



Drug use in Adelaide Monitored by Wastewater Analysis

Project commissioned by Drug and Alcohol Services
South Australia (DASSA)

Analyses performed by:
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University of South Australia

June 2021

Please note that drug consumption levels may vary slightly from report to report due to adjustments made to sewerage flow rates in some of the treatment plants. The South Australian population has also been updated from August 2016 according to the 2016 Census release (Australian Bureau of Statistics).



Purpose of the project

- > To determine the prevalence of drug use in South Australia, initially in metropolitan Adelaide, through wastewater analysis.



Wastewater analysis CAN tell us:

- > The pattern of drug consumption over the week.
- > Drug consumption levels tested bi-monthly from December 2011, with monthly sampling occurring between April and December 2020.



Wastewater analysis CANNOT tell us:

- > The characteristics of people who use drugs.
- > In what regions of metropolitan Adelaide drug consumption is occurring.
- > The form and way drugs were taken.



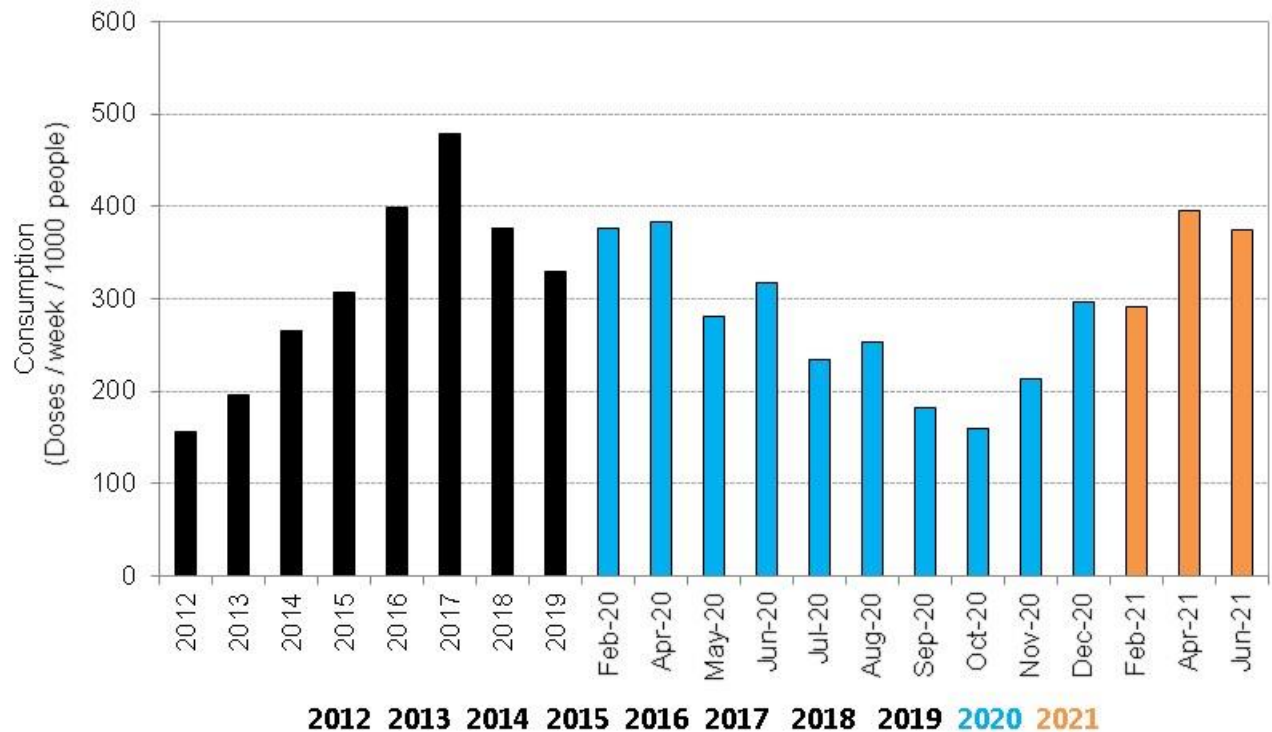
Wastewater sampling

- > Sampling over one week every two months from Adelaide Metropolitan treatment plants, commencing December 2011.
- > In response to COVID-19, sampling was monthly from April to December 2020, returning to bi-monthly thereafter*.
- > Drugs tested:
 - Stimulants: cocaine, MDMA, and methamphetamine.
 - Opioids: morphine, codeine, methadone, oxycodone, fentanyl and heroin.
 - Cannabis (THC).
 - Nicotine and anabasine (tobacco-specific alkaloid).
 - Alcohol.

*Consumption levels in May are based on weighted averages as sampling only occurred on two days. June samples were taken before restrictions on alcohol consumption were lifted in restaurants and pubs. Sampling in July in three of the four plants excludes Wednesday.

Methamphetamine

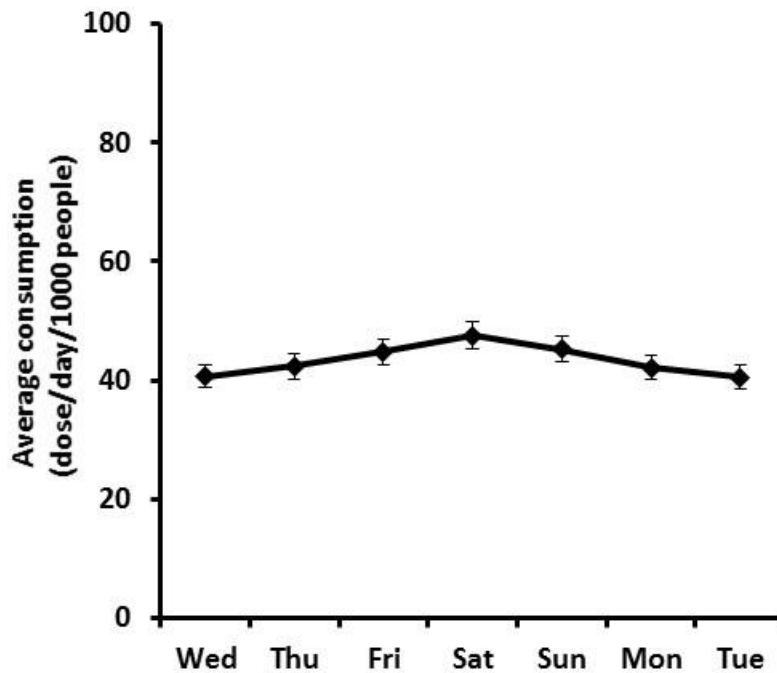
Average consumption levels in 2020 are the lowest since 2014, although there have been increases since October 2020.



Average consumption (dose/week/1000 people) of methamphetamine for 2012-2019. Weekly consumption (dose/week/1000 people) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards. Dose=30mg.

Methamphetamine

Methamphetamine consumption levels increase slightly on weekends.

