

PART VII

Public Health

Chapters 16–18

Epidemiology

Who uses methamphetamine, where, and how the patterns are changing — with every figure time-stamped, because in this field the numbers move.

Epidemiology is the discipline of counting, and counting an illicit, stigmatized behavior is inherently difficult: prevalence is estimated from household surveys that under-capture the most marginalized, while harm is measured through seizures, treatment admissions, and death certificates, each with its own biases. The figures below are the best current estimates from authoritative sources, and each is dated, because methamphetamine epidemiology has shifted markedly even within the past few years and any undated statistic is a trap.

Global prevalence

At the global level, the United Nations Office on Drugs and Crime estimated that about 316 million people used a drug other than alcohol or tobacco in 2023 — roughly 6 percent of the world's population aged 15 to 64 — and that some 64 million people experienced drug use disorders that year, about 13 percent higher than a decade earlier.¹ Within this picture, amphetamine-type stimulants — the category that includes methamphetamine and amphetamine — dominate the synthetic drug market: seizures of these stimulants reached a record high in 2023 and accounted for nearly half of all global synthetic drug seizures.¹ The supply trend is steep. Global methamphetamine seizures have grown on the order of 13 percent per year on average, and in the Golden Triangle of Southeast Asia seizures reached 236 tons in 2024, about 24 percent more than the previous year.^{1,2} A stark indicator of unmet need accompanies these figures: UNODC estimated that only about one in twelve people with drug use dependence received any form of treatment in 2023.¹

Regional differences

The geography of methamphetamine is shifting. East and Southeast Asia remain the largest theatre, with Myanmar the predominant source country; production there is estimated to have risen from around 420 tons in 2021 to more than 1,000 tons in 2025.^{2,3} North America is characterized by high-purity methamphetamine and, distinctively, by deep entanglement with the synthetic-opioid supply. The most consequential recent development is geographic spread: UNODC reports that new trafficking routes and the gradual diffusion of production have opened markets in the Near and Middle East, Africa, and parts of Europe, that North American methamphetamine is now crossing the Pacific to the Western Pacific Rim and Pacific Islands, and that disruption of the captagon market following political change in Syria in late 2024 may be shifting some users in the Middle East toward methamphetamine.² Methamphetamine is, in short, becoming a more global drug than it has ever been.

Demographics

National data illustrate the human distribution beneath the global totals. In the United States, household survey data indicate that roughly 2 to 2.6 million people have used methamphetamine in the past year, a figure that has remained relatively stable since 2021.⁴ Stability in use prevalence, however, has coexisted with sharply rising harm, and that harm falls unevenly. The largest increases in psychostimulant-involved overdose death rates have been among non-Hispanic American Indian and Alaska Native persons — rising from about 11.0 per 100,000 in 2018 to 32.9 in 2023 — even as use prevalence in that population remained relatively stable, pointing to drug potency, supply contamination, and unequal access to care rather than rising use as the drivers.⁶ Geographically within the United States, methamphetamine involvement in overdose deaths has been highest in the Western and Pacific states.^{5,6} Across settings, methamphetamine use is strongly associated with socioeconomic vulnerability — poverty, housing instability, incarceration, and limited access to services.

Trends

The defining trend of the present era is the convergence of methamphetamine with the opioid crisis — what many analysts call the "fourth wave" of that crisis, characterized by combined methamphetamine and illicit-opioid use. In the United States, overdose deaths involving psychostimulants with abuse potential (primarily methamphetamine) rose from 2,266 in 2011 to nearly 35,000 in 2023, when they accounted for roughly a third of all overdose deaths; methamphetamine-related mortality is reported to have increased roughly fiftyfold between 1999 and 2021.^{5,6,8} By 2023, opioids were involved in an estimated 69 percent of psychostimulant overdose deaths — a direct measure of how thoroughly the two supplies have merged.⁷ Crucially, this mortality has been driven less by more people using than by a more dangerous supply: rising purity and the contamination of methamphetamine with fentanyl, whether through deliberate co-use or an adulterated supply.

The most recent data add an important and double-edged update. Total US drug overdose deaths fell from 105,007 in 2023 to 79,384 in 2024 — the largest single-year decline on record — and the rates of psychostimulant- and cocaine-involved deaths declined as part of that broad reversal.⁵ Yet the *share* of overdose deaths involving psychostimulants has continued to grow even as absolute numbers fell: from about 22.9 percent in 2019 to an estimated 36.2 percent in 2024 (provisional).⁷ The encouraging fall in total deaths thus coexists with methamphetamine's rising prominence within the remaining toll — a reminder that the crisis is changing shape, not simply receding.

