MACS

Maryland Addiction Consultation Service

Methamphetamine and Other Nonmedicinal Stimulants in MD

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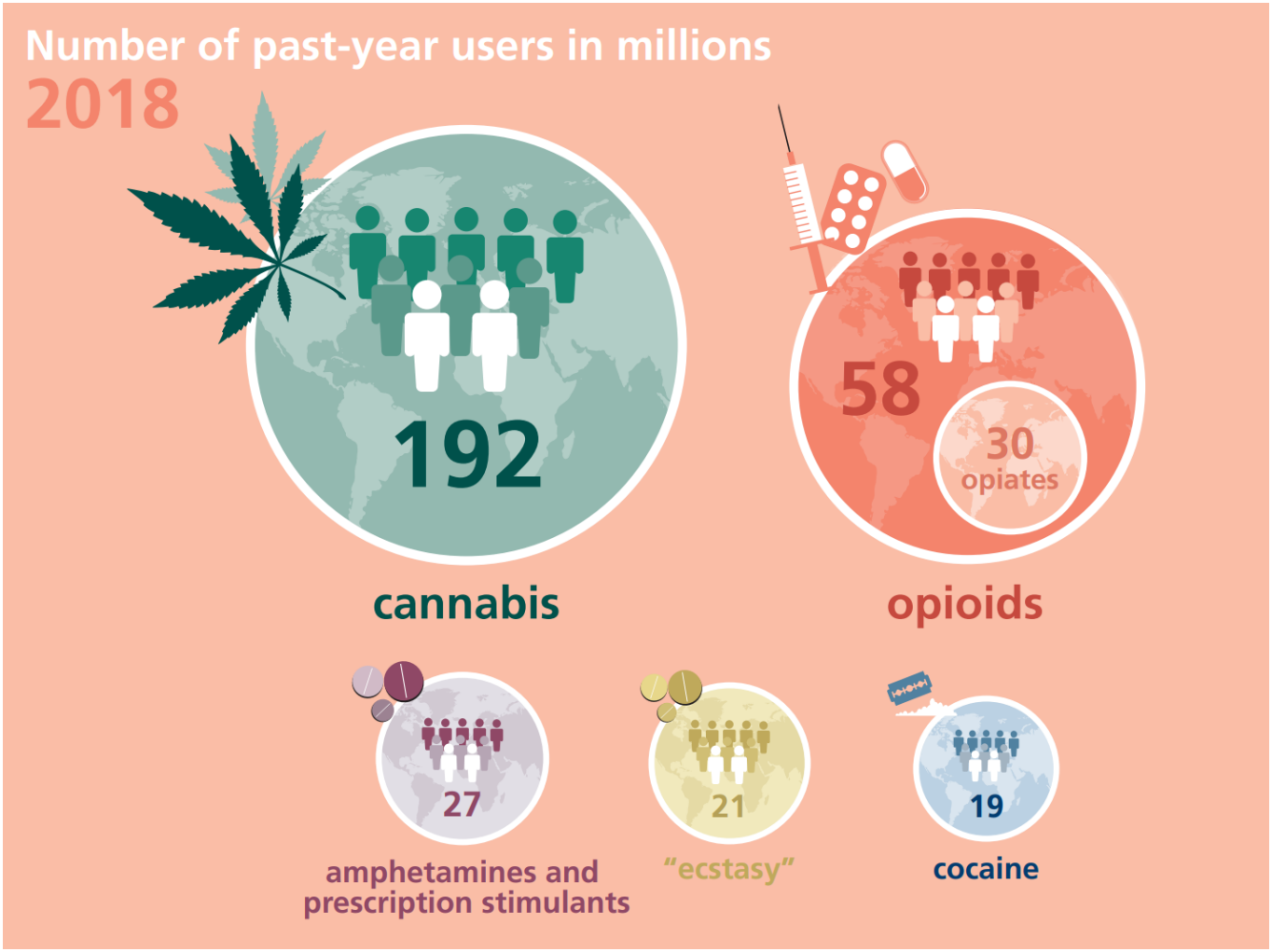
Outline

- Epidemiology of nonmedicinal amphetamine-type stimulant (ATS) use in the US and MD
- Manifestations and common comorbidities of stimulant use disorder
- Evidence base for stimulant use disorder treatments, including psychosocial interventions and medications
- Hear from an individual in recovery from methamphetamine use disorder

