

Background

- The current overdose emergency is driven by the variable and unknown composition and concentration of illicit opioids in the unregulated market
- A parallel increase in crystal methamphetamine (crystal meth) use is observed in British Columbia (BC), Canada, and across North America
- Concurrent use of stimulants and opioids (i.e. using 'uppers' and 'downers' one after the other or together) can increase the risk of fatal and non-fatal opioid overdose

Thematic Analysis

- To investigate motivations for concurrent use of uppers and downers, specifically *how* (e.g., in what order) and *why* people use drugs concurrently

Quantitative Analysis

- To describe and compare drug use practices among people who use stimulants and opioid concurrently versus separately
- To elucidate predictors of concurrent use, that characterize the population who uses stimulants and opioids concurrently, and identify use of current harm reduction services

Impact:

- To identify appropriate harm reduction interventions and inform service provision

Methods

- The Harm Reduction Client Survey (HRCS) is an annual cross-sectional survey of people who use drugs (PWUD), administered at harm reduction supply distribution sites across BC
- PWUD had identified concurrent use as an emerging issue, thus the 2019 HRCS included a new question (Figure 1) to identify the prevalence and reasons for concurrent use
- The 2019 HRCS was administered at 22 sites (Figure 2) and sampled 621 people aged 19 and older

Thematic Analysis

- An inductive thematic analysis examined 307 responses by people who affirmed concurrent use, to classify order and reasons for using uppers and downers concurrently

Quantitative Analysis

- (a) Univariable analysis described drug use practices (the outcome variable), specifically use of stimulants with opioid agonist therapy (OAT) and/or illicit opioids (b) Bivariable analysis compared drug use practices among people who use stimulants and opioids concurrently (n=307) (i.e. the outcome group), versus separately (i.e. the comparison group)
- A multivariable logistic regression model was built using backwards selection to predict concurrent use of stimulants and opioids, with statistical significance defined at $P < 0.05$

Figure 1. The 'concurrent use of uppers and downers' survey question:

In the last 3 days, did you use both uppers (e.g. crystal meth) and downers (e.g. heroin) one after the other or together? (Select all that apply)

- No
Yes, downers then uppers. If so, specify why:
Yes, uppers then downers. If so, specify why:
Yes, I mix uppers and downers together. If so, specify why:
Other, specify why:
Prefer not to say