Indicator	Figure (date)	Source
People using any drug (excl. alcohol/tobacco)	~316 million (2023)	UNODC WDR 2025
People with drug use disorders	~64 million (2023)	UNODC WDR 2025
Golden Triangle meth seizures	236 tons (2024, +24%)	UNODC WDR 2025
Myanmar meth production	~420 t (2021) → >1,000 t (2025)	UNODC WDR 2026

US past-year methamphetamine use	~2–2.6 million (stable since 2021)	NSDUH
US psychostimulant-involved OD deaths	2,266 (2011) → ~35,000 (2023, ~33% of all)	CDC/NVSS
Total US OD deaths	105,007 (2023) → 79,384 (2024)	CDC NCHS
Psychostimulant share of OD deaths	22.9% (2019) → ~36.2% (2024 prov.)	CDC/NVSS

Harm Reduction

The evidence-based public-health strategies that reduce death, disease, and injury among people who use methamphetamine — distinct from, and complementary to, treatment.

As established in Chapter 1, harm reduction is a public-health framework that aims to reduce the negative consequences of drug use without requiring abstinence, providing care that is free of stigma and centered on the needs of people who use drugs.⁸ Methamphetamine poses a distinctive harm-reduction challenge: unlike opioids, it has no approved pharmacotherapy and no agonist-substitution equivalent, and naloxone — the cornerstone of opioid harm reduction — does not reverse stimulant toxicity. In the current environment of a fentanyl-contaminated supply, however, naloxone has nonetheless become essential for people who use methamphetamine, and the broader harm-reduction toolkit centers on preventing infectious disease, preventing overdose from co-involved opioids, and connecting a marginalized population to care.

Drug checking

Drug checking, described technically in Chapter 6, is a frontline harm-reduction service: it gives people information about the actual contents of a sample and provides early warning of dangerous adulterants. Fentanyl test strips in particular are an inexpensive, evidence-based tool for reducing fatal overdose by alerting a person to opioid contamination of a stimulant supply.⁸

Safer-use education

Safer-use education provides people who are going to use drugs regardless with information to reduce specific, well-defined risks — for example, the transmission risks of sharing equipment, the overdose risks of an unpredictable supply, and the value of not using alone. The purpose is harm reduction in the literal sense: lower-

ing the probability of death, injury, or infection associated with use that is already occurring, delivered without judgment so that people will actually engage.⁸

Infectious disease prevention

This is among the best-evidenced domains in all of public health. Syringe services programs — first established in Europe during the HIV/AIDS epidemic of the 1980s and since implemented worldwide — reduce the transmission of HIV and hepatitis C, provide safe disposal of used equipment, are *not* associated with increases in crime, and serve as a trusted point of contact that links a population often alienated from healthcare to testing, vaccination, wound care, and treatment.⁸ As methamphetamine use has shifted toward smoking, many programs have begun distributing safer-smoking supplies as well, extending their reach.⁸ Beyond injection-related transmission, methamphetamine is associated with sexualized drug use that can independently elevate HIV risk, making integrated sexual-health services an important component.

Hydration, nutrition, and sleep

Several harm-reduction measures address the direct physiological toll of stimulant use. **Hydration** counters the dehydration and hyperthermia that the drug promotes and that contribute to its acute dangers (Chapter 15). **Nutrition** addresses the appetite suppression and weight loss that lead to malnutrition during sustained use (Chapter 14). **Sleep** is a particularly important and under-appreciated target: the profound sleep deprivation that accompanies binge use is itself a major precipitant of stimulant psychosis (Chapter 23), so supporting rest is not a peripheral comfort measure but a genuine reducer of acute psychiatric harm.

