3rd Quarter 2015 Technical Report

Abuse Prevalence and Preference of Immediate Release versus Extended Release Opioids.

Key Points:

1. Nearly all prescription opioid abusers have abused both immediate and extended release formulations (98.7% and 91.0%, respectively).
2. Non-oral routes of administration are used with similar, high frequencies for both immediate (62.0%) and extended release opioids (66.3%, McNemar p=0.64)
3. Immediate release opioids are preferred by a wide margin (66.1% vs. 4.0%) over extended release opioids for abuse purposes.
4. Qualitative data suggests ease of manipulation drives the preference for immediate release opioids over extended release opioids.
5. Abuse deterrent formulations may be equally effective in discouraging insufflation or intravenous administration of both ER and IR drugs.

Background

It is well recognized that an "epidemic" of prescription opioid abuse ensued after two events in the 1990s: 1) The advent of extended release preparations of opioids which made large amounts of drug available in a single pill[1]; and 2) a report by Joint Commission on the Accreditation of Hospitals (JCAHO) emphasizing that pain was inadequately treated with, among other methods, opioids[2]. This report resulted in a surge in the prescribing of opioids and the subsequent, inevitable diversion of some percentage of total drug availability for non-therapeutic use amongst vulnerable individuals seeking mood-altering effects[3]. Although there is evidence that the prevalence of prescription opioid abuse is waning somewhat[4], abuse and the associated side-effects – e.g., overdose deaths – remain a national public health concern. Surprisingly, although extended release formulations of opioids (e.g., oxycodone) are credited with adding momentum to the surge in non-therapeutic use, it is unclear whether users prefer extended release products or rather are more inclined to abuse immediate release compounds. This distinction is extremely important in a number of ways, not the least of which are efforts to develop abuse deterrent formulations (ADFs) to discourage tampering only with extended release opioids. The logical question becomes, are ADFs necessary for immediate release, as well as extended release, compounds?

Methods

Program & Statistical Analysis

This report utilized data from a subset of participants from the ongoing nationwide Survey of Key Informants' Patients Program, a part of the Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System. The SKIP Program consisted of Key Informants from over 125 public and privately funded treatment centers in 49 states, who were asked to recruit clients over the age of eighteen entering substance abuse treatment programs with an opioid as their primary drug of abuse. Clients were asked to complete an anonymous, paper survey centered on opioid abuse patterns and related behaviors. A sub-set of these respondents indicated by a mail-in postcard provided with the survey that they were willing to give up their anonymity and participate in an interview-based study, dubbed Researchers and Participants Interacting Directly (RAPID). The purpose of the RAPID program is to supplement and add context to the structured survey by establishing a two-way exchange of information with participants where questions were developed, administered and answered within a short time period.

RAPID participants complete quarterly, online surveys with direct, structured questions as well as open-ended, qualitative questions to allow for a greater understanding of research topics. Data from this study stem from 301 RAPID participants that completed a survey from 22 December 2014 to 24 February 2015. All protocols were approved by the Washington University in St. Louis Institutional Review Board. Descriptive statistics were used to present rates of lifetime abuse of immediate release and extended release opioids, oral vs. non-oral use of these opioids and preferences for immediate vs. extended release opioid formulations. McNemar's test was used to compare correlated proportions.

Results

- As shown in Figure 1, over 90% of our sample abused IR and ER opioids at least once in their lifetime.
- OxyContin® was the most abused ER opioid (88.7%), however, two IR products, Vicodin® (92.7%) and Percocet® (90.6%), were abused by a higher proportion (Figure 1).
- Oral routes of administration (e.g., swallowing, chewing, under the tongue) were reported at slightly higher levels among IR opioid and ER opioid formulations (89.9% vs. 84.2%, respectively, Figure 2, p=0.003).
- Non-oral routes of administration (e.g., smoking, snorting or injecting) were also reported at similar levels among IR opioid and ER opioid formulations (62.0% vs. 66.3%, respectively, Figure 2 p=0.64)
- Immediate release opioids were preferred by a large margin (66.1%) compared to extended release opioids (4.0%), with 29.9% reporting they had no formulation preference (Figure 3).
- Quotes representative of the preference for IR opioids:
    - "To get a good feeling from extended release opioids, one must apply a good deal of chemistry and/or preparation. It takes some filing, some powdering, and some use of an acidic liquid, like coca-cola in order to break down the extended release properties."
    - "Immediate-Release opioids don't have binders that need to be extracted in them, which makes them much easier to abuse in all ways of ingestion."
    - "Usually didn't involve removing a coating of some kind and you get all the medicine at one time."
    - "I never chewed the extended release out of a fear of hurting/killing myself and the extreme nausea I'd get from taking too much for my tolerance."