Results

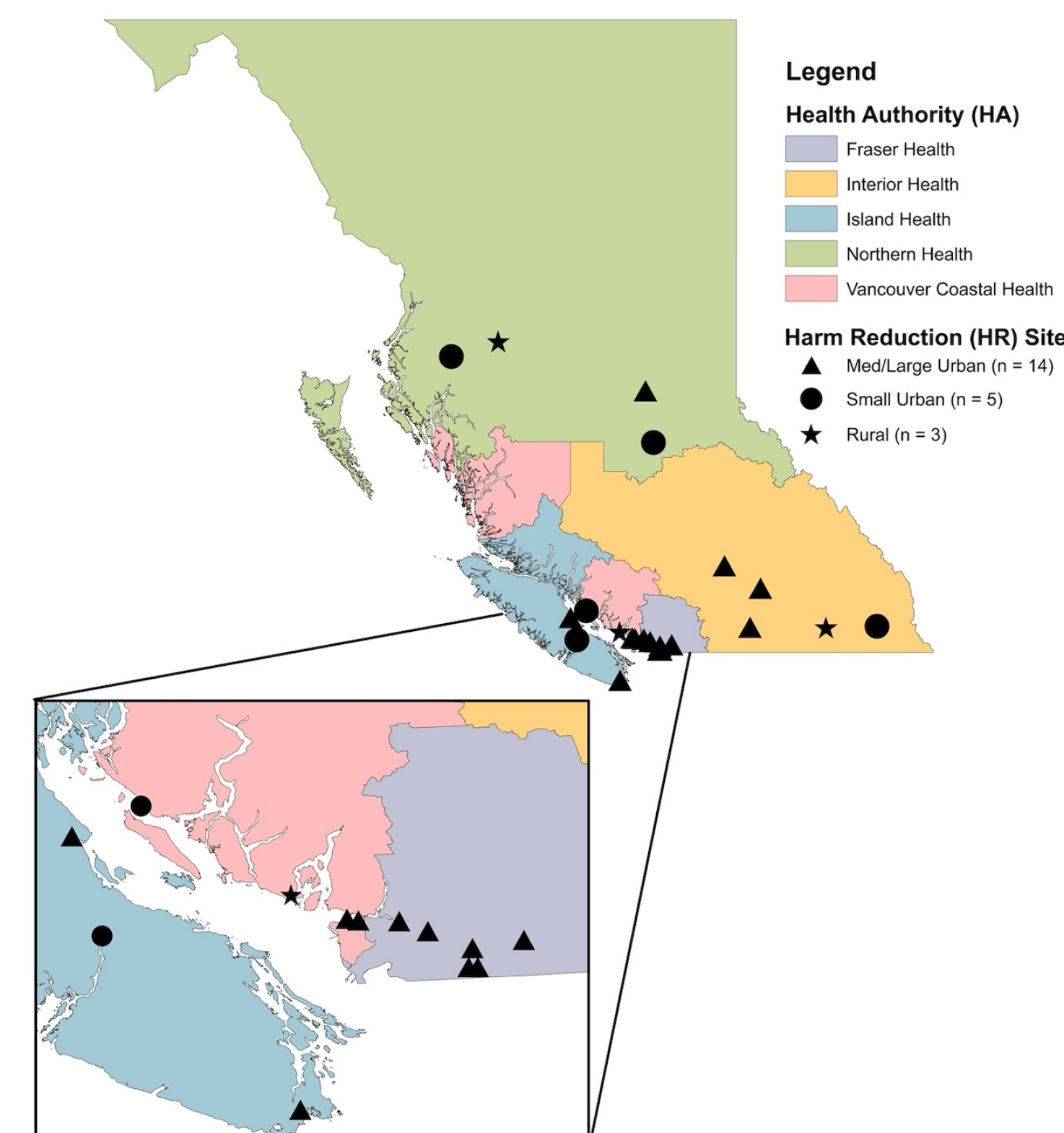


Figure 2. 2019 HRCS participating sites

- 621 survey respondents
- 22 sites participated
- 20 communities
- 307 respondents used stimulants and opioids concurrently