Global Importance

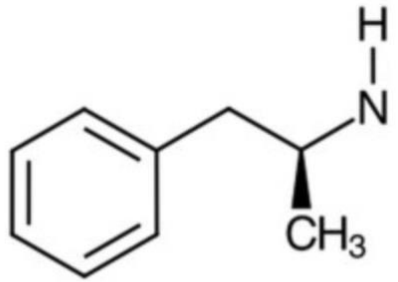


Illustrative Case: Donny

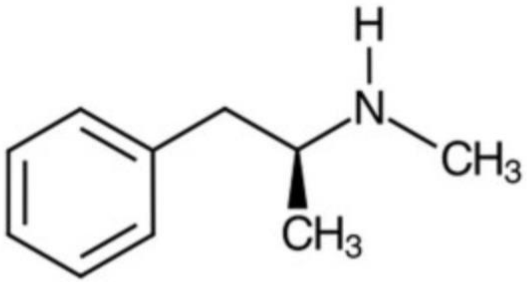
48 year old man, seen via telemedicine in Caroline County. History of methamphetamine and opioid use disorders, hip OA, and bipolar disorder, now stabilized on buprenorphine and brexpiprazole.

Utoxes previously negative for nonprescribed substances, but now positive for methamphetamine over the past few months. After a few months of denying use, endorses relapse (to meth, not opioids) when triggered by seeing others using crank and dope in a trailer he wandered into while bored at a bonfire.

Molecules

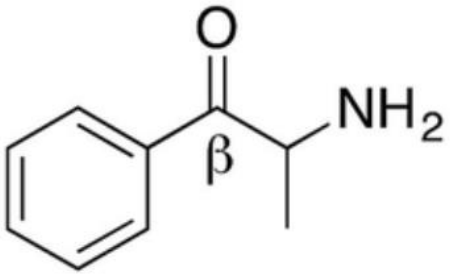


(+)-amphetamine
(AMP)

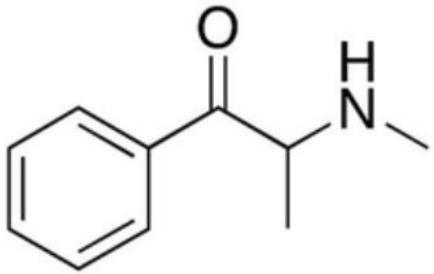


(+)-methamphetamine
(METH)