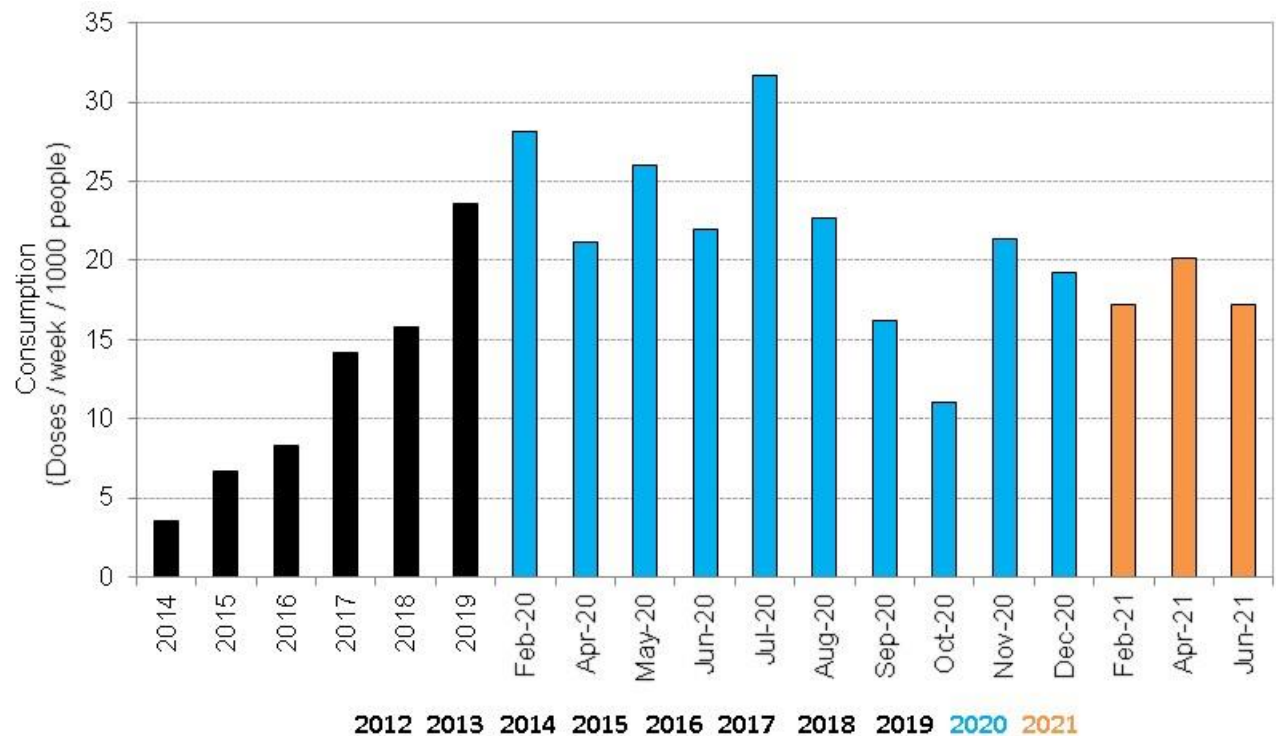


Feb 2012 to Jun 2021

Average daily consumption (dose/day/1000 people) of methamphetamine over the week. Dose=30mg.

Cocaine

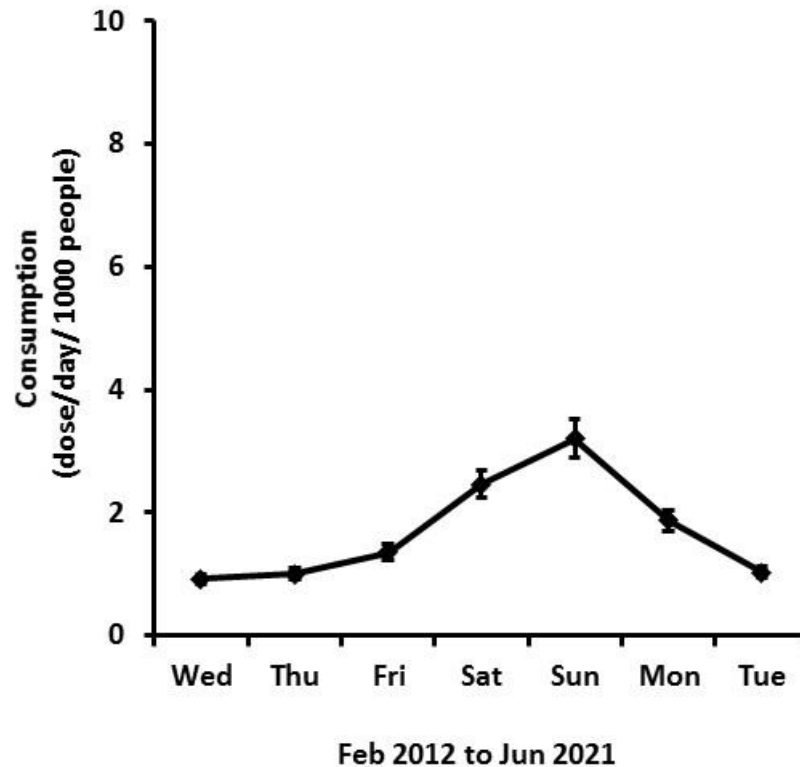
Cocaine consumption levels have increased since 2015, although are low overall. Average consumption levels from 2019 onwards are the highest since sampling began.



Average consumption (dose/week/1000 people) of cocaine for 2012-2019. Weekly consumption (dose/week/1000 people) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards. Dose=100mg.