Figure 1 Lifetime prevalence of opioid abuse
(Top 10 most endorsed prescription opioids)

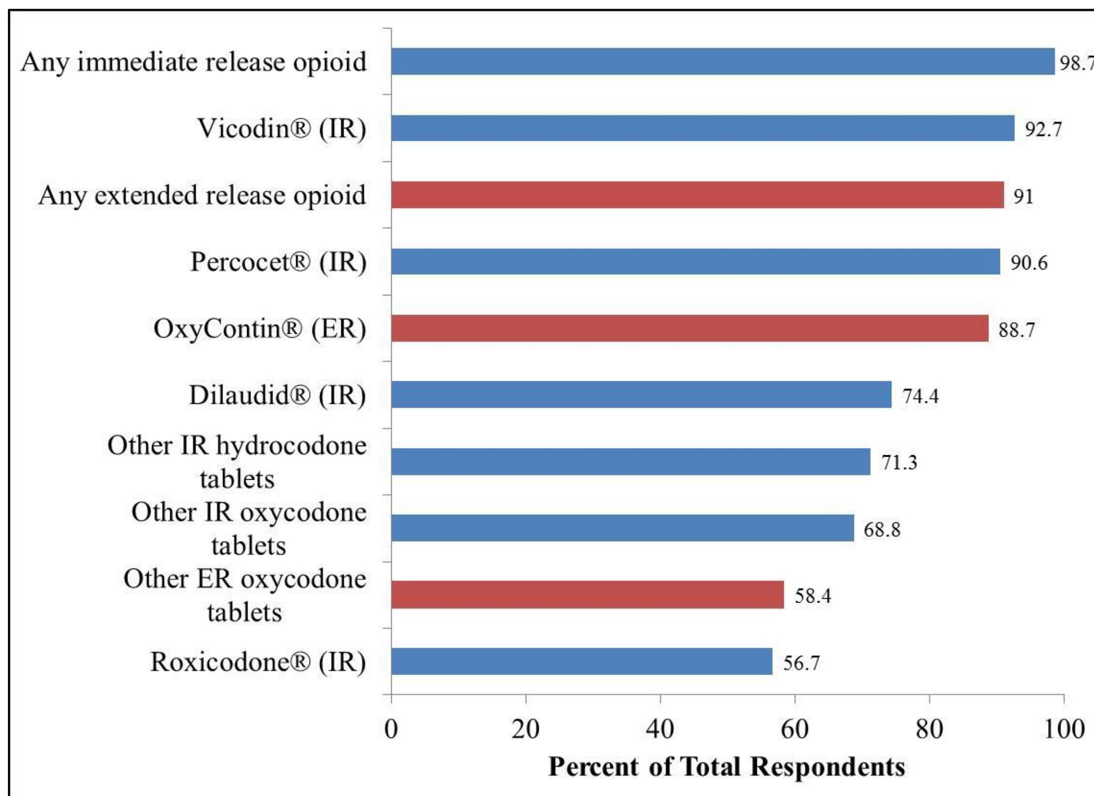


Figure 2 Oral vs. Non-Oral Routes of Administration (ROA) of Immediate Release and Extended Release Opioids