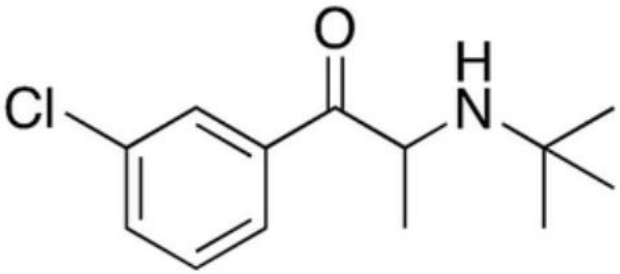
More Molecules



Cathinone

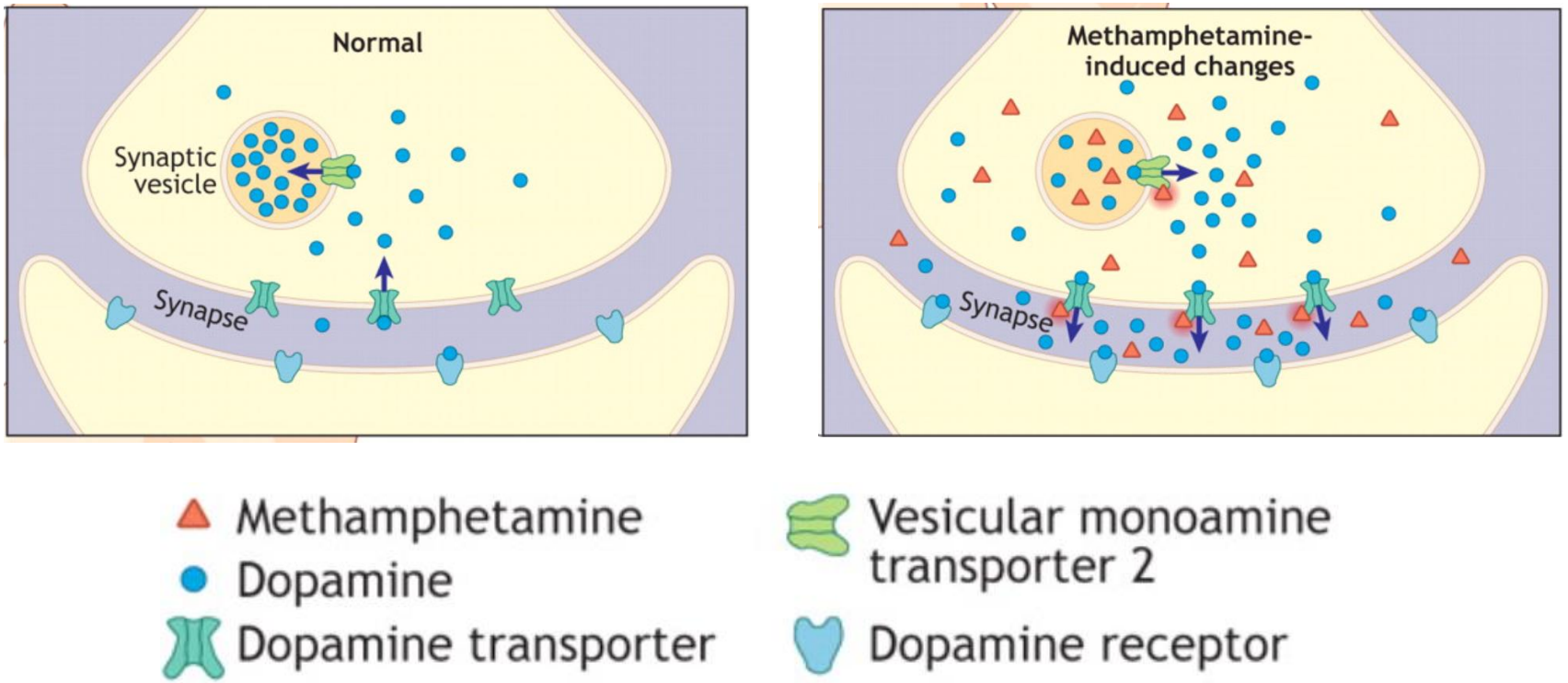


Methcathinone



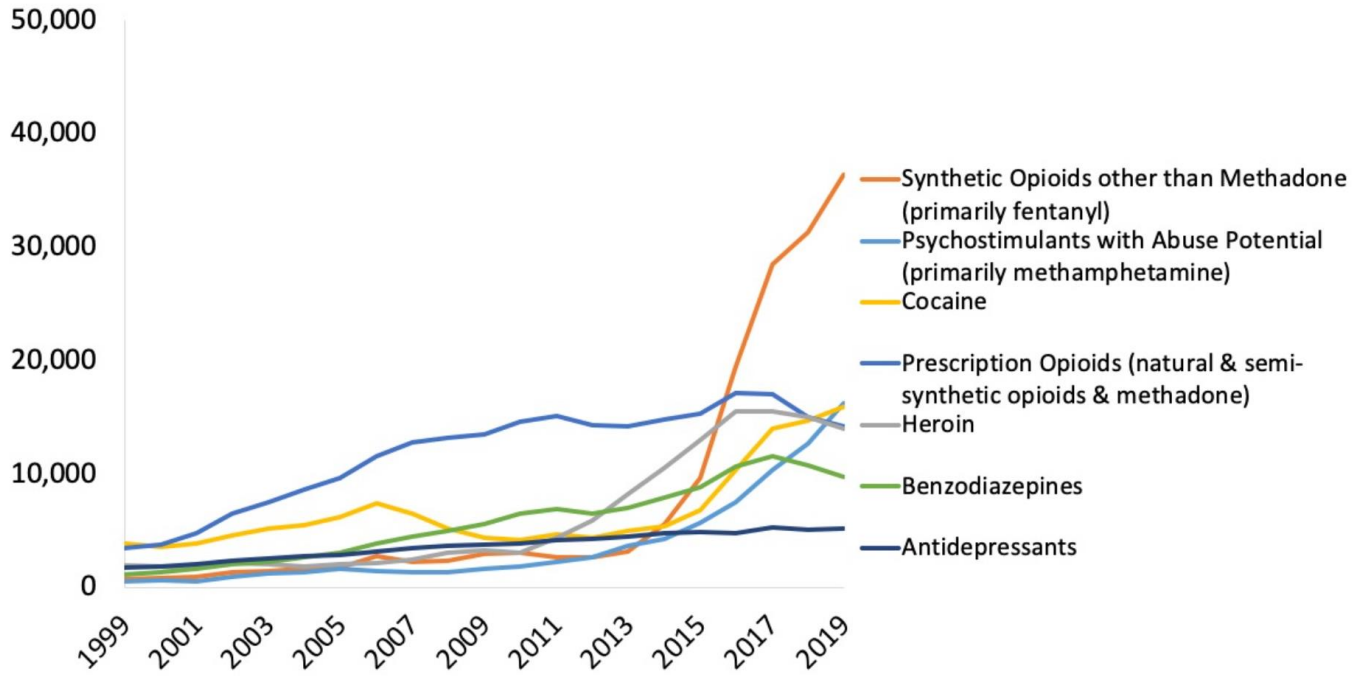
Bupropion

The mechanism of action



US Overdoses

Figure 2. National Drug-Involved Overdose Deaths*, Number Among All Ages, 1999-2019



Without and with opioids

Figure 6. National Drug Overdose Deaths Involving Psychostimulants with Abuse Potential (Primarily Methamphetamine)*, by Opioid Involvement
Number Among All Ages, 1999-2019