Cocaine

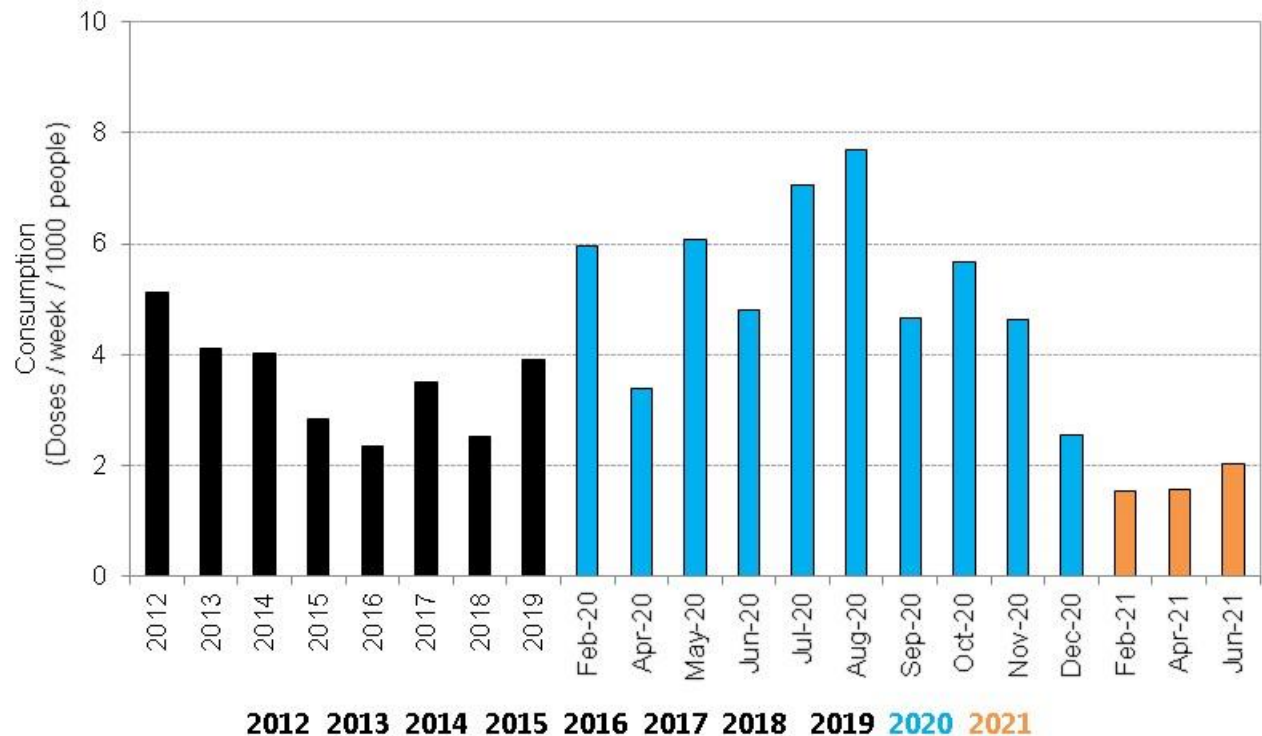
Cocaine consumption levels are higher on weekends.



Average daily consumption (dose/day/1000 people) of cocaine over the week. Dose=100mg.

MDMA (Ecstasy)

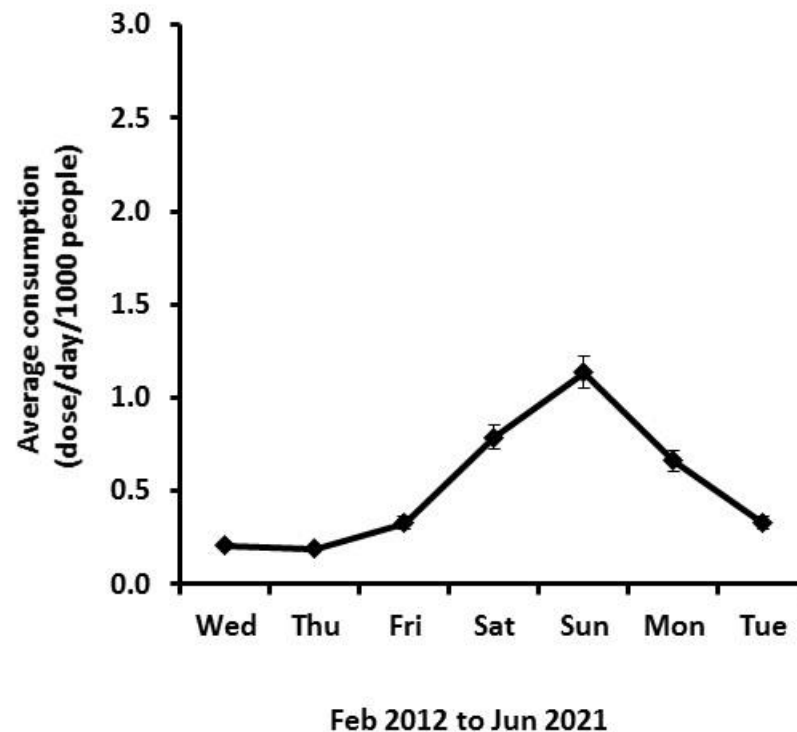
MDMA consumption levels in 2020 were the highest since sampling began, although consumption levels in 2021 to date have decreased.



Average consumption (dose/week/1000 people) of MDMA for 2012-2019. Weekly consumption (dose/week/1000 people) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards. Dose=100mg.

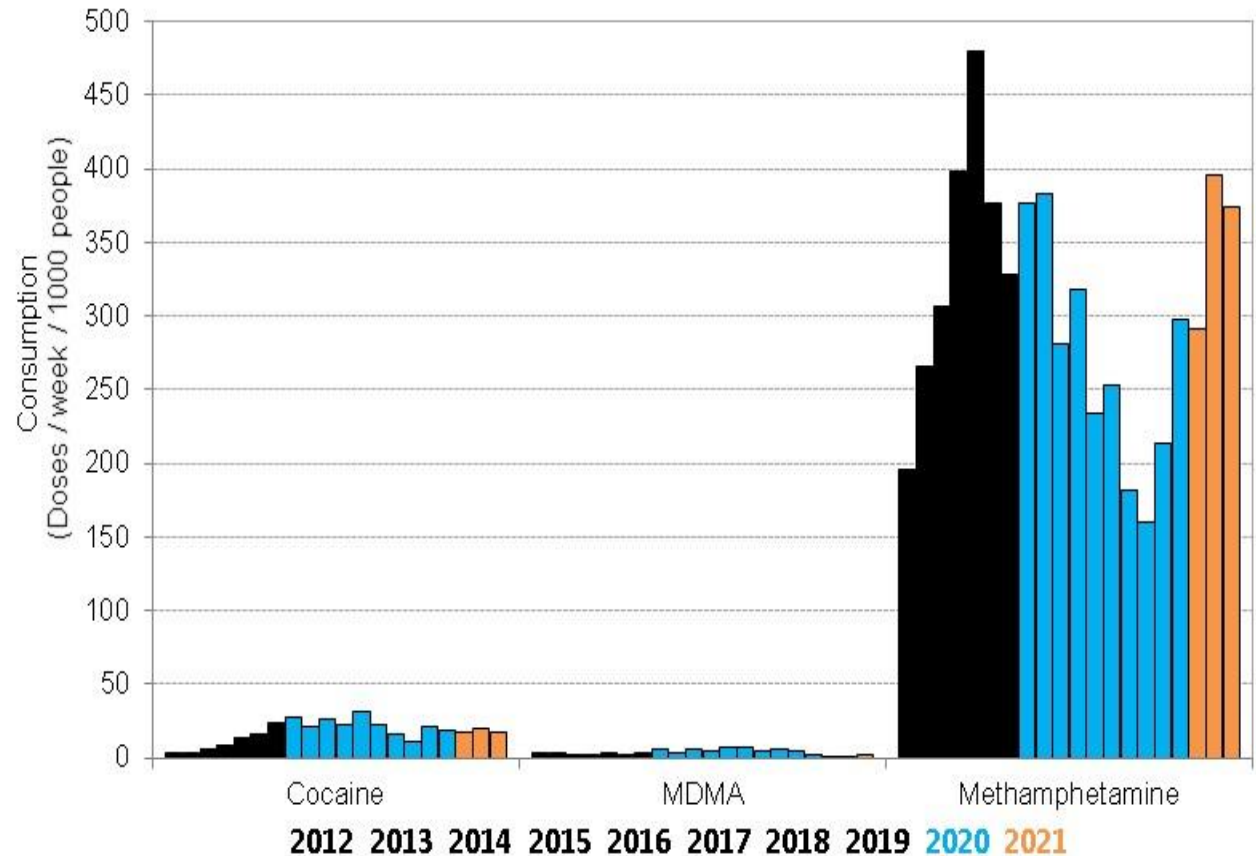
MDMA

MDMA consumption levels are higher on weekends.