Mental health and community outreach

Because methamphetamine use is associated with significant psychiatric burden — including the depression and elevated suicide risk noted in Chapter 14 — low-barrier mental-health screening and support are essential elements of a harm-reduction response, particularly for the many people who co-use opioids and have the greatest unmet needs.⁸ Finally, **community outreach** — often peer-led and

explicitly non-stigmatizing — is the connective tissue of the whole approach: it reaches people who avoid clinical settings, builds the trust on which every other intervention depends, and provides linkage to housing, food, and treatment. Surveys of people who inject drugs consistently find high demand for exactly these services, and that many of the most critical needs (transportation, housing, someone to help navigate services) lie beyond healthcare narrowly defined.⁸

What harm reduction is, and is not

Harm reduction reduces specific harms among people who currently use drugs; it is not a treatment for methamphetamine use disorder and does not claim to be. Treatment — the behavioral therapies and emerging pharmacotherapies of Part VIII — is a distinct enterprise. The two are complementary: harm reduction keeps people alive and connected to care, and that connection is frequently the path by which a person eventually reaches treatment and recovery.

Pregnancy

A subject requiring both clinical seriousness about real risks and disciplined resistance to a stigmatizing narrative that the evidence does not support.

Methamphetamine use in pregnancy raises genuine clinical concerns, and this chapter does not minimize them. But it must be read against the cautionary history of the "crack baby" panic of earlier decades — a narrative of inevitable, catastrophic, permanent damage that later evidence substantially overturned, while the stigma it generated did lasting harm. The methodological lesson from that episode governs this one: methamphetamine use in pregnancy is so tightly entangled with poverty, polysubstance and tobacco use, intimate-partner violence, unstable housing, and inadequate prenatal care that separating the drug's specific effects from the effects of social adversity is the central analytic challenge.⁹

Maternal risks

The maternal risks are real and substantial. A large cohort study of nearly 4.8 million pregnancies, of which about 0.39 percent involved methamphetamine use, found that — after adjustment — methamphetamine use was associated with markedly increased risks of placental abruption (about 3.8-fold), preeclampsia with severe features (about 3.4-fold), cardiovascular morbidity (about 4.3-fold), severe maternal morbidity (about 3.5-fold), and nonsevere hypertensive disorders (about 1.8-fold).⁹ These associations are biologically coherent given the drug's vasoconstrictive and hypertensive actions, which can compromise the placental vasculature.

Fetal effects

Methamphetamine readily crosses the placenta, exposing the developing fetus directly. The most consistently reported fetal consequence is impaired growth — fetal growth restriction and lower birthweight — along with an increased risk of stillbirth.⁹ Proposed mechanisms include reduced placental perfusion from vaso-

constriction, oxidative stress, and disturbances of placental and fetal glucose metabolism that may underlie the growth deficits. As with the maternal outcomes, disentangling the drug's contribution from co-exposures and nutritional deprivation remains difficult.

Neonatal outcomes

At birth and beyond, the same cohort found increased risks of preterm birth before 37 weeks (about 2.9-fold), neonatal intensive care admission (about 2.5-fold), and infant death.⁹ Other reported neonatal findings include low Apgar scores and poor feeding. Neonatal withdrawal can occur, but it is generally milder and less clearly defined than the neonatal abstinence syndrome associated with opioids. On longer-term neurodevelopment, the landmark prospective Infant Development, Environment, and Lifestyle (IDEAL) study — designed specifically to control for confounders — has been central: it links prenatal methamphetamine exposure to low birthweight and to subtle neurobehavioral effects in the newborn period and to later differences in attention and behavior, while consistently finding that the child's caregiving environment exerts a powerful, often dominant, influence on outcomes.¹⁰ The accurate summary is one of measurable risk that is neither trivial nor deterministic.

Clinical and policy implication

Because the harms cluster with social adversity and because punitive responses deter women from seeking prenatal care, the evidence supports compassionate, non-punitive, treatment-oriented care that engages pregnant people rather than threatening them — an approach more likely to improve outcomes for both parent and child than the stigmatizing "meth baby" framing the data do not justify.^{9,10}

Outcome (adjusted)	Approx. adjusted risk ratio
Placental abruption	~3.8
Preeclampsia with severe features	~3.4
Cardiovascular morbidity (maternal)	~4.3

Severe maternal morbidity	~3.5
Nonsevere hypertensive disorders	~1.8
Preterm birth (<37 weeks)	~2.9
NICU admission	~2.5

Adjusted risk ratios from a cohort of ~4.8 million pregnancies (methamphetamine use in ~0.39%). Associations are adjusted but residual confounding by co-exposures and social adversity is likely; see text.⁹

References — Part VII

Listed in order of first citation within Part VII. Numbering restarts each installment; the apparatus is to be consolidated on final assembly. Figures are time-stamped in text and subject to periodic re-verification; sources current as of 2026.