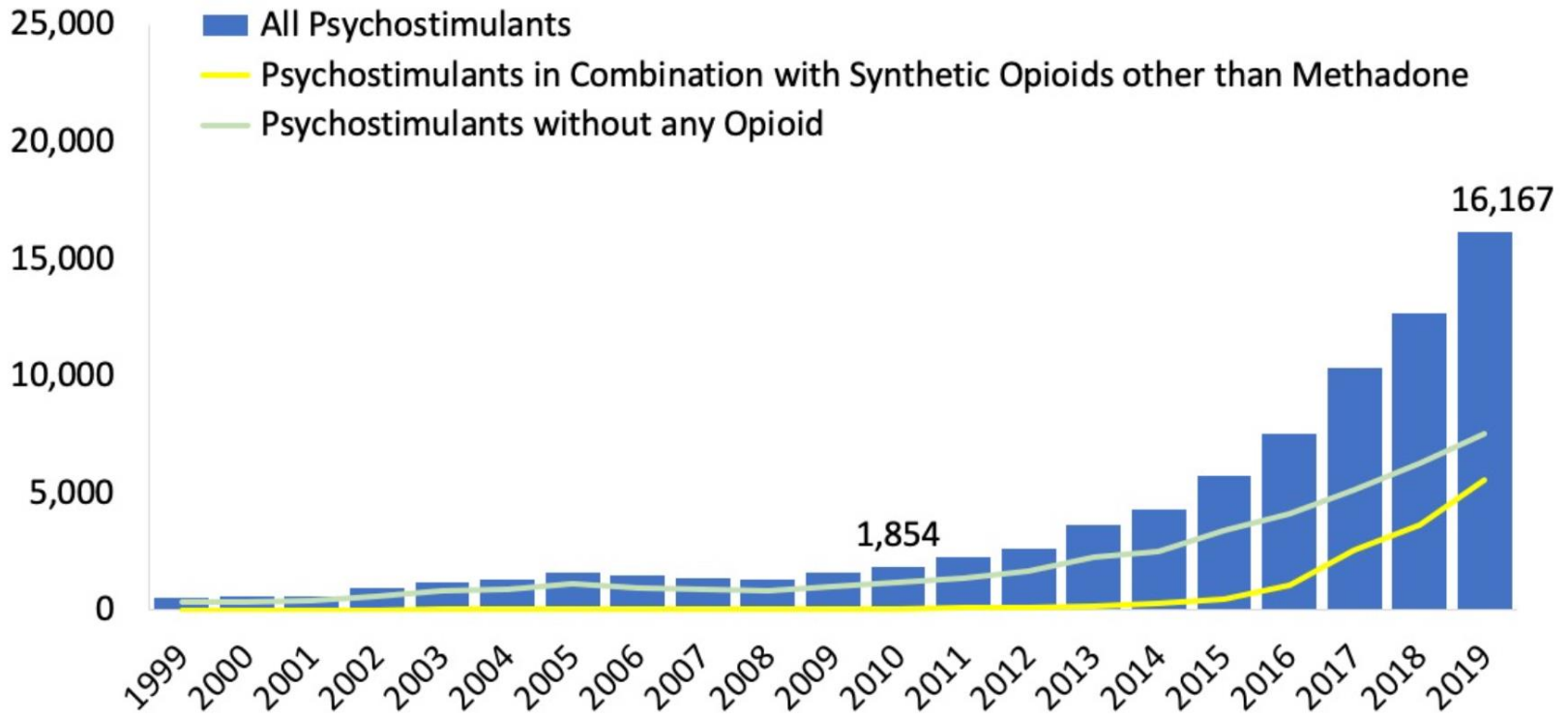


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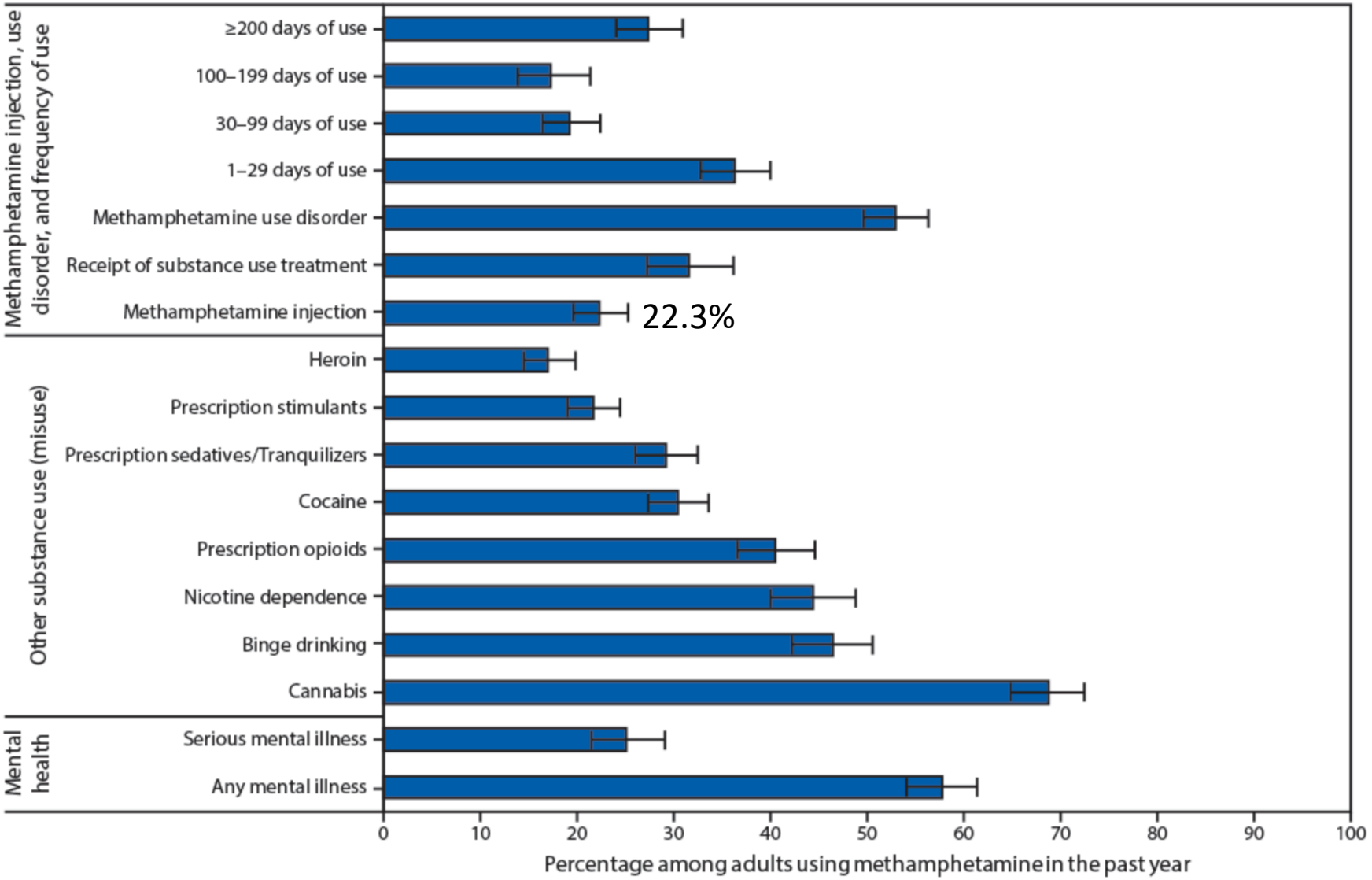