Average daily consumption (dose/day/1000 people) of MDMA over the week. Dose = 100mg.

Stimulants



Average consumption (dose/week/1000 people) 2012-2019. Weekly consumption (dose/week/1000 people) of cocaine (100mg dose), MDMA (100mg dose) and methamphetamine (30 mg dose) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards.



Stimulants - summary

- > Methamphetamine:
 - > Highest consumption levels of the illicit stimulants tested.
 - > Average levels in 2020 are the lowest since 2014 but there have been increases since October 2020.
- > Cocaine:
 - > Consumption levels have increased since 2015 but are low compared with methamphetamine.
 - > Average levels from 2019 are the highest since sampling began.
- > MDMA:
 - > Average levels in 2020 are the highest since sampling began, although levels are low overall and have decreased in 2021 to date.

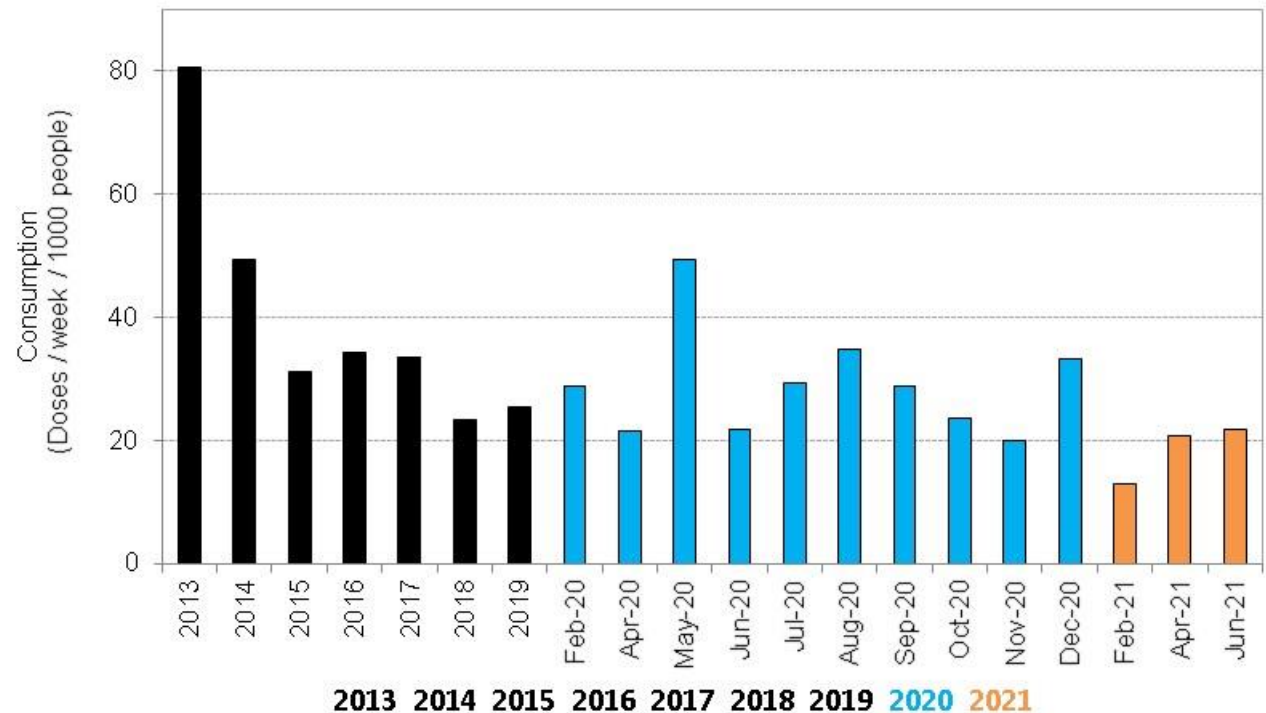


Opioids

- > Opioids are a class of drugs that are used for pain relief (e.g. codeine, morphine) or for the treatment of opioid dependence (e.g. methadone).
- > Codeine in the samples can originate from prescription or over the counter medications. In February 2018 codeine was rescheduled and is no longer available over the counter.
- > Morphine, methadone, oxycodone and fentanyl can be used legally on prescription or may be sourced illegally.
- > The analysis of opioids, except for heroin, cannot differentiate illicit from licit use.

Heroin

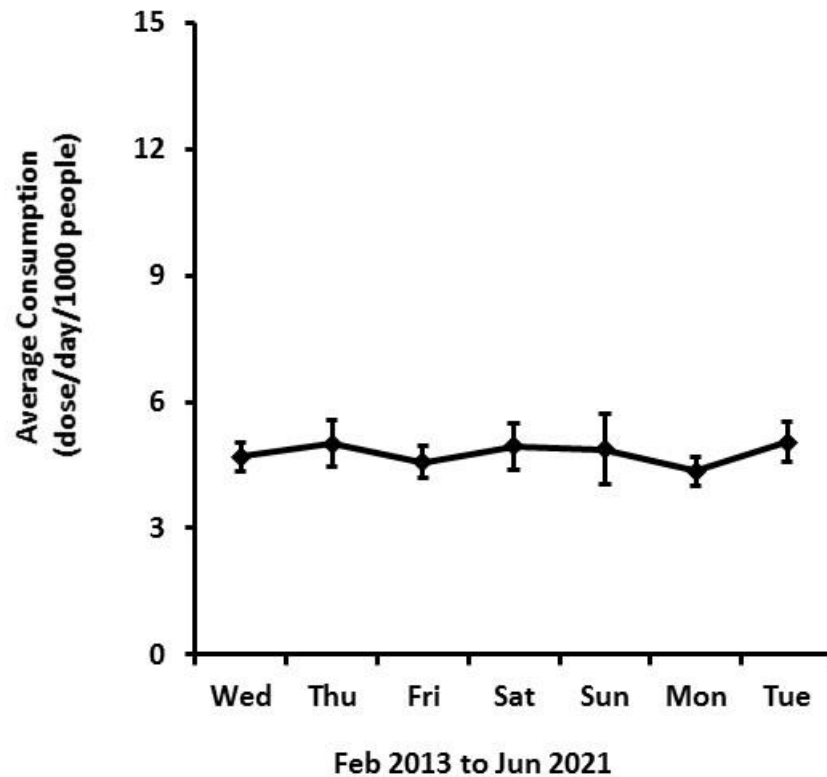
Average consumption levels in 2020 and 2021 to date are slightly higher than in 2019 but remain low.



