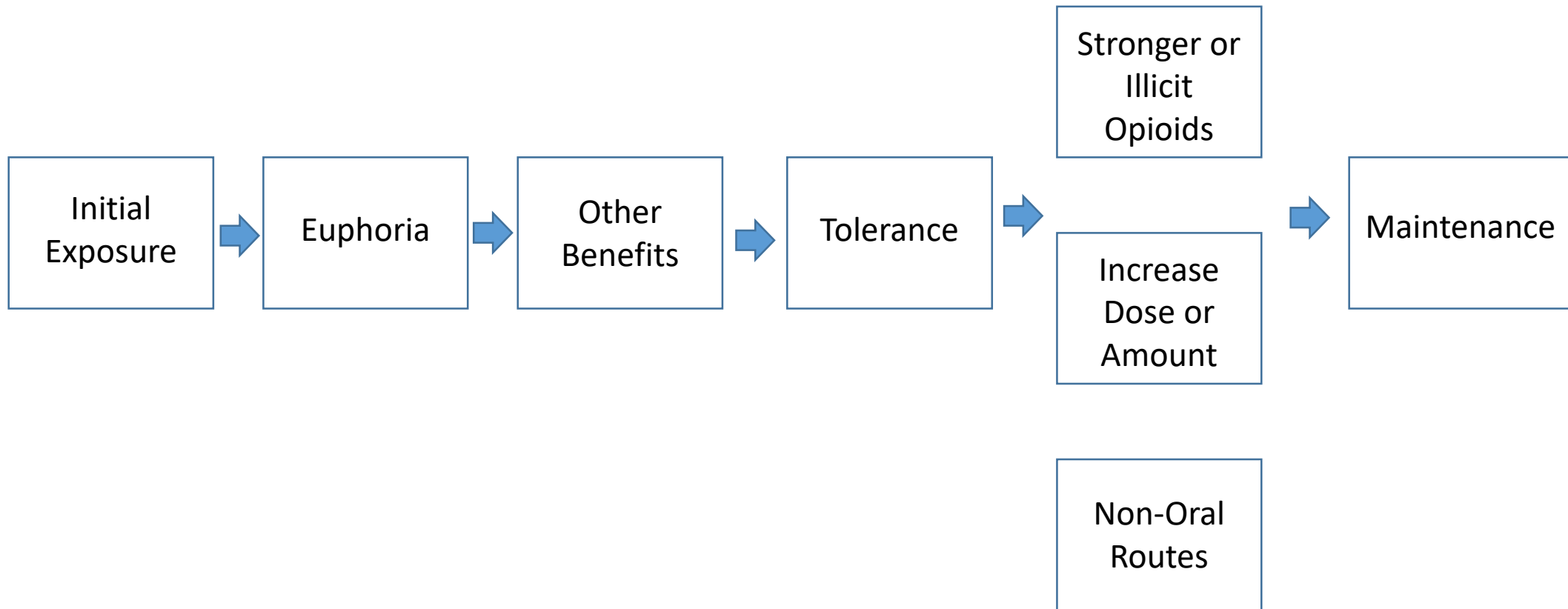


Understanding opioid trajectories: Decision-making and high dosage opioids

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Common Opioid Trajectory



Initiation of prescription opioid use



“I was prescribed Vicodin[®] for pain associated with a kidney stone when I was 14. It not only took away the pain, but made me feel really good all over. I had smoked pot and drank before but nothing compared to the feeling Vicodin[®] gave me.”

Cicero TJ, Ellis MS, Kasper ZA. Understanding the demand side of the prescription opioid epidemic: does the initial source of opioids matter? Drug and Alcohol Depend. 2017 Apr 1; 173 Suppl1:S4-S10.

“It felt like God was petting me.”



Unanticipated benefits of sustained use



Have you ever used opioids to self-treat psychological or psychiatric issues?

73.4% (First exposure, Rx)

67.1% (First exposure, Non-Rx)

Have you ever used opioids as a means of “escaping from life”?

85.1% (First exposure, Rx)

79.0% (First exposure, Non-Rx)

Cicero TJ, Ellis MS, Kasper ZA. Understanding the demand side of the prescription opioid epidemic: does the initial source of opioids matter? Drug and Alcohol Depend. 2017 Apr 1; 173 Suppl1:S4-S10.