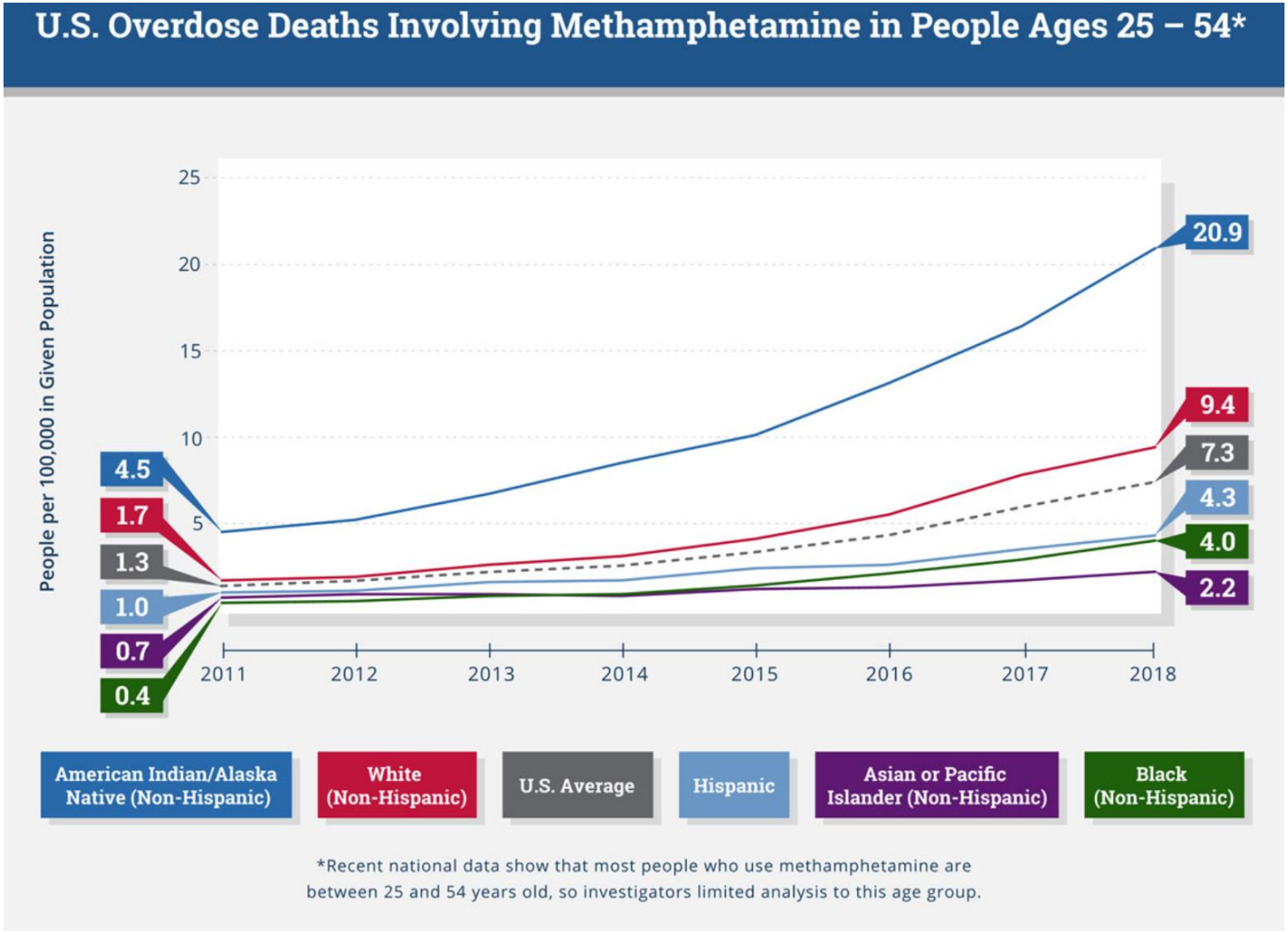
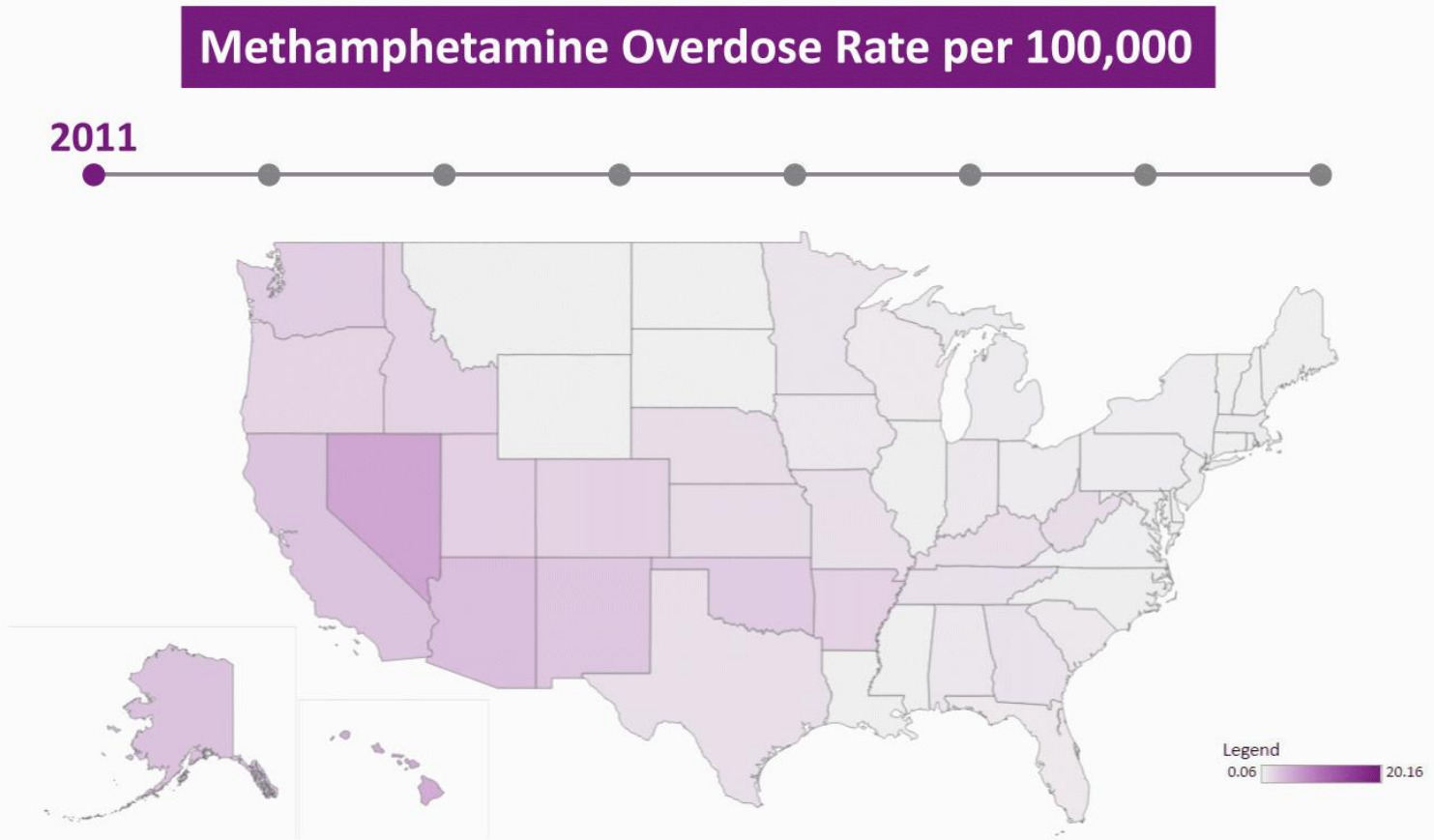
FIGURE. Methamphetamine injection, use disorder, frequency of use, receipt of substance use treatment,* other substance use,† and mental illness among adults aged ≥18 years reporting past-year methamphetamine use — United States, 2015–2018§