Average consumption (dose/week/1000 people) of heroin for 2012-2019. Weekly consumption (dose/week/1000 people) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards. Dose for calculation=20mg.

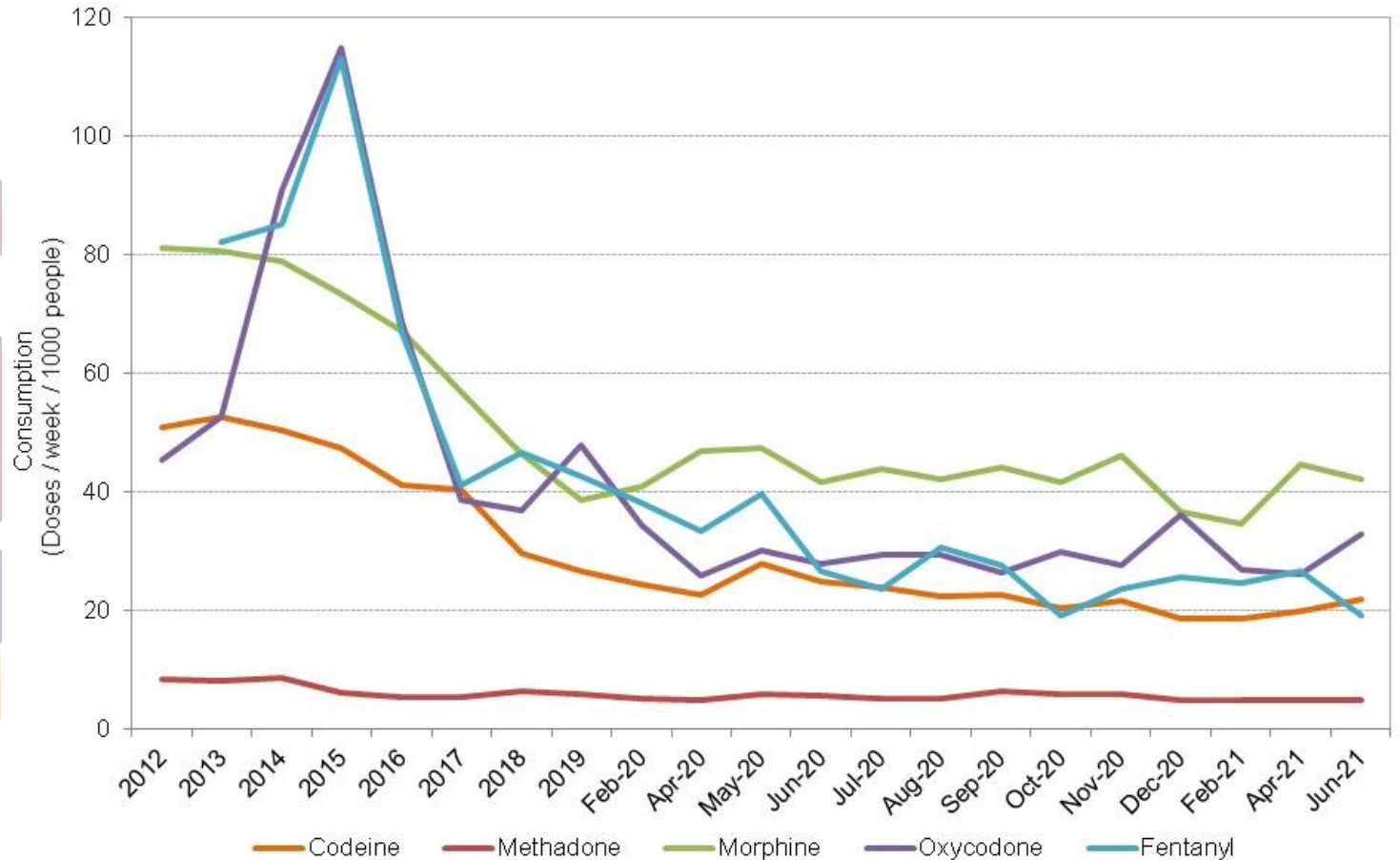
Heroin

Heroin consumption levels are constant over the week.



Average daily consumption (dose/day/1000 people) of heroin over the week. Dose = 20mg.
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Pharmaceutical Opioids



Average consumption (dose/week/1000 people) for 2012-2019. Weekly consumption (dose/week/1000 people) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards. Codeine (200mg dose), morphine (30mg dose), methadone (100mg dose), oxycodone (10mg dose) and fentanyl (0.2mg dose).

