THE DIVERSION AND INJECTION OF OTP MEDICATIONS FOLLOWING THE INTRODUCTION OF BUPRENORPHINE-NALOXONE

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BACKGROUND

- Buprenorphine (Subutex®) injection has been documented among regular injecting drug users in all Australian jurisdictions.
- Buprenorphine-naloxone (Suboxone®) was listed on the Pharmaceutical Benefits Scheme in April 2006.
- Our study intended to examine changes occurring after this time. We specifically monitored:
  - Injection among regular injecting drug users out of treatment (“diversion”)
  - Injection among those in treatment (“non-adherence”)
  - Indicators of availability and attractiveness on the “black market”
WHAT IS DIVERSION?

Selling
Trading
Sharing/giving away
Removing all or part of a supervised dose from the dosing site
Splitting doses
Stockpiling doses
Taking more or less than prescribed
Injection

“diversion” to another person
WHAT IS DIVERSION?

Selling
Trading
Sharing/giving away
Removing all or part of a supervised dose from the dosing site
Splitting doses
Stockpiling doses
Taking more or less than prescribed
Injection

“diversion” to another person

“non-adherence” by a client
DIVERSION AND INJECTION ARE LIKELY TO BE AFFECTED BY:

- Availability of other illicit drugs (e.g. heroin)
- Patterns of drug use
- Availability of treatment places
- Jurisdictional prescribing policies
- Individual motivations and circumstances
THE CURRENT STUDY

Post-marketing surveillance studies of buprenorphine-naloxone
METHODOLOGY

1. Sales/prescription data
2. Interviews with regular injecting drug users
3. Interviews with pharmacotherapy clients
4. Interviews with key experts
5. National OST prescribers survey
6. Other indicator data
OTP IN AUSTRALIA

- Prescription only
- Accredited, registered prescribers
- “Authority to prescribe” to new clients
- Client registration
- Strong focus on the supervision of dosing
PART 1:

BACKGROUND AVAILABILITY OF OTP MEDICATIONS

Sales data
Background availability of the OST medications

BUPRENORPHINE MARKET SHARE, 2005-2008

- Buprenorphine (any form)
- Subutex (BPN)
- Suboxone (BNX)
Background availability of the OST medications

BUPRENORPHINE MARKET SHARE, BY FORM, BY JURISDICTION, 2005-2008

Buprenorphine

Buprenorphine-naloxone
PART 2:

DIVERSION AND INJECTION AMONG REGULAR (OUT OF TREATMENT) INJECTING DRUG USERS (IDU)

Illicit Drug Reporting System (IDRS)
(OUT OF TREATMENT) IDU SAMPLE CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total IDRS sample (n)</td>
<td>914</td>
<td>909</td>
<td>909</td>
</tr>
<tr>
<td>Out of treatment IDU (n)</td>
<td>448</td>
<td>453</td>
<td>444</td>
</tr>
</tbody>
</table>

- Mostly male (70-73%)
- Mean age 35-37 years
- 78-80% unemployed/receiving government benefits
- 7-14% homeless (no fixed address)
- 47-52% prison history
RECENT* INJECTION OF OST MEDICATIONS AMONG (OUT OF TREATMENT) IDU

* In the six months prior to interview

Source: IDRS interviews with regular IDUs, 2003-2008
RECENT* INJECTION OF METHADONE**, BY JURISDICTION

* In six months prior to interview  ** Among out of treatment IDU

Source: IDRS interviews with regular IDUs, 2003-2008
RECENT* INJECTION OF METHADONE**, BY JURISDICTION

* In six months prior to interview  ** Among out of treatment IDU

Source: IDRS interviews with regular IDUs, 2003-2008
RECENT* INJECTION OF (MONO) BUPRENORPHINE**, BY JURISDICTION

* In six months prior to interview  ** Among out of treatment IDU

Source: IDRS interviews with regular IDUs, 2003-2008
RECENT* INJECTION OF (MONO) BUPRENORPHINE**, BY JURISDICTION

