COMBINATION TABLETS**
  - Dissolved: 70.4%
  - Snorted: 21.0%
  - Injected: 18.8%

- **ORAL FILMS**
  - Dissolved: 83.9%
  - Snorted: 9.5%
  - Injected: 20.6%
Past month injection use of buprenorphine
Buprenorphine therapy +
non-therapeutic use
Receipt of buprenorphine therapy in current treatment program

<table>
<thead>
<tr>
<th>Program</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTP</td>
<td>1.7%</td>
</tr>
<tr>
<td>SKIP</td>
<td>27.7%</td>
</tr>
</tbody>
</table>
Past month non-therapeutic use of buprenorphine among those receiving buprenorphine therapy

- **OTP**: 35.3%
- **SKIP**: 43.3%
Past month non-therapeutic use of buprenorphine among those receiving buprenorphine therapy

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Tablet Therapy</th>
<th>Film Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used Tablets (%)</td>
<td>32.5%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Used Films (%)</td>
<td>26.6%</td>
<td></td>
</tr>
<tr>
<td>Used Other Products</td>
<td>31.4%</td>
<td></td>
</tr>
</tbody>
</table>

*Tablet Therapy* | *Film Therapy*
Polysubstance use
Past month polysubstance use

- NICOTINE
- RX OPIOIDS
- ILLICIT OPIOIDS
- ANY THC PRODUCT
- BENZODIAZEPINES
- CRACK/COCAINE
- METHAMPHETAMINE
- ALCOHOL
- RX STIMULANTS
- MUSCLE RELAXANTS
- ANTI-DEPRESSANTS
- RX SLEEP MEDICATIONS
- MDMA
- HALLUCINOGENS

NO buprenorphine use
ANY buprenorphine use
Buprenorphine + GABA
Past month non-therapeutic use of gabapentin

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTP</td>
<td>6.6%</td>
</tr>
<tr>
<td>SKIP</td>
<td>15.5%</td>
</tr>
</tbody>
</table>
Past month non-therapeutic use of gabapentin

OTP
- GABA: 6.6%
- GABA+BUP: 38.8%

SKIP
- GABA: 15.5%
- GABA+BUP: 58.5%
Conclusions

• Non-therapeutic use of buprenorphine
  • Reported by nearly a quarter of the treatment center sample
  • Similar across formulations, with oral film slightly higher
  • Slight increases in reports among OTP respondents, decreases among SKIP respondents

• Non-oral use of buprenorphine
  • Snorting reported by 21.2%
  • Injecting reported by 22.1%
  • Injecting consistent across formulations
  • Significant decreases in injection over time
  • Observed across all formulations; may no longer be worth the effort with increases in other injectable drugs (e.g., methamphetamine and fentanyl)
Conclusions

• Of those receiving buprenorphine therapy
  • Non-therapeutic buprenorphine use reported by 39.2%
  • Use not restricted to therapy formulation
    • Of those on tablet therapy, 32.5% reported tablet use, 29.2% used other buprenorphine formulations
    • Of those on oral film therapy, 26.6% reported film use, 31.4% used other buprenorphine formulations
  • May suggest both substantial misuse of buprenorphine, as well as use seeking out other diverted formulations of buprenorphine
Conclusions

- Polysubstance use
  - Those reporting buprenorphine use had greater polysubstance use among non-opioid substances
  - Unclear if buprenorphine use is higher due to more severe use or increased accessibility

- Buprenorphine + GABA
  - Those reporting non-therapeutic use of GABA had substantial reports of co-occurring use of buprenorphine products
  - Need to understand whether this is treatment-driven or diverted use to amplify effects of buprenorphine
THANK YOU

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