“Finally relief. Not only for the pain of the broken collar bone but, most importantly for my mind. I loved the [feeling] of euphoria. I finally felt comfortable in my own skin. I could talk to anyone. I felt what I thought I was supposed to [feel] like. Extremely happy. I knew I found the secret to my happiness. Well I was wrong it ruined my life.”

Cicero TJ, Ellis MS, Kasper ZA. Understanding the demand side of the prescription opioid epidemic: does the initial source of opioids matter? Drug and Alcohol Depend. 2017 Apr 1; 173 Suppl1:S4-S10.

“Forget about shame, forget about failures/shortcomings, to get relief from personal burdens/struggles, distract self from lack of inner peace.”

Cicero TJ, Ellis MS, Kasper ZA. Understanding the demand side of the prescription opioid epidemic: does the initial source of opioids matter? Drug and Alcohol Depend. 2017 Apr 1; 173 Suppl1:S4-S10.

“The escape was from the real pain I had from the back problems, but also it allowed your mind to release and think in comfort, rather than in a stressful way...I have never been as successful or motivated or feel good as when I was on opioids.”

Cicero TJ, Ellis MS, Kasper ZA. Understanding the demand side of the prescription opioid epidemic: does the initial source of opioids matter? Drug and Alcohol Depend. 2017 Apr 1; 173 Suppl1:S4-S10.

‘Tipping point’ from benefits to maintenance



“If I didn’t have it in my system, I was throwing up, I was extremely sick...if I didn’t have the [oxycodone/hydrochloride] or the [oxycodone] or the methadone, I was dope sick...I thought I was going to have a heart attack. Your heart races, you’re shaking...as long as I had it in my system it was okay.”

Cicero TJ, Ellis MS. The prescription opioid epidemic: A review of qualitative studies on the progression from initial use to abuse. *Dialogues in Clinical Neuroscience*. 2017;19(3):259-270.

“Right before I entered my first treatment program, I was not “getting high” any more, I was purely seeking the drug to stay well. I was tired of being addicted but could not stop using on my own, I would get into the withdraw[al] symptoms and need to use because I would get too sick. I would beg borrow or steal just to be able to get money to get opioids...No one knew I used so I had to be able to function every day.”