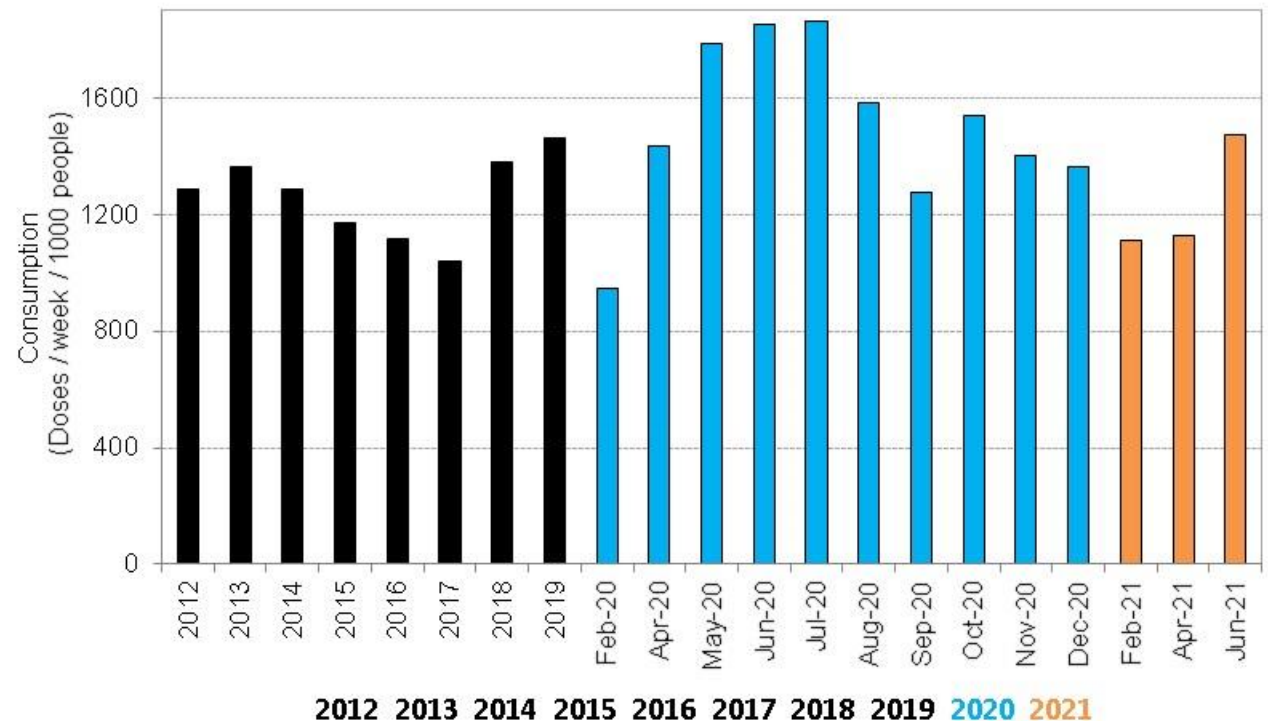


Opioids - summary

- > Oxycodone and fentanyl consumption levels increased from 2012-2015 but have decreased since then. Levels of oxycodone increased slightly in June 2021 while levels of fentanyl decreased slightly.
- > Codeine, morphine and methadone consumption levels have decreased over the sampling period, remaining stable or decreasing further in June 2021.
- > Average levels of all pharmaceutical opioids in 2020 and 2021 to date except morphine are the lowest since sampling began. Morphine levels are slightly higher than in 2019 but are still decreasing.
- > Consumption levels of pharmaceutical opioids are constant over the week.
- > Heroin consumption levels have decreased since 2013 and stayed low.

Cannabis

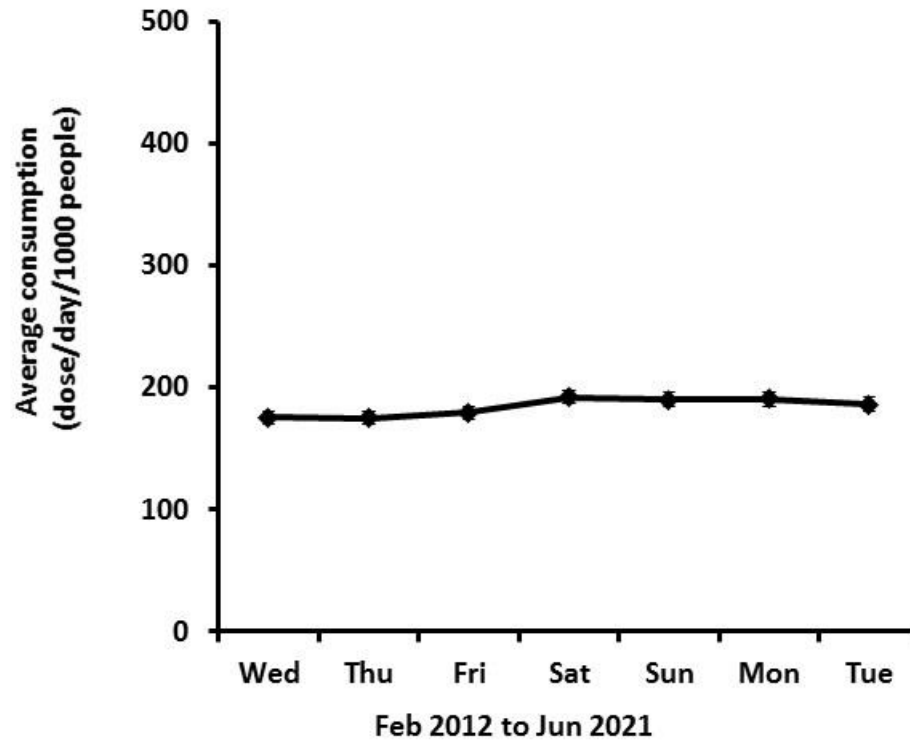
Average consumption levels in 2020 were the highest since sampling began, with an increase in June 2021.



Average consumption (dose/week/1000 people) of THC for 2012-2019. Weekly consumption (dose/week/1000 people) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards. Dose=125mg.

Cannabis

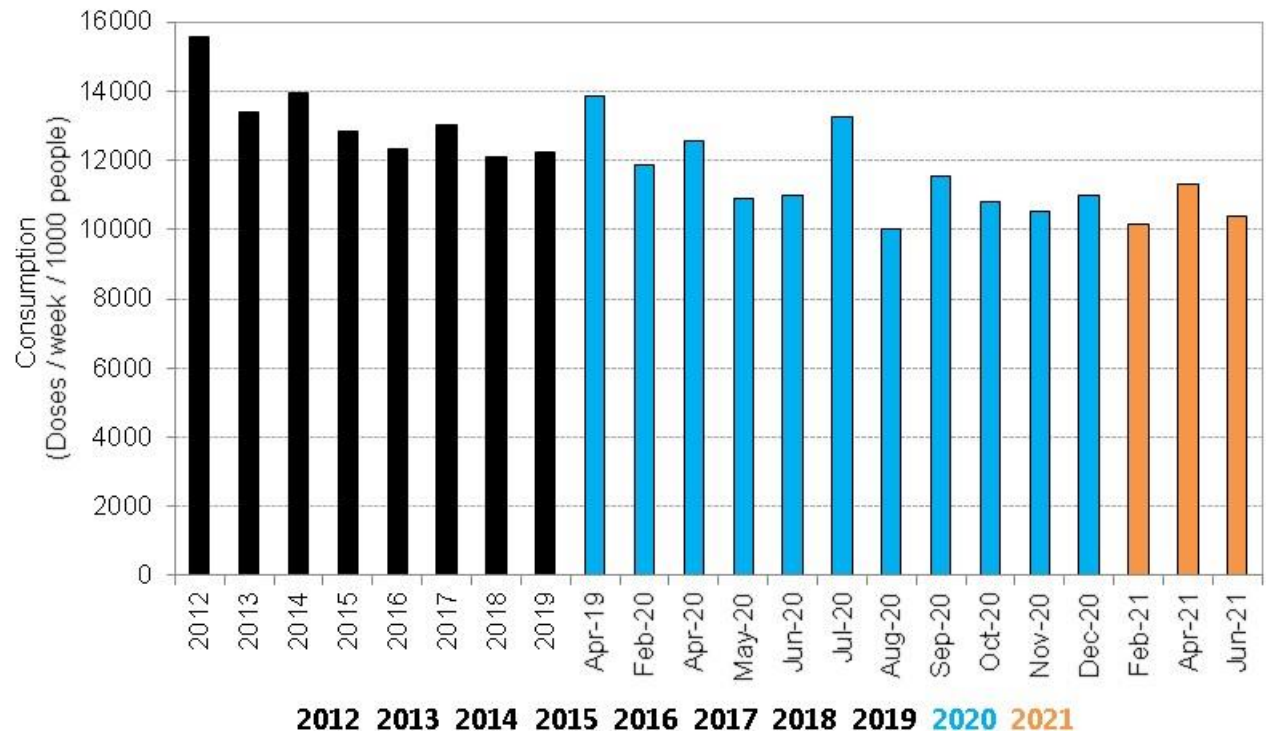
Cannabis consumption levels are constant over the week.