* In six months prior to interview  ** Among out of treatment IDU

Source: IDRS interviews with regular IDUs, 2003-2008
(Out of treatment) injecting drug users

RECENT* INJECTION OF BUPRENORPHINE-NALOXONE**, BY JURISDICTION

* In six months prior to interview  **Among out of treatment IDU

Source: IDRS interviews with regular IDUs, 2006-2008
(Out of treatment) injecting drug users

RECENT* INJECTION OF BUPRENORPHINE-NALOXONE**, BY JURISDICTION

* In six months prior to interview  **Among out of treatment IDU

Source: IDRS interviews with regular IDUs, 2006-2008
INJECTION LEVELS AMONG REGULAR IDU, ADJUSTED FOR LEVEL OF AVAILABILITY
Regular injecting drug users (IDRS sample)

ANY INJECTION PAST SIX MONTHS

Ratio of % injected in past six months: 100 million standard units sold

Note: refers to injection of own or another’s OST in past six months
Regular injecting drug users (IDRS sample)

AT LEAST WEEKLY INJECTION PAST SIX MONTHS

Ratio of % injected weekly+: 100 million standard units sold

Note: refers to injection of own or another’s OST in past six months
### MAIN MOTIVATIONS AMONG IDU FOR USING ILLICIT BUPRENORPHINE-NALOXONE

2008 IDRS interviews (n=45)

<table>
<thead>
<tr>
<th>Category</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-treatment</td>
<td>- To alleviate withdrawal (53%)</td>
</tr>
<tr>
<td></td>
<td>- To alleviate pain (17%)</td>
</tr>
<tr>
<td></td>
<td>- To self-treat dependence (16%)</td>
</tr>
<tr>
<td>Intoxication</td>
<td>- Seeking opioid effect (40%)</td>
</tr>
<tr>
<td></td>
<td>- To inject (20%)</td>
</tr>
<tr>
<td>Substitution for other opiates</td>
<td>- Cheaper than other opiates (27%)</td>
</tr>
<tr>
<td></td>
<td>- Safer than heroin/other opiates (20%)</td>
</tr>
</tbody>
</table>
## STREET MARKET PRICE OF BUPRENORPHINE

2007-2008 IDRS interviews

<table>
<thead>
<tr>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Subutex 2mg</td>
<td>$10</td>
<td>$3-30</td>
<td>37</td>
<td>$10</td>
<td>$5-50</td>
<td>29</td>
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<tr>
<td></td>
<td>$6</td>
<td>$2-25</td>
<td></td>
<td>$10</td>
<td>$5-20</td>
<td>15</td>
</tr>
<tr>
<td>Suboxone 2 mg</td>
<td>$30</td>
<td>$7-80</td>
<td>88</td>
<td>$35</td>
<td>$1-100</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>$23</td>
<td>$4-60</td>
<td></td>
<td>$35</td>
<td>$5-60</td>
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<td>$5-60</td>
<td>35</td>
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</tbody>
</table>
PART 3:

DIVERSION AND INJECTION AMONG OPIOID TREATMENT PROGRAM (OTP) CLIENTS

Interviews conducted in 2007 and 2008 in NSW, SA and VIC
## SAMPLE CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th></th>
<th></th>
<th>2008</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SA</td>
<td>VIC</td>
<td>NSW</td>
<td>TOTAL</td>
<td>SA</td>
<td>VIC</td>
<td>NSW</td>
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<tr>
<td>MET</td>
<td>50</td>
<td>50</td>
<td>57</td>
<td>157</td>
<td>51</td>
<td>49</td>
<td>53</td>
</tr>
<tr>
<td>BPN</td>
<td>29</td>
<td>36</td>
<td>61</td>
<td>126</td>
<td>37</td>
<td>51</td>
<td>61</td>
</tr>
<tr>
<td>BNX</td>
<td>41</td>
<td>64</td>
<td>11</td>
<td>116</td>
<td>55</td>
<td>63</td>
<td>20</td>
</tr>
<tr>
<td>TOTAL</td>
<td>120</td>
<td>150</td>
<td>129</td>
<td>399</td>
<td>143</td>
<td>163</td>
<td>134</td>
</tr>
</tbody>
</table>
Opioid substitution treatment clients: non-adherence

