Identifying Key Characteristics and Habits of the Recreational Drug User

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Introduction

- The non-dependent, recreational drug user is the most frequently used population in human abuse potential (HAP) studies for regulatory submissions.
- A formal definition of ‘recreational drug use’ has not been established.
- Represent a subset of the drug abusing population.
- Distinct patterns of use.

Image: http://iashynosis.com/drug-abuse/
Regulatory Guidances – Defining the Population

● **FDA**
  – “These studies are generally conducted in a drug-experienced, recreational user population”¹
  – “HAP studies should be conducted in experienced recreational drug users who have a recent history of using drugs in the same general pharmacological class as the test drug (e.g. sedative, stimulant, opioid, or hallucinogen). Typically, subjects who qualify for the study have had numerous recent recreational experiences with the drug class.”²

● **Health Canada**
  – “Abuse liability studies are usually carried out in non-dependent, recreational (non-therapeutic) drug users”³,⁴

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Exclusion Criteria - Defining the Population

“During screening, a thorough recreational drug history should be taken from each potential subject that details the drugs used, the frequency of use (overall number of times used and the typical amount used), and the time since last use.

Individuals should be excluded from participation in the study if they are currently dependent on a drug (other than caffeine or nicotine) or if they are in drug treatment or recovery.”

Approximately 2% in a sample of 667 subjects met criteria for dependence

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**Table 1. DSM-IV Versus DSM-5 Diagnostic Criteria**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>DSM-IV-TR(^a)</th>
<th>DSM-5(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role obligation failure</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td>Continued use despite social/interpersonal consequences</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Recurrent use in hazardous situations</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Repeated legal problems</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td>Use in larger amounts or longer period than intended</td>
<td>—</td>
<td>X</td>
</tr>
<tr>
<td>Desire or unsuccessful effort to cut down</td>
<td>—</td>
<td>X</td>
</tr>
<tr>
<td>Great deal of time</td>
<td>—</td>
<td>X</td>
</tr>
<tr>
<td>Sacrificing activities</td>
<td>—</td>
<td>X</td>
</tr>
<tr>
<td>Continued use despite physical/psychological consequences</td>
<td>—</td>
<td>X</td>
</tr>
<tr>
<td>Tolerance</td>
<td>—</td>
<td>X</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>—</td>
<td>X</td>
</tr>
<tr>
<td>Craving</td>
<td>NA</td>
<td>X</td>
</tr>
<tr>
<td><strong>Number of criteria required for diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Mild</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Moderate</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Severe</td>
<td>NA</td>
<td>≥ 6</td>
</tr>
</tbody>
</table>


NA, not applicable.

Drug Abusing Populations

- Novice/First Time User
- Non-dependent, Recreational Drug User
- Dependent, Drug User “Addict”
Progression of Routes of Abuse

Table. Route of administration of OxyContin abuse reported at the time of initial use vs at time of admission to Addictive Disease Unit in patients with and without reported concomitant pain.

<table>
<thead>
<tr>
<th></th>
<th>Initial Use</th>
<th>Time of Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>pain (N=53)</td>
<td>no pain (N=51)</td>
</tr>
<tr>
<td>Intranasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intravenous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>pain (N=53)</td>
<td>no pain (N=64)</td>
</tr>
<tr>
<td>Intranasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intravenous</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Progression of Routes of Abuse

Table. Route of administration of opioid abuse reported at the time of initial use (N=112) vs at time of admission to addiction treatment (N=133)

Mean duration from initial use to time of admission = 19.2 months
Defining “Recreational Drug Use”

● General definition:

● Recent recreational drug use (use for non-medical reasons, e.g. “to get high”) in the past year or past 30 to 90 days.
  – e.g. recreational opioid use $\geq$ 10 times in the past year with $\geq$ 1 or more uses in the past 2-3 months$^{1-4}$

● Additional criteria added for alternate routes of administration
  – e.g. intranasal use of opioid $\geq$ 3 times in the past year$^{1,3,5}$