Deaths disproportionate x race




Methamphetamine Overdose Rate per 100,000
2011
Legend
0.06
20.16

Vulnerable Populations

- Rural Whites
  - Impact spreading east, mixing with opioids, getting stronger and more available with P2P-based manufacture.
- Native American and Hawaiian communities
  - 39% of Native ODs in 2018 related to methamphetamine
- MSM
  - Use at up to 25-45x the rate of the general population
  - Chemsex: ↑'d risk HIV transmission

Maryland Specifics

- 2002: “Methamphetamine abuse is limited in Maryland…in 1999 there were no methamphetamine-related admissions to publicly funded facilities.”
- 2020: 52 meth-related fatalities in the first 9 months of the year. (>10k nationwide in 2019)
- Deaths mostly related to co-administration of opioids in Maryland
- “Ice” and “Glass”; “Crank” for old-timers

Baltimore

- Cocaine (“girl”) dominant
- Limited other stimulant use
- Exceptions:
  - e-pills
    - Tablet form—maybe MDMA, amphetamines, other phenethylamine compounds
  - molly
    - Methamphetamine &/or synthetic cathinones
    - Sold in “bullets” and “trash cans”

Illustrative Case: Darryl

38 year old man, seen in an integrated OUD/primary care/infectious disease practice in Baltimore. History of IDU with cocaine and opioids, on 120mg/day methadone. Utox positive for fentanyl and methamphetamine. Endorses IV dope and molly.