Average daily consumption (dose/day/1000 people) of THC over the week. Dose=125 mg.

Nicotine*

Nicotine consumption levels declined in 2012-2016 and stabilised in 2017-2019. Average consumption levels in 2020 and 2021 to date were the lowest since sampling began.

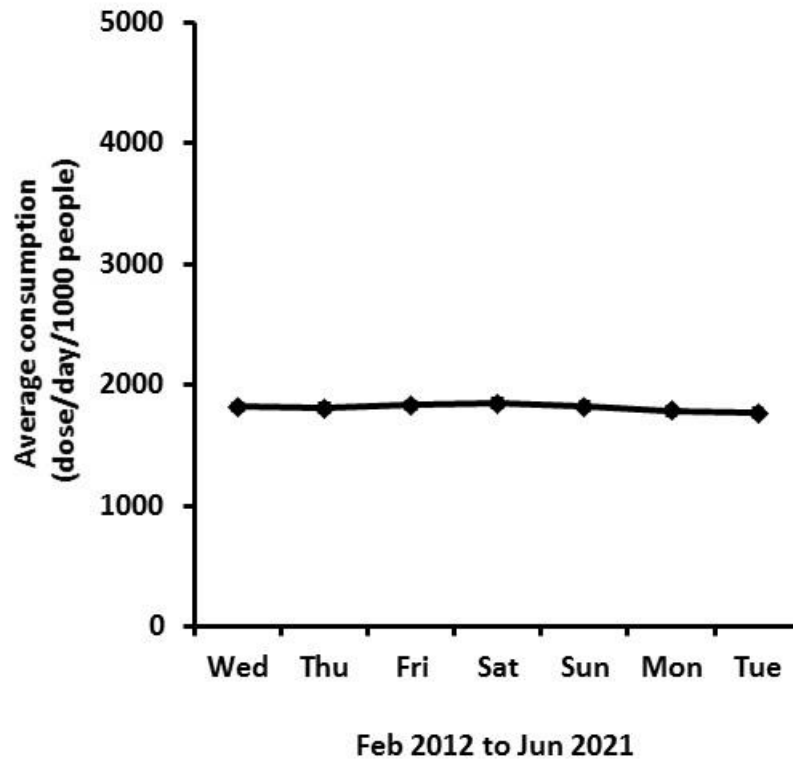


Average consumption (dose/week/1000 people) of nicotine for 2012-2019. Weekly consumption (dose/week/1000 people) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards. Dose=1mg.

*Does not differentiate between tobacco and nicotine replacement therapy (NRT) use
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Nicotine

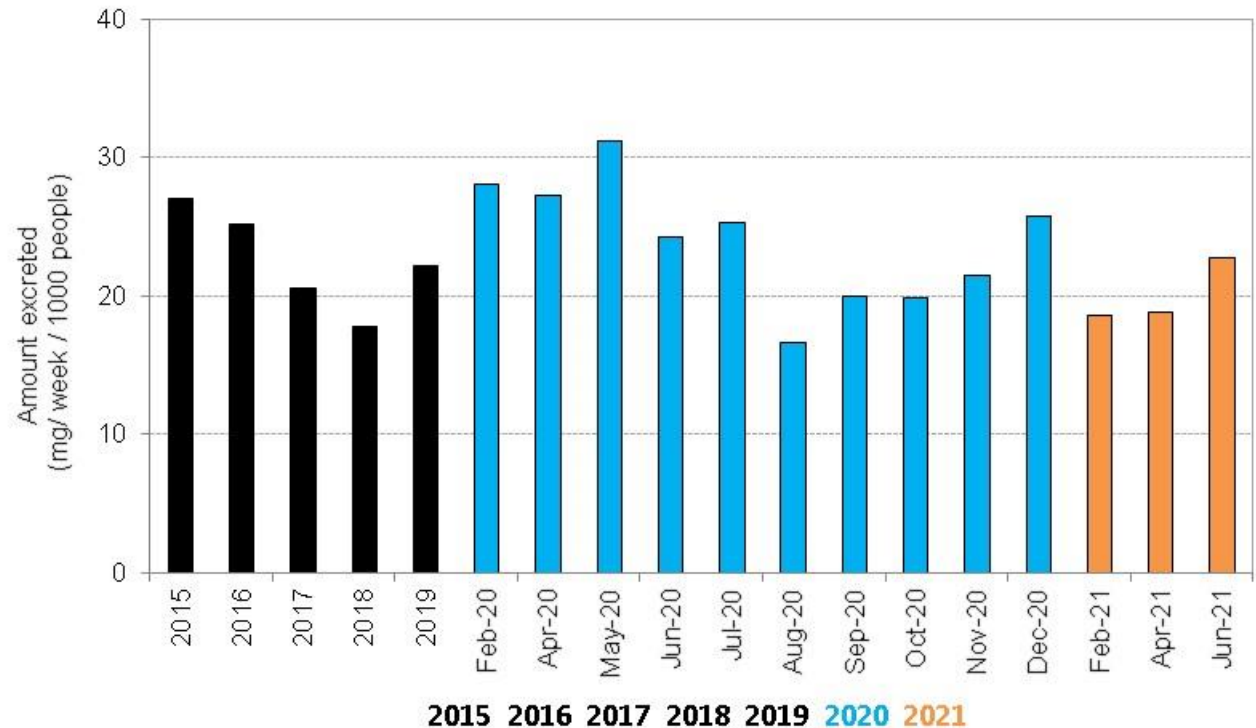
Nicotine consumption levels are constant over the week.



Average daily consumption (dose/day/1000 people) of nicotine over the week. Dose=1mg.

Anabasine*

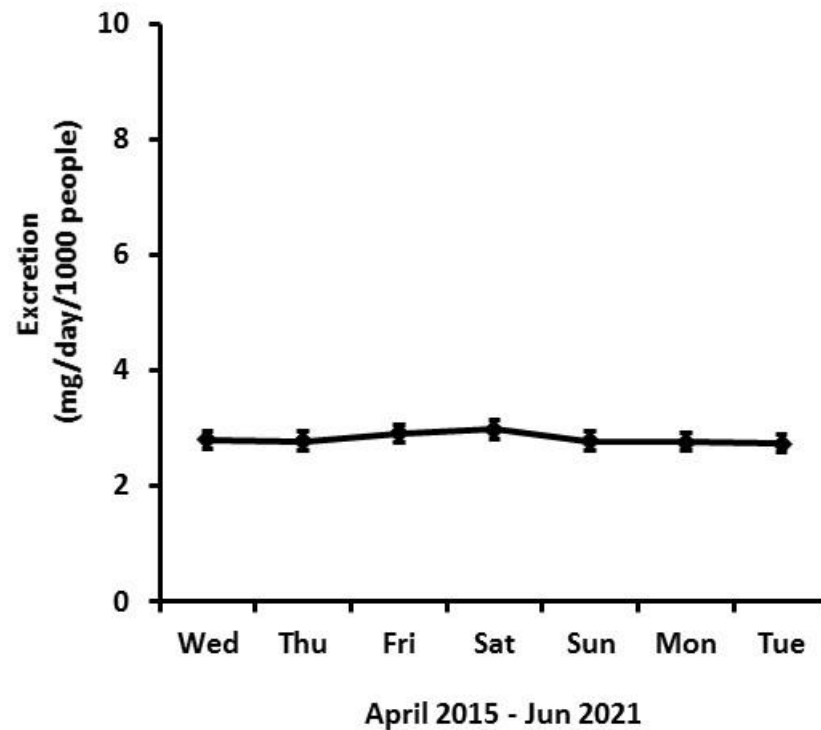
Anabasine consumption levels declined in 2015-2018, with a gradual increase in 2019. Average consumption levels in 2020 were the highest since 2016, with an increase in June 2021.