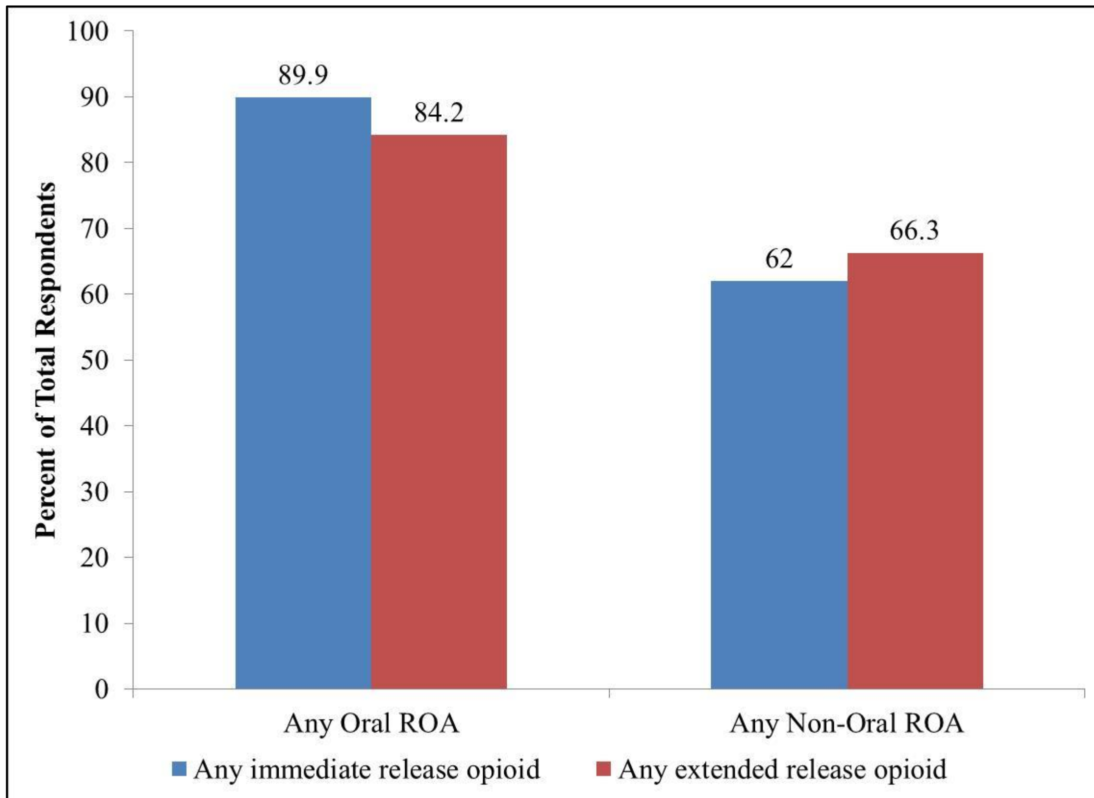
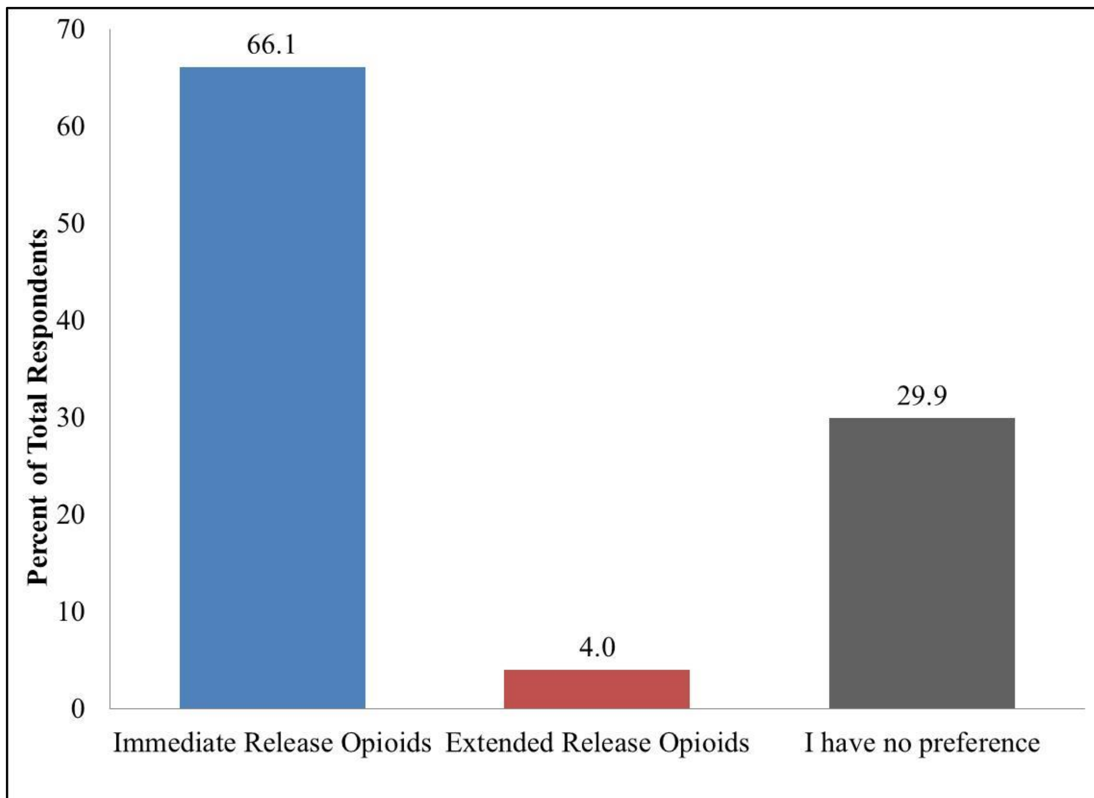


Figure 3 Formulation preferences of prescription opioid abuse



Conclusions

Our results indicate that nearly all treatment seeking opioid abusers have life-time experience with both immediate and extended release opioids. Moreover, oxycodone and hydrocodone, no matter the formulation, were the clear drugs of choice (Note: it is too soon to determine the impact of Zohydro, the new extended release formulation of hydrocodone, but it seems unlikely it will supersede oxycodone products). Non oral routes of administration were used by nearly two-thirds of *both* immediate release and extended release abusers, but immediate release opioids were vastly more preferred than extended release opioids for abuse purposes. Our qualitative data suggest ease of abuse/tampering is a motivating factor in the preference for IR opioids. This research would seem to suggest that abuse deterrent formulations would be as useful, if not more, so for immediate release formulations, as well as extended release formulations. There are two factors to consider however: First, IR compounds are meant to have a rapid onset of action so no ADF can hamper that; and second, it needs to be recognized that ADFs of either IR or ER will discourage insufflation and IV administration but have relatively little effect on the most common oral route of administration. In this connection, it should be recognized that abusers do not appear to give up oral routes of administration for non-oral routes (e.g., inhalation and injection). Rather, there seems to be a flow back and forth, depending on circumstances.

Suggested citation

Cicero TJ, Ellis MS, Harney J (2015). Abuse prevalence and preference of immediate release versus extended release opioids. RADARS® System Technical Report, 2015Q4.

References

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