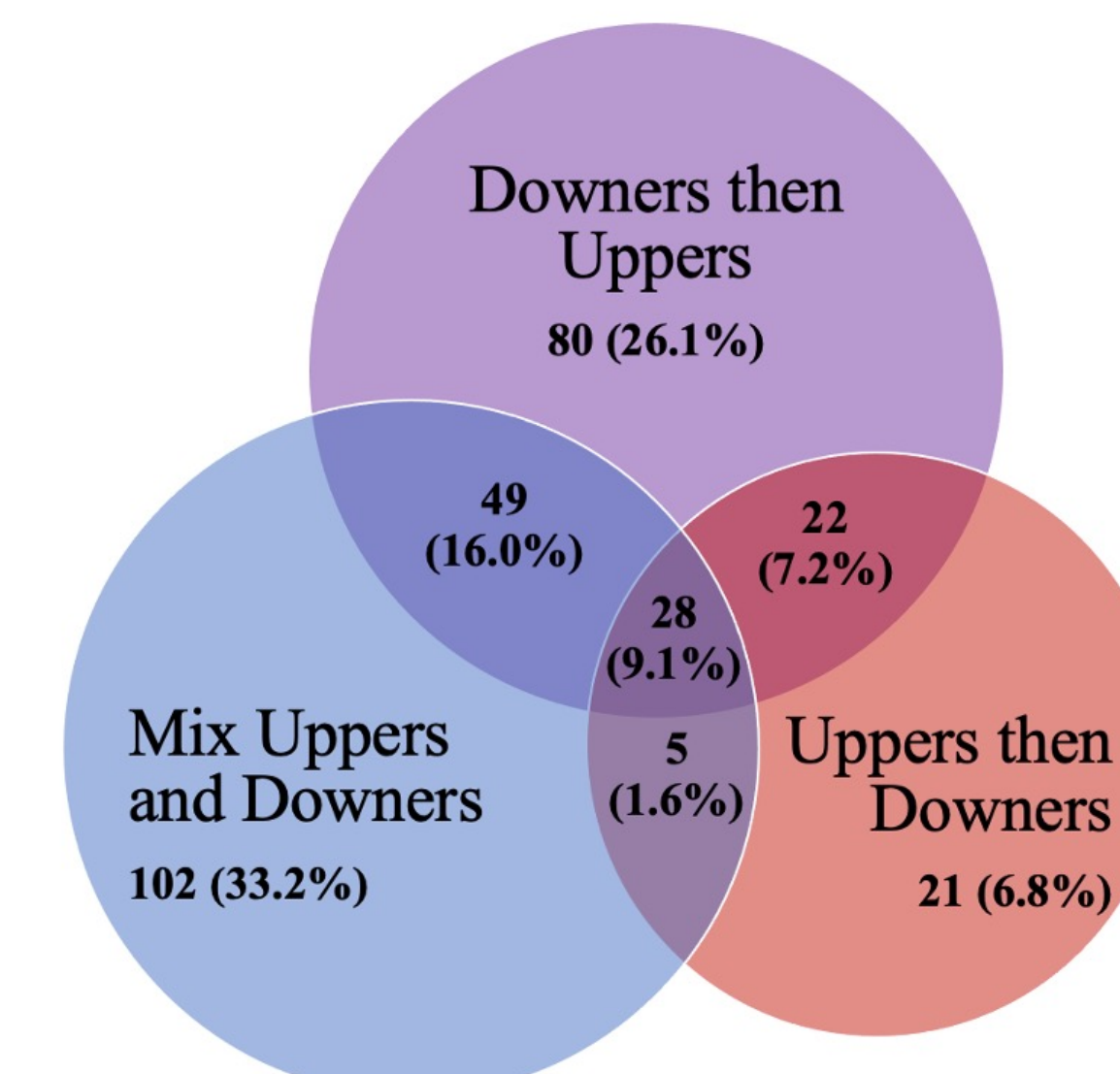
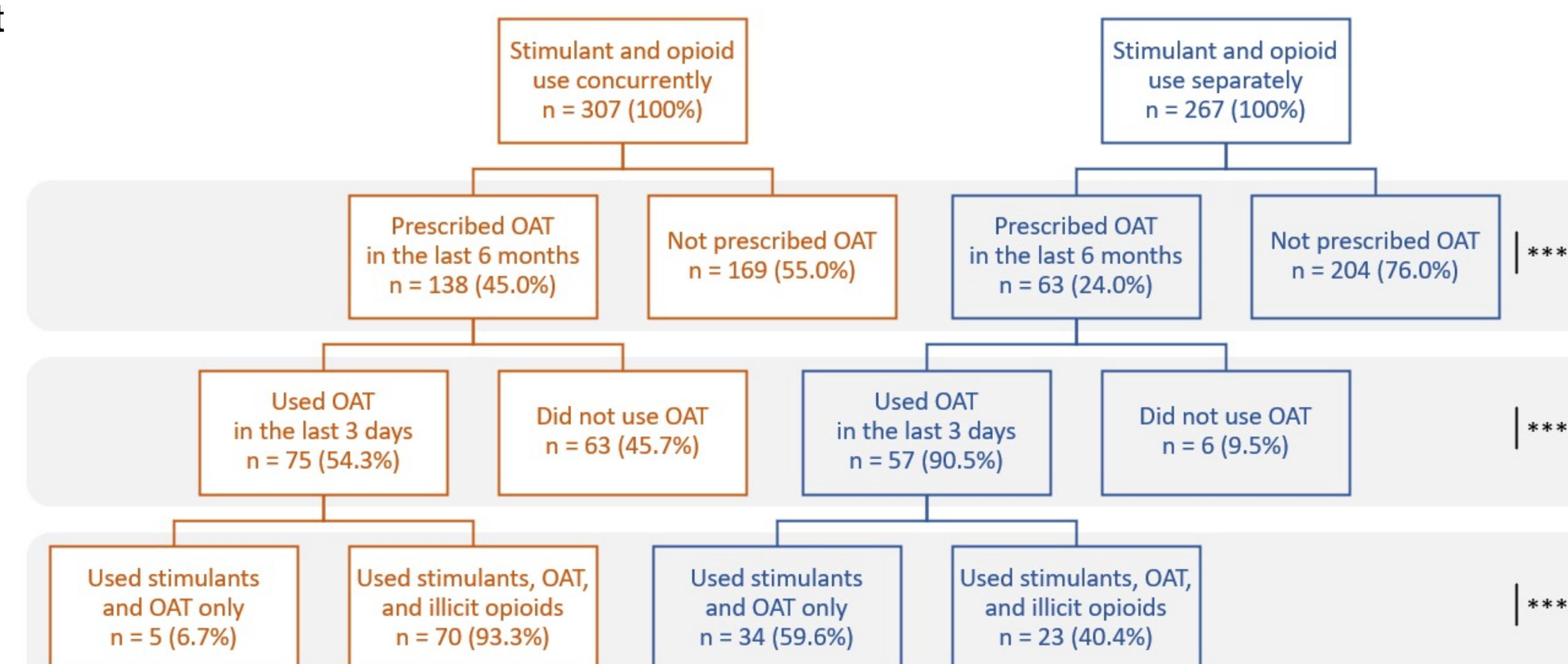