Average excretion (mg excreted/week/1000 people) from 2015-2019 (2015 includes December only). Weekly excretion (mg excreted/week/1000 people) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards. As yet there is no excretion rate to convert to number of cigarettes smoked.

Anabesine

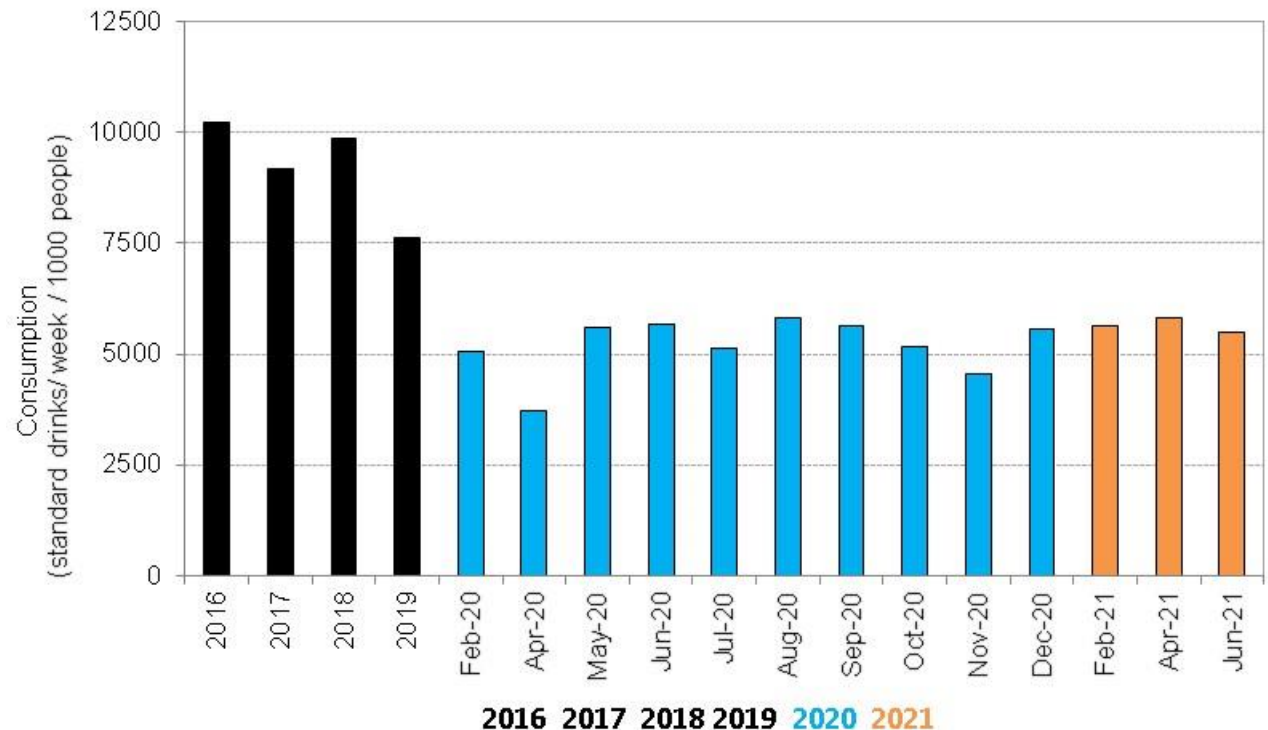
Anabesine consumption levels are constant over the week.



Average weekly Excretion (mg excreted/ week /1000 people) of anabesine.

Alcohol

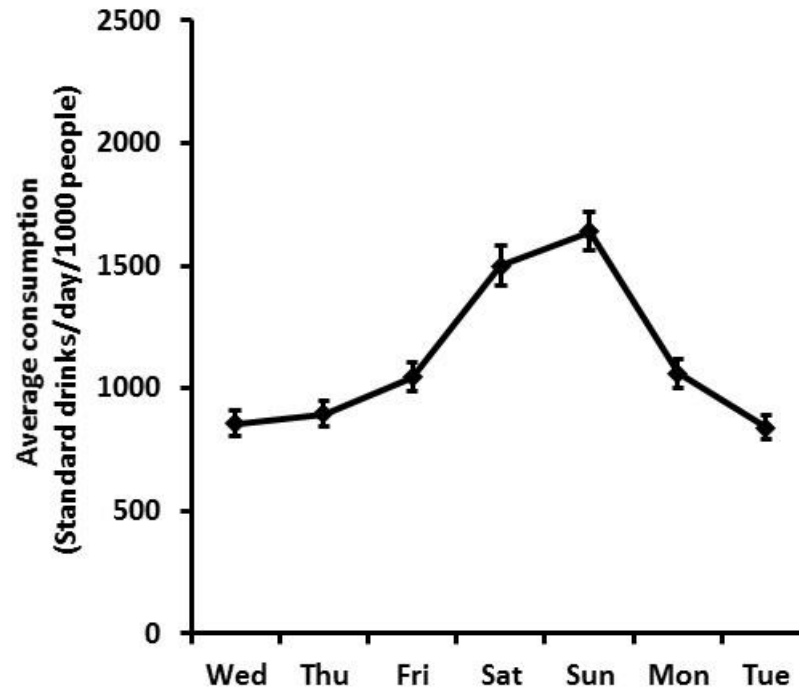
Alcohol consumption levels have decreased since 2016, with consumption levels in 2020 and 2021 to date the lowest since sampling began.



Average consumption (standard drinks/week/1000 people) from 2018-2019 (excludes February). Weekly consumption (standard drinks/week/1000 people) monthly from April to December 2020, and bi-monthly from February 2020 to April 2020 and from December 2020 onwards. Ethanol excretion=0.012 % of ethanol consumption, 10g ethanol per standard drink.

Alcohol

Alcohol consumption levels are higher on weekends.



April 2016 – Jun 2021

Average daily consumption (standard drinks/day/1000 people) of ethanol over the week. Dose=10g ethanol per standard drink.