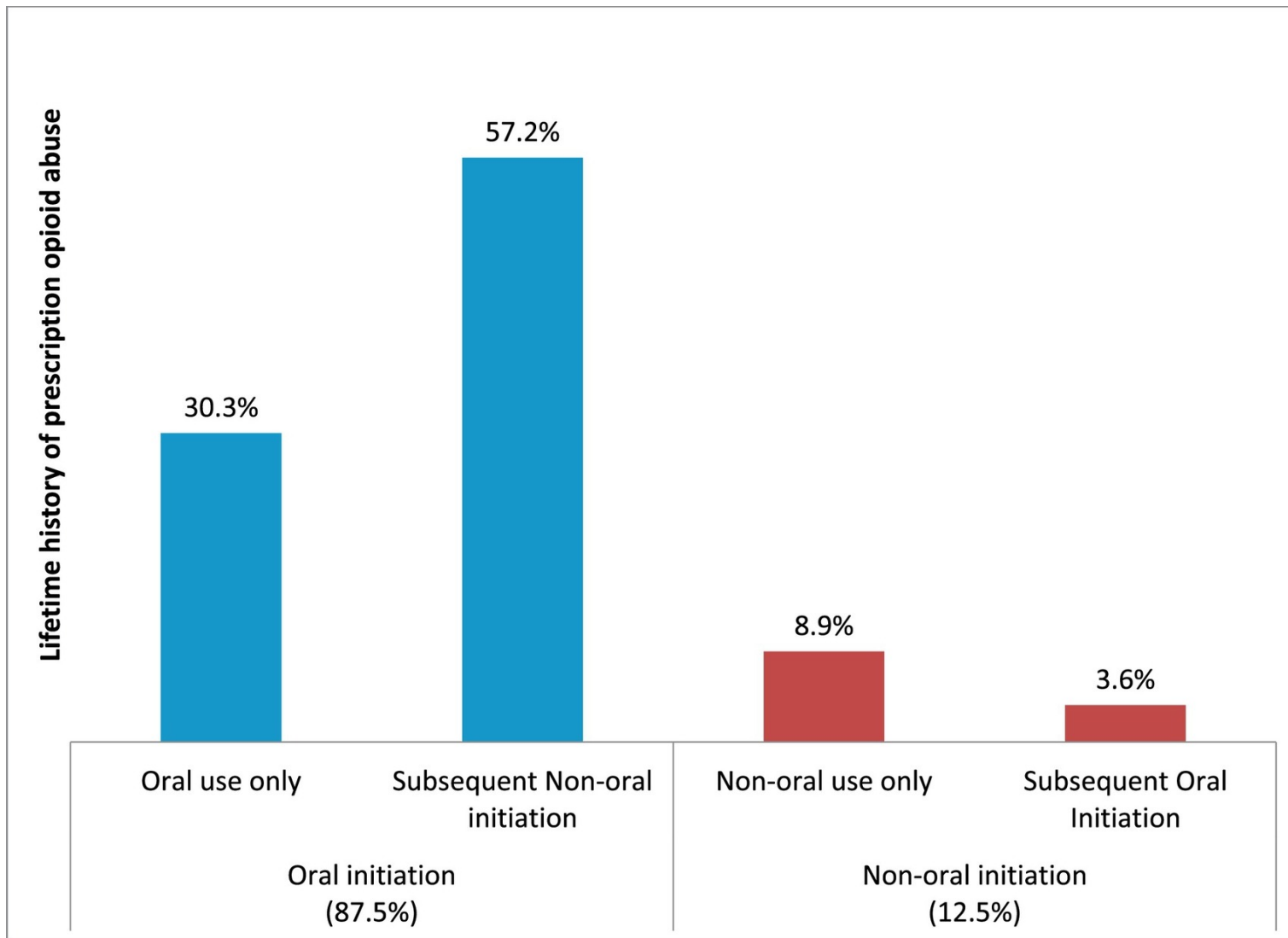
Cicero TJ, Ellis MS, Kasper ZA. Understanding the demand side of the prescription opioid epidemic: does the initial source of opioids matter? Drug and Alcohol Depend. 2017 Apr 1; 173 Suppl1:S4-S10.

“My motivation for using opioids at that point [of entering treatment] was 90% not be dope sick and 10% to get high. I wouldn’t even worry about feeling high cause I just cared about not being dope sick I could just function in day to day activities.”

Cicero TJ, Ellis MS, Kasper ZA. Understanding the demand side of the prescription opioid epidemic: does the initial source of opioids matter? Drug and Alcohol Depend. 2017 Apr 1; 173 Suppl1:S4-S10.

Route of Administration





- Most individuals begin with oral use
- Not everyone advances to non-oral routes (even when controlling for length of use)

Cicero TJ, Ellis MS, Kasper ZA. Oral and non-oral routes of administration among prescription opioid users: pathways, decision-making and directionality. *Addictive Behaviors*. November 2018;86:11-16.

How do users cope with tolerance?



Option 1: Use of multiple pills



TABLE 1 Demographics and patterns of RAPID multi-pill users
(n = 154)

Maximum number of pills swallowed	
4 to 5 pills	37 (25.2)
6 to 10 pills	79 (53.7)
11 to 20 pills	22 (15.0)
Over 20 pills	9 (6.1)
Median	8
Frequency of multi-pill use in past month (n = 112)	
Only once or twice	24 (21.4)
Once a week	10 (8.9)
Several times a week	20 (17.9)
Once a day	9 (8.0)
More than once a day	49 (43.8)