Figure 3. Participants who reported they used uppers and downers concurrently in the past 3 days (n=307)

Table 1. Distribution of responses within response options and across themes for those who reported using uppers and downers concurrently in past 3 days

Themes and subthemes	Percentage of comments reflective of theme or subtheme for each response option		
	Downers then uppers (n = 96)	Uppers then downers (n = 44)	Mix uppers and downers (n = 129)
Self-medication	34.4	27.3	17.1
Management of mood disorders and self-medication	25.0	27.3	14.7
Physical dependence	5.2	-	-
Avoiding overdose	4.2	-	2.3
Availability and preference	25.0	31.8	10.9
Habit or preference	17.7	15.9	7.8
Availability	7.3	15.9	3.1
Drug effects/properties	32.3	36.4	62.0
Desire for a specific type of high	20.8	15.9	51.9
Balance and leveling out	11.5	20.9	6.2
Mixture properties	-	-	3.9
Financial and life situation	8.3	4.5	10.1
Cost-effectiveness	4.2	4.5	7.8
Environmental factors	4.2	-	2.3

Figure 4. Comparing drug use practices, specifically stimulant use with Opioid Agonist Therapy (OAT) and/or illicit opioids, among people who use drugs concurrently versus separately



* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$

Table 2. Results from the multivariable logistic regression model: predictors of concurrent stimulant and opioid use

	Adjusted Odds Ratio	95% Confidence Interval Lower limit	95% Confidence Interval Upper limit
Age (years)	0.97	0.95	0.99
Paid Work ^a			
Yes	0.58	0.34	0.99
No	ref	ref	ref
Stable Housing ^b			
Yes	0.63	0.38	1.03
No fixed address ^c	ref	ref	ref
Do you use drugs daily by any mode (excluding cannabis, alcohol, or tobacco)? ^c			
Yes	3.80	2.31	6.37
No	ref	ref	ref
Have YOU overdosed by accident from using any opioids (e.g., fentanyl, heroin)? ^d			
Yes	1.90	1.06	3.48
No	ref	ref	ref
Do you have a Naloxone/Narcan Kit?			
Yes	1.88	1.13	3.14
No	ref	ref	ref
Have you used drugs at an observed consumption site (OCS)? ^e			
Yes	2.62	1.65	4.20
No	ref	ref	ref
Were you prescribed opioid agonist therapy (OAT)? ^e			
Yes	2.87	1.81	4.63
No	ref	ref	ref

^a Paid work includes full time employment, part time employment, and paid volunteering.
^b Stable housing includes private residence including rented apartment and other residences (e.g., hotels, motels, rooming houses, single room occupancy, shelters, social/supportive housing, recovery housing, etc.)
^c No fixed address (e.g., couch surfing, motor homes, recreational vehicle, trailers, tents, outside, street, etc.)
^d Last month
^e Last 6 months

Conclusion

Thematic Analysis

- Approximately half of study participants reported using concurrently in the past 3 days, with about a third of those individuals mixing uppers and downers together
- Four themes emerged when analyzing reasons for using concurrently: self-medication, availability and preference, drug effects/properties, and financial and life situation
- Less clear from these analyses is the reason for the increase in concurrent use over the past several years, therefore additional qualitative studies utilizing in-depth interviews would be well suited to collect data to aid in this understanding

Quantitative Analysis

- People who use stimulants and opioids concurrently tend to use illicit drugs daily, with variable composition and concentration, increasing the frequency of opportunities for an overdose event to occur
- People who use stimulants and opioids concurrently tend to be younger without paid work or stable housing
- Although this subpopulation is recruited through harm reduction sites, and therefore has access to supplies and services such as Take Home Naloxone (THN), Overdose Consumption Sites (OCS), and OAT providers, few are using OAT and concurrent use remains associated with opioid overdose

Impact:

- There is a need to develop and disseminate information regarding the risks of concurrent use
- Beyond tailoring existing harm reduction supplies and services (e.g. THN and OCS) to improve access for younger individuals, expansion of safe supply programs may reduce harms of concurrent use

Acknowledgements

We thank the 2019 HRCS survey participants. We also thank the Professionals for Ethical Engagement of Peers (PEEP) for providing valuable feedback.