Appendix A. Study data and survey form

Age: \_\_\_\_\_\_ Gender: M F Pregnancy: + - not tested

Prior drug use: MJ Cocaine Opioid Benzo(Xanax) K2 other:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Preferred opioid for misuse: Heroin Prescription opioids Fentanyl Methadone other:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Last use of opioid (mm/dd/yy): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Frequency of opioid use: >2 times a day >2 times a week >2 times a month

Current substance abuse program? Y N If yes, are you taking: Methadone Buprenorphine None

Preferred route of opioid misuse: IV Intramuscular Sniff Swallow

What type of health insurance do you have?

□None □Medicaid/government assistance □Employer/work insurance □Private insurance/Obama care

Opioid/opiate overdose: YES NO Route:\_\_\_\_\_\_\_

If EMS: EMS Naloxone N or Dose:\_\_\_\_ Route:\_\_\_\_\_\_\_ ED length of stay: \_\_\_hrs or Admitted

POC fentanyl test result: + - refused

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* Knowledge regarding fentanyl
* Have you heard of fentanyl? YES NO
* Do you know which opioid is stronger? Fentanyl Heroin Prescription opioids Don’t know
* Which opioid is more likely to be life threatening in overdose?

Fentanyl Heroin Prescription opioids Don’t know

* Have you knowingly purchased fentanyl for misuse? YES NO
* How much typically spend on opioids per use? $\_\_\_\_
* How much did you spend on fentanyl (if purchased knowingly)? $\_\_\_\_
* How did you use the Fentanyl? IV Intramuscular Sniff Swallow

Appendix B. Demographic and opioid misuse characteristics by opioid treatment program participation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | All participants  n (%) | OTP  n (%) | Non-OTP  n (%) | p-value |
| Gender |  |  |  | 0.982 |
| Female | 38 (23.0) | 11 (23.0) | 27 (23.1) |  |
| Male | 127 (77.0) | 37 (77.0) | 90 (76.9) |  |
| Median age, years (IQR) | 49 (35, 56) | 51 [43, 56] | 49 [43, 56] |  |
| Concurrent substance use |  |  |  |  |
| Ethanol | 72 (43.6) | 20 (41.7) | 52 (44.4) | 0.677 |
| Marijuana | 90 (54.5) | 22 (45.8) | 90 (45.3) | 0.950 |
| Cocaine | 95 (57.6) | 32 (66.7) | 63 (53.8) | 0.130 |
| Benzodiazepines | 34 (20.6) | 10 (20.8) | 24 (20.5) | 0.963 |
| SCRAs | 8 (4.8) | 3 (6.3) | 5 (4.3) | 0.591 |
| Preferred opioid of misuse |  |  |  | 0.027 |
| Fentanyl | 6 (3.7) | 2 (4.2) | 4 (3.5) |  |
| Heroin | 148 (90.8) | 41 (85.4) | 107 (93.0) |  |
| Methadone | 4 (2.4) | 4 (8.3) | 0 |  |
| Prescription opioid | 5 (3.1) | 1 (2.1) | 4 (3.5) |  |
| Unknown | 2 | 0 | 2 |  |
| Route of opioid misuse |  |  |  | 0.059 |
| Intranasal | 106 (64.6) | 25 (52.1) | 81 (69.8) |  |
| Intravenous | 50 (30.5) | 18 (37.5) | 32 (27.6) |  |
| Oral | 8 (4.9) | 5 (10.4) | 3 (2.6) |  |
| Unknown | 1 | 1 | 1 |  |
| Frequency of opioid misuse |  |  |  | 0.279 |
| > 2 a day | 101 (62.3) | 28 (58.3) | 73 (64.0) |  |
| > 2 a week | 36 (22.2) | 5 (10.4) | 21 (18.4) |  |
| > 2 a month | 25 (15.4) | 15 (31.3) | 20 (17.5) |  |
| Unknown | 3 | 0 | 3 |  |
| Positive urine fentanyl test result | 104 (80.6) | 32 (80.0) | 72 (80.9) | 0.910 |

OTP: opioid treatment program; IQR: interquartile range (25%, 75%); SCRAs: synthetic cannabinoid receptor agonists; ED: emergency department

\* Statistically significant.

Appendix C. Study participants’ knowledge regarding fentanyl and its use stratified by overdose status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | No. (%) | | | |  |
|  | Opioid overdose  (N=42) | | Non-overdose  (N=123) | p-value | |
| Knowledge of fentanyl | 41 (97.6) | | 121 (98.3) | 0.752 | |
| Strength of opioid |  | |  | 0.669 | |
| Fentanyl | 34 (81.0) | | 105 (85.4) |  | |
| Heroin | 3 (7.1) | | 7 (5.7) |  | |
| Prescription opioid | 0 | | 2 (1.6) |  | |
| Don’t know | 5 (11.9) | | 9 (7.3) |  | |
| Risk of death from overdose |  | |  | 0.704 | |
| Fentanyl | 34 (81.0) | | 107 (87.0) |  | |
| Heroin | 2 (4.8) | | 5 (4.1) |  | |
| Prescription opioid | 2 (4.8) | | 2 (1.6) |  | |
| Don’t know | 4 (9.5) | | 9 (7.3) |  | |
| Intentional purchase of fentanyl | 7 (16.7) | | 42 (34.1) | 0.04\* | |
| Route of fentanyl use (if Yes) |  | |  | 0.211 | |
| Intranasal | 6 (85.7) | | 21 (50.0) |  | |
| Intravenous | 1 (14.3) | | 20 (47.6) |  | |
| Oral | 0 | | 1 (2.4) |  | |
|  |  |  | | |  |

Appendix D. Cross-reactivity of the Rapid Response™ fentanyl test strip (BTNX Inc.)

|  |  |
| --- | --- |
| Fentanyl analogs | Detection threshold cutoff  (ng/mL) |
| Acetyl fentanyl | 150 |
| Butyryl fentanyl | 700 |
| Carfentanil | 1,000 |
| p-Fluoro fentanyl | 200 |
| Furanyl fentanyl | 500 |
| 3-Methyl fentanyl | 500 |
| Ocfentanil | 250 |
| Remifentanil | 70,000 |
| Sufentanil | 100,000 |
| Valeryl fentanyl | 700 |

Note: Only parent drugs, not their metabolites, were tested for cross-reactivity. Data was obtained from Rapid Response™ Single-Drug test strip product insert by BTNX Inc. (Ontario, Canada) and by direct communication.