Recreational Opioid Users – Key Characteristics

- Recreational opioid users in Canada (N=174) and the US (N=80) completed a survey on drug use
  - Majority first took an opioid for nonmedical purposes between 12-18 years (US; 63%) and 19-24 years (Canada; 35%)
  - Most prevalent reasons for first taking an opioid were reported as to treat pain (US 55%; Canada 26%) and to feel high or stoned (US 38%; Canada 59%)
  - The most commonly abused opioid (past year) were oxycodone, Tylenol with codeine, and morphine in Canada and hydrocodone, oxycodone and Tylenol with codeine in the US.
  - Oxycodone was indicated as being the opioid that is most enjoyed to get high (88% Canada, 75% US)
  - Swallowing intact and crushed drug, as well as intranasal administration were most commonly reported

Recreational Opioid Users – Key Characteristics

- Recreational opioid users in Canada (N=174) and the US (N=80) completed a survey on drug use
  - The most common sources of opioid was either free (47% CAN-66% US) or bought (52% US – 60% CAN) from a friend/family member
  - Bought from a stranger (13% US – 25% CAN) or obtained from one doctor (10% CAN-12% US) were the next most common sources
  - Most subjects in Canada (74%) and US (66%) indicated using other drugs with opioids to get high
    - Marijuana (79 CAN; 92% US) and alcohol (65 US -68% CAN) were the most commonly combined drugs

In a database of 5018 self-reported recreational opioid users

- Most were males (72.7%) compared to females (27.3%) and between the ages of 18-55 (89.7%)
- Less than half were smokers (45%) with fairly even distribution across males (45.9%) and females (42.6%)
- The majority preferred taking opioids orally (51.8%) followed by intranasal (36%), intravenous (10.2%) and patch (2.0%)
- Other reported drugs of abuse included THC (52%), sedatives (20%), stimulants (18%) and hallucinogens (10%)
Recreational Drug Users – Key Characteristics

● In a database of 120 self-reported recreational opioid users
  – The mean number of reported alcoholic drinks/week was 5.87 (5.17 females; range 0-24); 6.06 males; range 0-60)

<table>
<thead>
<tr>
<th>Opioid Used</th>
<th>Route of Administration</th>
<th>Average Number of Times Used in Past 8 Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oral (N=105)</td>
<td>Intransal (N=97)</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>64 (61.0)</td>
<td>56 (57.7)</td>
</tr>
<tr>
<td>Oxycodone/APAP</td>
<td>39 (37.1)</td>
<td>26 (26.8)</td>
</tr>
<tr>
<td>Codeine</td>
<td>23 (21.9)</td>
<td>4 (4.1)</td>
</tr>
<tr>
<td>Oxycontin</td>
<td>18 (17.1)</td>
<td>21 (21.6)</td>
</tr>
<tr>
<td>Morphine</td>
<td>10 (9.5)</td>
<td>10 (10.3)</td>
</tr>
<tr>
<td>Codeine/Tylenol #3</td>
<td>11 (10.5)</td>
<td>3 (3.1)</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>6 (5.7)</td>
<td>5 (5.2)</td>
</tr>
<tr>
<td>Hydromorphone/Dilaudid</td>
<td>6 (5.7)</td>
<td>8 (8.2)</td>
</tr>
<tr>
<td>Opium</td>
<td>1 (1.0)</td>
<td>0</td>
</tr>
<tr>
<td>Vicodin</td>
<td>1 (1.0)</td>
<td>0</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>0</td>
<td>2 (2.1)</td>
</tr>
<tr>
<td>Heroin</td>
<td>0</td>
<td>7 (7.2)</td>
</tr>
</tbody>
</table>
Subject interviews in 5 recreational drug users

• Don’t consider themselves as “abusers”
  – Ability to function at work/home

• Take drugs to feel good, reduce stress/anxiety

• Ways of abusing OxyNEO (Contin) (e.g. microwaving) but lose drug in process

• Prefer immediate release formulations because less filler

• Don’t want to spend more than 5 minutes on tampering drugs

• Prescription opioids are readily accessible on the street (high quantities/little time)

• Tend to snort smaller volumes over the course of an evening

• Studies shouldn’t limit age to 55 years
Study Considerations - Recreational Drug Users

- Drug abuse history
- Routes of administration
- Smoking status
- Scheduling (including smoking breaks)
- Positive urine drug screens (10-15% at screening)
- Contraband items
- Subject safety
Summary

- Standardized definition needed
- Recreational users are a distinct drug using population
- Have opioid/route preferences
- Special considerations compared to health volunteer populations
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am connected
Developing the medicines people need is something we take personally
am INC Research