Complaining of a recurrent parasitosis, nonresponsive to dual ivermectin/permethrin therapy. Derm exam significant for weeping skin ulcerations on extremities and chest; absent on back.

Darryl observes that “everyone who uses these research chemicals gets these bugs—I’ve seen them stick their heads out at night.”

Medical and psychiatric sequelae

- Psychosis, mood disorders
- Infectious diseases related to IDU and chemsex
- Hypertension-related diseases
- Heart disease (including methamphethamine-associated cardiomyopathy--MACM)
- Malnutrition

Toxicology Testing

- 2-4 day detection window
- Methamphetamine→amphetamine; both can be present in urine after methamphetamine use.
- Selegiline, femprofazone, and benzphetamine are all metabolized to M & A.
- 3,4-Methylenedioxymethamphetamine (Ecstasy, MDMA) is metabolized to 3,4-methylenedioxyamphetamine (MDA). Only sometimes cross-reacts with AMP immunoassay.
- Lots of other ELISA cross-reactivity with non-ATS
- Minimal/absent cross-reactivity with cathinones
- Confirmatory/GCMS when in doubt
  - d- and l-methamphetamine (l- consistent with Vick's Vapor Inhaler use)

Diagnosis of Stimulant Use Disorder

1. Often using larger amounts/for longer
2. Persistent desire or unsuccessful efforts to cut down
3. Great deal of time is spent getting, using, or recovering
4. Craving
5. Recurrent failure to fulfill major role obligations
6. Continued use despite social or interpersonal problems
7. Giving up important activities
8. Recurrent use when physically hazardous
9. Use despite physical or psychological problems
10. Tolerance
11. Withdrawal

Treatments of Stimulant Use Disorder

- Psychosocial interventions the mainstay of treatment
  - Matrix IOP model is the archetype
    - Outpatient intervention based on cognitive principles; incorporates individual, group, and family therapies, drug testing, and a 12-step program
  - Contingency management.
  - Comprehensive case management
- Some evidence for anticonvulsants, XR stimulants, aldehyde dehydrogenase inhibitors

Matrix IOP model

- Early Recovery Skills Group:
  - You can change your behavior in ways that will make it easier to stay abstinent, and the ERS group sessions will provide you with strategies and practice opportunities to do that.
  - Professional treatment can be one source of information and support. However, to benefit fully from treatment, you also need 12-Step or mutual-help groups.

Matrix IOP model

- Relapse Prevention Group:
  - Relapse is not a random event.
  - The process of relapse follows predictable patterns.
  - Signs of impending relapse can be identified by staff members and clients.
  - Example session topics: Guilt and shame; Staying busy; Motivation for recovery; Be smart, not strong; Emotional triggers
- Family Support/Education

Matrix IOP model

- Social Support Group/Continuing Care
- Weekly toxicology testing, at minimum
  - May respond with change in treatment intensity
- Individual counseling (with or without family)
  - At least 3 manualized sessions

Medications

- Nowhere near the evidence base as for opioids
- Not clear (though plausible) that interventions tested for cocaine would work for ATS
- Topiramate (titrated to 200mg/day) with extended release mixed amphetamine salts (at 60mg/day) showed promise for cocaine. Not tested for methamphetamine.
- Bupropion & mirtazapine results were underwhelming; mirtaz decreased use and risky chemsex in one small study

Discussion

Summary

- Psychosocial interventions (including manualized counseling, contingency management, and peer & family support) help
- Medications are tempting to use, but evidence base is shaky
- If not already present in your community, methamphetamine may be here soon…

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Maryland Addiction Consultation Service

Provides support to prescribers and their practices in addressing the needs of their patients with substance use disorders and chronic pain management.

All Services are FREE

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- Assistance with addiction and behavioral health resources and referrals
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