1. United Nations Office on Drugs and Crime. *World Drug Report 2025*. Vienna: UNODC, June 2025. (≈316 million past-year drug users and ≈64 million people with drug use disorders in 2023; ATS seizures at record high in 2023, ≈half of global synthetic-drug seizures; Golden Triangle methamphetamine seizures 236 tons in 2024, +24%; ~1 in 12 with dependence in treatment; ≥450,000 drug-related deaths in 2021.)
2. United Nations Office on Drugs and Crime. *World Drug Report 2026*. Vienna: UNODC, June 2026. (Global methamphetamine seizures growing ~13%/year; Myanmar production ~420 t in 2021 to >1,000 t in 2025; spread to the Near and Middle East, Africa, parts of Europe, and the Pacific; North American methamphetamine crossing the Pacific; captagon-market disruption following the December 2024 political change in Syria; Asia injecting-drug-use and HIV figures.)
3. UNODC Regional Office for Southeast Asia and the Pacific. *Synthetic Drugs in East and Southeast Asia: Latest Developments and Challenges (2025)*. (Myanmar as predominant regional source; methamphetamine seizure trends 2015–2024.)
4. U.S. National Survey on Drug Use and Health (NSDUH) — past-year methamphetamine use estimated at ~2–2.6 million, relatively stable since 2021. (SAMHSA NSDUH; secondary compilation, National Rehab Hotline, 2026.)
5. Centers for Disease Control and Prevention, National Center for Health Statistics. Drug Overdose Deaths in the United States, 2003–2023 (NCHS Data Brief 522) and 2023–2024 (Data Brief 549); CDC Overdose Prevention. (≈35,000 psychostimulant-involved overdose deaths in 2023, ~33% of all; total overdose deaths 105,007 in 2023 to 79,384 in 2024, the largest single-year decline on record; declines in psychostimulant and cocaine death rates 2023–2024.)
6. Centers for Disease Control and Prevention. Drug Overdose Deaths Involving Stimulants — United States, January 2018–June 2024. *MMWR* 2025;74(32). (Psychostimulant-involved deaths rose from 2,266 in 2011; largest increases among American Indian/Alaska Native persons, ~11.0 in 2018 to 32.9 in 2023, attributed to potency/supply rather than rising use.)
7. CDC National Vital Statistics System data, as presented by C. M. Jones (HHS/SAMHSA) to the U.S. Sentencing Commission, August 2025 — psychostimulant share of overdose deaths 22.9% (2019) to ~36.2% (2024 provisional); opioids involved in ~69.4% of psychostimulant overdose deaths (2023).
8. Harm-reduction evidence: CDC, "About Overdose Prevention" and OD2A harm-reduction materials; reviews of syringe services programs and infectious-disease prevention (PM-C7596878; Amsterdam Cohort Studies, PMC2040242); safer-smoking-supply distribution and methamphetamine–opioid co-use needs among people who inject drugs (PM-C11186154). Syringe services programs reduce HIV/HCV transmission, are not associated with increased crime, and link participants to care; fentanyl test strips are an evidence-

based overdose-prevention tool; ~50-fold increase in US methamphetamine-related mortality 1999–2021.

9. Prenatal methamphetamine use and adverse maternal and neonatal outcomes — retrospective cohort of 4,775,463 pregnancies (18,473 [0.39%] with methamphetamine use). *Am J Obstet Gynecol* (2024); PubMed 38789069. (Adjusted risk ratios: placental abruption 3.77; preeclampsia with severe features 3.38; maternal cardiovascular morbidity 4.30; severe maternal morbidity 3.53; nonsevere hypertensive disorders 1.81; preterm birth <37 weeks 2.85; NICU admission 2.46; elevated infant death. Strong socioeconomic confounding noted.)
10. Smith LM, et al.; Lester BM, et al. The Infant Development, Environment, and Lifestyle (IDEAL) Study — prospective investigation of prenatal methamphetamine exposure controlling for confounders: associations with low birthweight and subtle neonatal neurobehavioral and later neurodevelopmental effects, with strong moderation by the caregiving environment; supports non-punitive, treatment-oriented prenatal care.

End of Part VII — Public Health (Chapters 16–18)

*Part VIII — Addiction Science (Chapters 19–21: Why Addiction Happens; Withdrawal; Recovery)
continues the volume.*