Drug use in Adelaide Monitored by Wastewater Analysis

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

Analyses performed by:
School of Pharmacy and Medical Sciences
University of South Australia

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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 according to the 2021 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 (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 2020 are based on weighted averages as sampling only occurred on two days. June 2020 samples were taken before restrictions on alcohol consumption were lifted in restaurants and pubs. Sampling in July 2020 in three of the four plants excludes Wednesday.
Average consumption levels in 2020 and 2021 were the lowest since 2014. However, consumption levels in 2022 were similar to those in 2019, remaining stable in 2023 to date.

Average consumption (dose/week/1000 people) of methamphetamine for 2012-2021. Weekly consumption (dose/week/1000 people) bi-monthly from February 2022 onwards. Dose=30mg.
Methamphetamine consumption levels increase slightly on weekends.

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

Average consumption levels increased from 2015-2019 but decreased from 2020-2022. Levels in 2023 to date are the highest since reporting began but low overall.

Average consumption (dose/week/1000 people) of cocaine for 2012-2021. Weekly consumption (dose/week/1000 people) bi-monthly from February 2022 onwards. Dose=100mg.
Cocaine consumption levels are higher on weekends.

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

Average consumption levels from 2021 onwards decreased to the lowest since reporting began. Levels are low overall.

Average consumption (dose/week/1000 people) of MDMA for 2012-2021. Weekly consumption (dose/week/1000 people) bi-monthly from February 2022 onwards. Dose=100mg.
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) 2012-2021. Weekly consumption (dose/week/1000 people) of cocaine (100mg dose), MDMA (100mg dose) and methamphetamine (30 mg dose) bi-monthly from February 2022 onwards.
Stimulants - summary

> Methamphetamine:
  > Highest consumption levels of the illicit stimulants tested.
  > Average consumption levels in 2020 and 2021 were the lowest since 2014.
  > Evidence of a return to 2019 consumption levels in 2022, remaining stable in 2023 to date.

> Cocaine:
  > Average consumption levels increased from 2015-2019 but are low compared with methamphetamine.
  > Consumption levels in 2023 to date are the highest since reporting began.

> MDMA:
  > Average consumption levels peaked in 2020, but from 2021 decreased to the lowest since sampling began. Levels are low.
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 from 2021 were the lowest since sampling began.

Average consumption levels from 2021 were the lowest since sampling began.

Average consumption (dose/week/1000 people) of heroin for 2013-2021. Weekly consumption (dose/week/1000 people) bi-monthly from February 2022 onwards. Dose for calculation=20mg.
Heroin consumption levels are constant over the week.

Average daily consumption (dose/day/1000 people) of heroin over the week. Dose = 20mg.
Average consumption (dose/week/1000 people) for 2012-2021. Weekly consumption (dose/week/1000 people) bi-monthly from February 2022 onwards. Codeine (200mg dose), morphine (30mg dose), methadone (100mg dose), oxycodone (10mg dose) and fentanyl (0.2mg dose).

Drug and Alcohol Services South Australia
Opioids - summary

- Oxycodone and fentanyl consumption levels increased from 2012-2015 but have decreased since then. Consumption levels of both decreased in August 2023.
- Codeine and methadone consumption levels decreased over the sampling period, with a small increase and no change, respectively, in August 2023.
- Morphine consumption levels increased in August 2023.
- Average consumption levels of all pharmaceutical opioids from 2020-2022 except morphine were the lowest since sampling began. Morphine consumption levels increased in 2021 but have decreased since then.
- Consumption levels of pharmaceutical opioids are constant over the week.
- Heroin consumption levels have decreased since 2013 and remained low.
Cannabis

Average consumption levels increased from 2017 to 2021, with levels from August 2021 the highest since reporting began.

Average consumption (dose/week/1000 people) of THC for 2012-2021. Weekly consumption (dose/week/1000 people) bi-monthly from February 2022 onwards. Dose=125mg.
Cannabis consumption levels are constant over the week.

Average daily consumption (dose/day/1000 people) of THC over the week. Dose=125 mg.
Average consumption (dose/week/1000 people) of nicotine for 2012-2021. However, consumption levels in 2022 and 2023 to date were the highest since 2017.

Average consumption (dose/week/1000 people) bi-monthly from February 2022 onwards. Dose=1mg.

*Does not differentiate between tobacco and nicotine replacement therapy (NRT) use
Nicotine consumption levels are constant over the week.

Average daily consumption (dose/day/1000 people) of nicotine over the week. Dose=1mg.
Average consumption levels decreased from 2015-2018 and increased from 2019-2020. While average consumption levels in 2022 were higher than in 2021, those in 2023 to date were the lowest since reporting began.

Anabasine*

*Tobacco-specific alkaloid. The metric has changed following the application of a correction factor for calculating the number of cigarettes smoked (1.13µg/cigarette). Data now measure consumption as cigarettes/week/1000 people.
Anabasine consumption levels are constant over the week.

Average weekly consumption (cigarettes/day/1000 people) of anabasine.

Feb 2016 - Aug 2023
Alcohol

Average consumption levels in 2022 were higher than those from 2020-2021, but still lower than from 2016-2019. Average consumption levels in 2023 to date were similar to 2020.

Average consumption (standard drinks/week/1000 people) from 2016-2020 (excludes February). Weekly consumption (standard drinks/week/1000 people) bi-monthly from February 2021 onwards. Ethanol excretion=0.012 % of ethanol consumption, 10g ethanol per standard drink.
Alcohol consumption levels are higher on weekends.

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