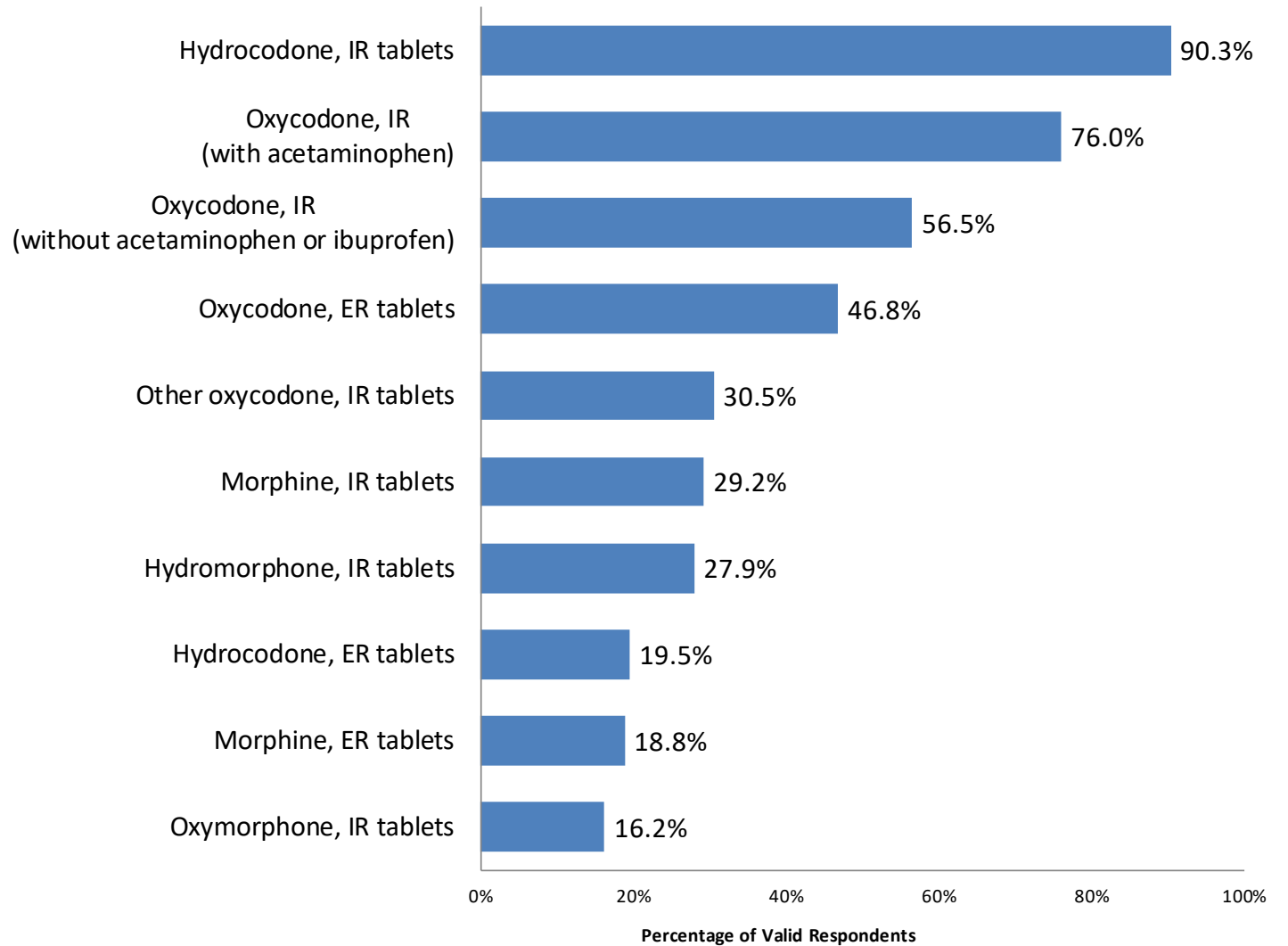
85.4% cited accessibility or availability as driving the decision to swallow multiple pills instead of using fewer pills of a higher dosage

“Only able to obtain a certain mg without paying higher rates.”

“I didn't want my addiction to be obvious by asking my doctor for a higher dose.”

“I couldn't get a higher dose from the doctors so I improvised and took more pills to get the desired high I was after.”

Ellis MS, Cicero TJ, Kasper ZA. Understanding multi-pill ingestion of prescription opioids: a mixed-methods, exploratory analysis. *Pharmacoepidemiology & Drug Safety*. 2019;28(1):117-121.