**RECENT* INJECTION OF PRESCRIBED OTP MEDICATION**

*In the past six months  **Among OTP clients in that form of treatment

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**Bar Graph:**
- **Percentage of all participants in that form of OTP:**
  - Methadone: 30% in 2007, 25% in 2008
  - Buprenorphine: 35% in 2008
  - Buprenorphine-naloxone: 15% in 2007, 10% in 2008
Opioid substitution treatment clients: non-adherence

WEEKLY+ INJECTION* OF PRESCRIBED OTP MEDICATION**
*In the past six months  **Among OTP clients in that form of treatment

<table>
<thead>
<tr>
<th>Medication Type</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone</td>
<td>10%</td>
<td>15%</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>Buprenorphine-naloxone</td>
<td>5%</td>
<td>10%</td>
</tr>
</tbody>
</table>

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* The graph shows the percentage of all participants in that form of OTP who did not adhere to their prescribed medication.

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** Notes:
- Weekly injection: This refers to the frequency of the injection required as part of the treatment.
- Prescribed OTP medication: This refers to the specific medications prescribed as part of the opioid substitution treatment program.
RECENT* REMOVAL OF SUPERVISED DOSES FROM DOSING SITE**, 2007-2008

*In the past six months  **Among OTP clients in that form of treatment

![Graph showing percentage of all participants in that form of OTP for 2007 and 2008, with methadone, buprenorphine, and buprenorphine-naloxone categories.]
RECENT* REMOVAL OF SUPERVISED DOSES FOR INJECTION**, 2007-2008

*In the past six months  **Among OTP clients in that form of treatment

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
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<tr>
<td>Methadone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>Buprenorphine-naloxone</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

Percentage of all participants in that form of OTP.
% OST CLIENTS WHO REPORTED “NO LIKING” OF INJECTING OTP MEDICATION*

*Among OTP clients who had reported injecting their medication in past 6 months
COMPARING IDU’ AND OTP CLIENTS’ LEVELS OF INJECTION, 2008

Any injection past six months

Weekly+ injection

Notes:
• Among regular (out of treatment) IDU, n=440.
• Among OTP clients in that form of treatment: methadone n=153, buprenorphine n=149; buprenorphine-naloxone n=138
## LIKELIHOOD OF FUTURE BUPRENORPHINE-NALOXONE INJECTION

<table>
<thead>
<tr>
<th></th>
<th>% OTP clients</th>
<th>% Out of Rx IDU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liked the effect</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Likely to inject again</td>
<td>54</td>
<td>61</td>
</tr>
<tr>
<td>No liking of the effect</td>
<td>22</td>
<td>27</td>
</tr>
<tr>
<td>Not at all likely to inject</td>
<td>22</td>
<td>22</td>
</tr>
</tbody>
</table>

*(>5 on a 0-10 scale of liking/likelihood)  
**(0 on a 0-10 scale of liking/likelihood)
PREDICTORS OF OTP INJECTION, 2007 data

Out of treatment IDUs
- Injection of multiple pharmaceutical opioids

OTP clients
- Injection of morphine
SOME PRELIMINARY CONCLUSIONS

Buprenorphine-naloxone injected by fewer IDUs, less frequently, compared to mono-buprenorphine
- particularly salient given differences in treatment availability and important differences in provision of takeaway doses

Among those in OTP, injection appeared less likely and less frequent for buprenorphine-naloxone vs. mono-buprenorphine

In 2008, buprenorphine-naloxone had a similar street value to mono-buprenorphine

Some did regularly inject buprenorphine-naloxone

Post-marketing studies must continue for sufficient time - trends observed might differ should mono-buprenorphine be ceased or other treatment variables change
ACKNOWLEDGEMENTS

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THANK YOU!

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