Top 10 drugs used when ingesting multiple pills

Ellis MS, Cicero TJ, Kasper ZA. Understanding multi-pill ingestion of prescription opioids: a mixed-methods, exploratory analysis. *Pharmacoepidemiology & Drug Safety*. 2019;28(1):117-121.

Why not use non-oral routes?



Negative characteristics of non-oral methods (57.5%)

- Fear/discomfort of non-oral methods (45.2%)
 - “I did not want to smoke, snort or inject them because I was afraid of the risk that I would then want to use/try heroin”
- Perception of addiction status (8.2%)
 - “Kept wanting to do it as prescribed even though I may have taken more, I didn’t feel like an addict if I did it this way.”

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Negative characteristics of non-oral methods (57.5%)

- Disliked experimentation (6.8%)
 - “I tried snorting them once, did not enjoy that. It was too much once the pill was crushed and caused burning of nasal passage ways. So resumed orally instead.”
- Socially unacceptable (2.7%)
 - “It is more socially acceptable to pop a pill in my mouth, than it is to shoot in my arm.”

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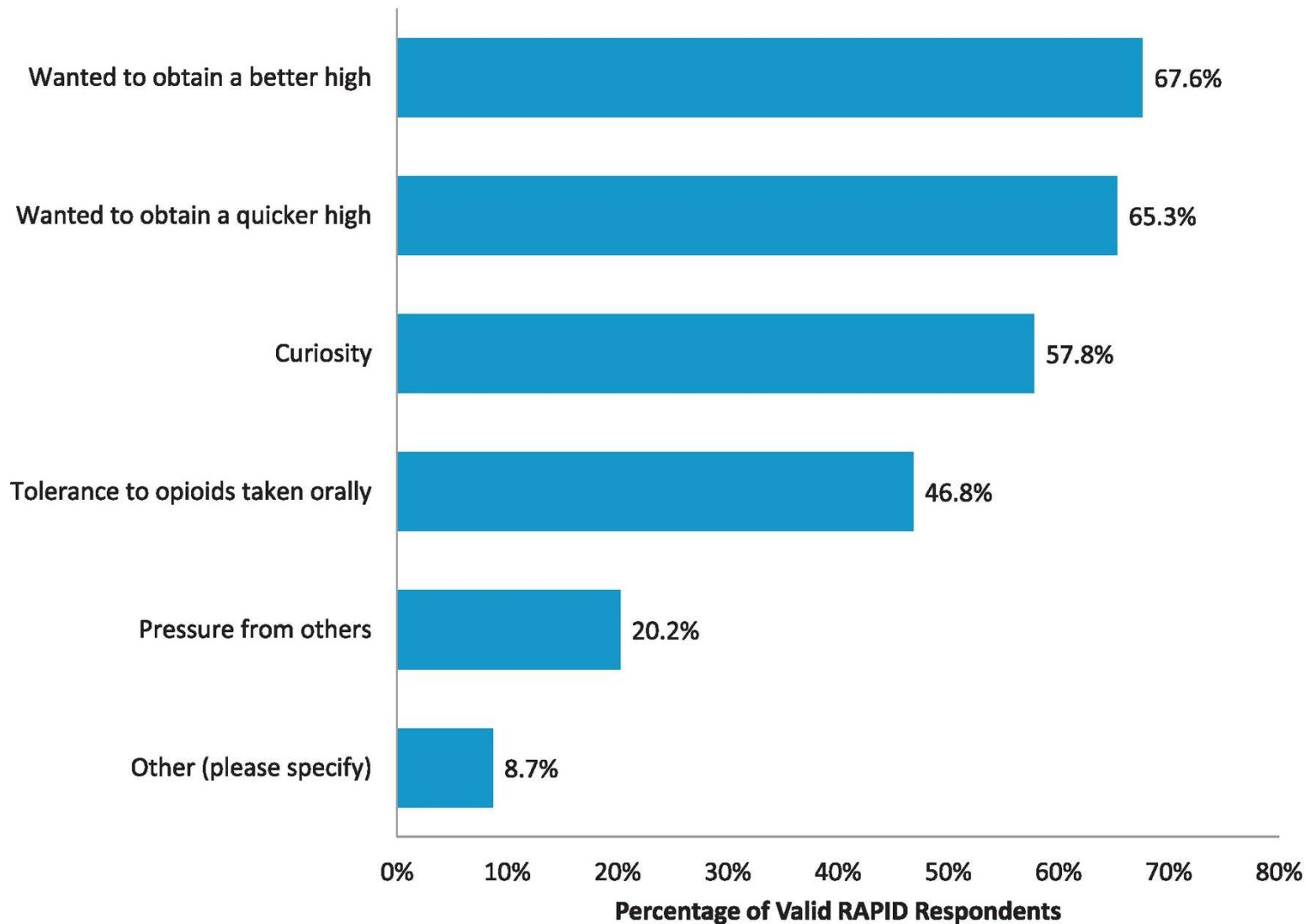
Other motivations

- Oral methods sufficient to attain feeling/high (15.1%)
 - “Got the feeling I was looking for orally therefore no need to change method.”
- Lack of desire/want to use non-oral methods (41.1%)
 - “I just never was interested in taking opioids in that manner.”

Cicero TJ, Ellis MS, Kasper ZA. Oral and non-oral routes of administration among prescription opioid users: pathways, decision-making and directionality. *Addictive Behaviors*. November 2018;86:11-16.

Option 2: Non-oral routes of administration

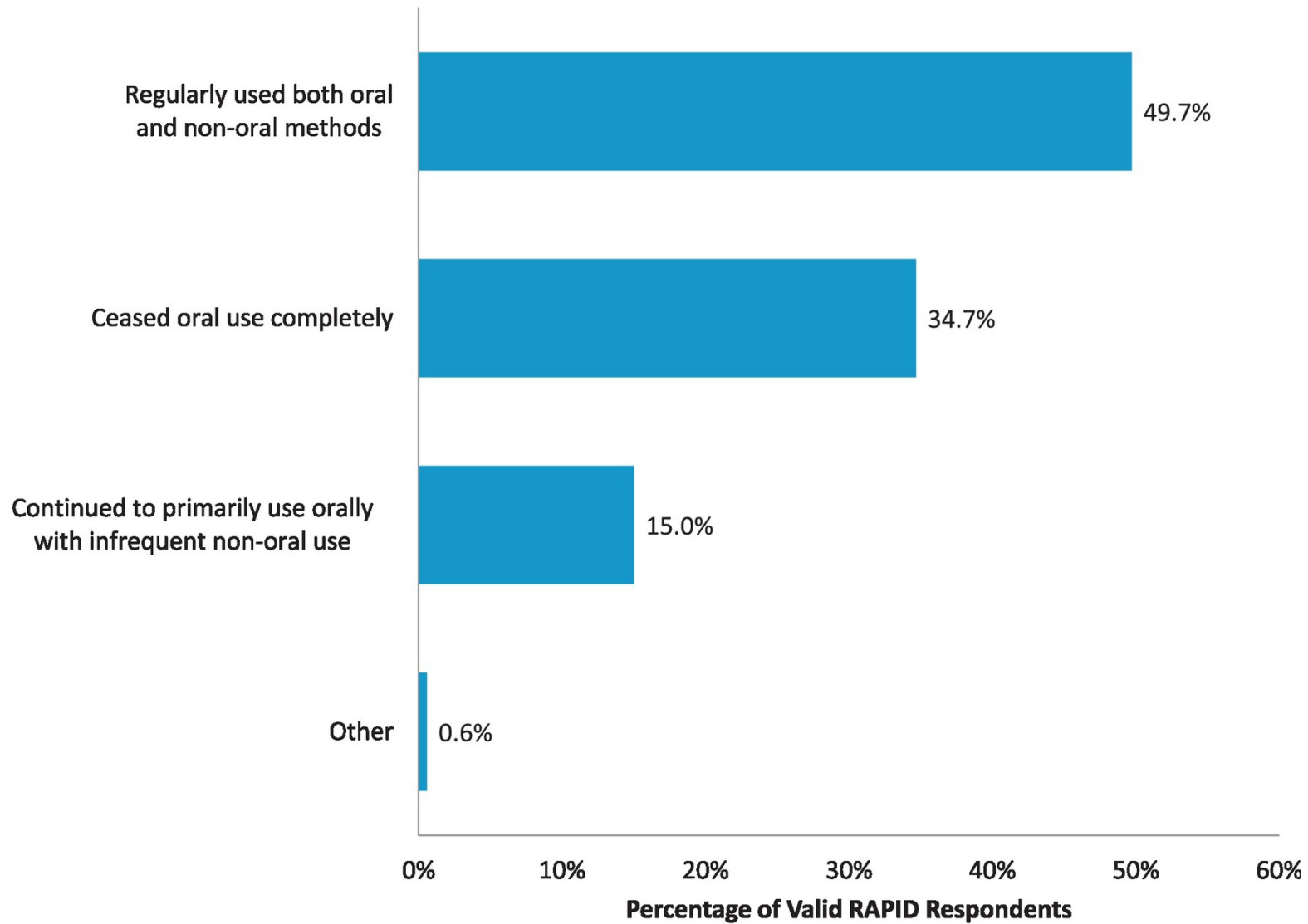




Motivations to move from oral to non-oral methods



Cicero TJ, Ellis MS, Kasper ZA. Oral and non-oral routes of administration among prescription opioid users: pathways, decision-making and directionality. Addictive Behaviors. November 2018;86:11-16.



Impact of non-oral initiation on oral methods

Cicero TJ, Ellis MS, Kasper ZA. Oral and non-oral routes of administration among prescription opioid users: pathways, decision-making and directionality. *Addictive Behaviors*. November 2018;86:11-16.

Deciding between oral and non-oral use of prescription opioids



Drug Related Factors

- Specificity of drug (33.9%)
 - “If it was hydrocodone I would chew them. If it was something like Percocet I would snort. If it was instant releases like Roxicodone I would sniff or inject, usually inject. Dilaudid would be injected. Morphine and Opana would be orally.”
- Ability/ease of tampering (22.9%)
 - “The harder it was to break down to shoot up, the more likely I was to swallow it instead.”

Cicero TJ, Ellis MS, Kasper ZA. Oral and non-oral routes of administration among prescription opioid users: pathways, decision-making and directionality. Addictive Behaviors. November 2018;86:11-16.

Drug Related Factors

- Fillers (22.0%)
 - “When they didn’t contain acetaminophen I would snort them. When they had acetaminophen I didn’t even consider snorting.”
- Better feeling/high (19.3%)
 - “Certain opioids feel better when taken orally.”
 - “It depended on the bioavailability of the drug. Opana is useless orally but gets you very high using other methods. Oxycodone is one that I feel give a better high if used orally.”

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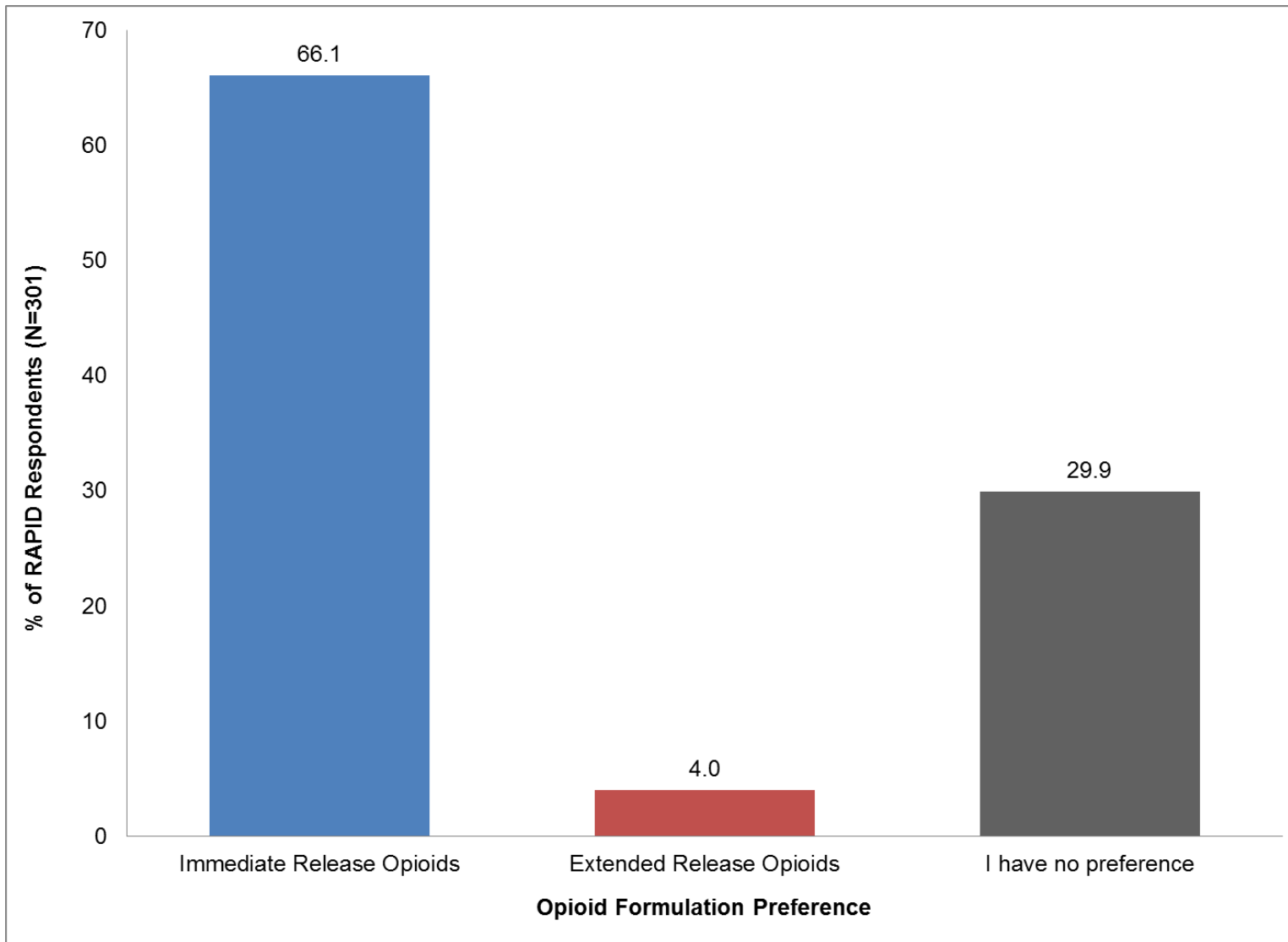
Non-Drug Related Factors

- Better feeling/high (47.5%)
 - “Once I got deeper into addiction and my inhibitions lessened toward injecting, I would choose to inject due to the better quality and more immediate high.”
- Setting (33.3%)
 - “Orally is easier to hide when you’re around family or coworkers”
- Practical factors (23.3%)
 - “Amount I was going to take and how much powder they would break down to. Sometimes it was just too much powder to snort.”

Cicero TJ, Ellis MS, Kasper ZA. Oral and non-oral routes of administration among prescription opioid users: pathways, decision-making and directionality. Addictive Behaviors. November 2018;86:11-16.

Drivers of prescription opioid selection





Lifetime Use

IR = 98.7%

ER = 91.0%



Cicero TJ, Ellis MS, Kasper ZA. Relative preferences in the abuse of immediate-release vs. extended-release opioids in a sample of treatment seeking opioid abusers. *Pharmacoepidemiol Drug Saf.* 2016 Sep 4.

Table 3

Primary drug use patterns in opioid-dependent individuals entering treatment.

	Hydrocodone n = 912	Oxycodone n = 1350
Route of administration		
Oral	94.6	68.6
Inhalation	26.6	64.6
Injection	4.2	21.1
Reason for PD selection		
Quality of high	19.2	49.4
Easiest to get	56.0	34.0
Safer than other drugs	11.9	7.8
Only thing available	4.4	4.6
Cheapest	4.4	2.2
Other	4.1	2.1

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Conclusions



Conclusions

- Every drug is unique
- Predictions of abuse potential are guesses at best
- Role of high-dosage opioids are still not well understood
 - In both pain patient and opioid use disorder populations

High dosage opioids

- Advantages
 - Easier pills to take for certain populations such as elderly and cognitively impaired
- Disadvantages
 - Higher dose strength solves the tolerance problems for abusers