



Georgiana Willwerth-Pascutiu

VP Global Medical Director
RGA International



Seminario de Suscripción y Vida 2023



The spectrum of substance misuse and addiction

Dr. Georgiana Willwerth-Pascutiu MD, DBIM
Vice President and Global Medical Director,
RGA

Mexico City

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Poll Everywhere

- All your responses are anonymous
 1. Go to pollev.com and enter georgianawillwerth986
 2. Respond to activity
 3. Hit “skip” when/if it asks you for your name

Poll Everywhere - All your responses are anonymous



Take a picture of the QC with your phone



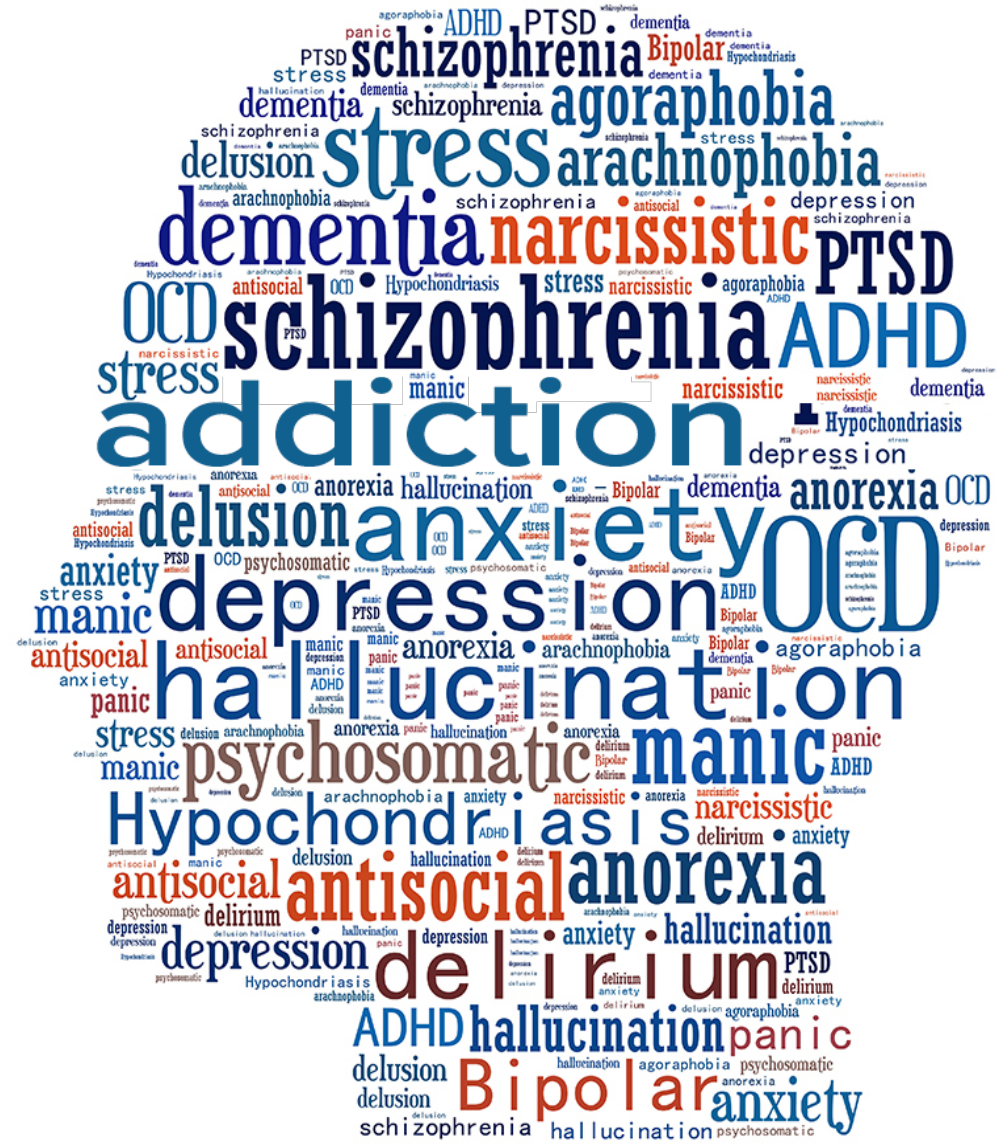
RGA



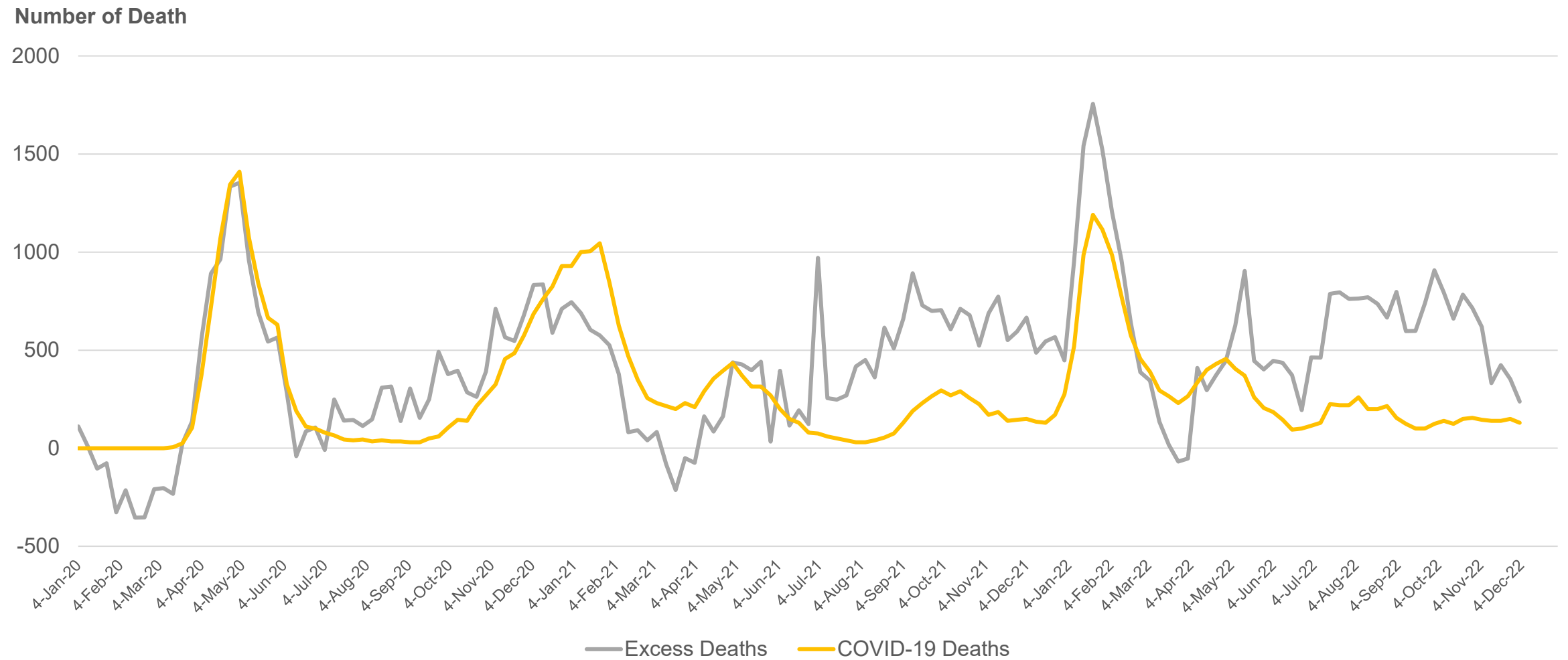
Is excessive use of cell phones an addiction?



➤ Why this topic and why now?

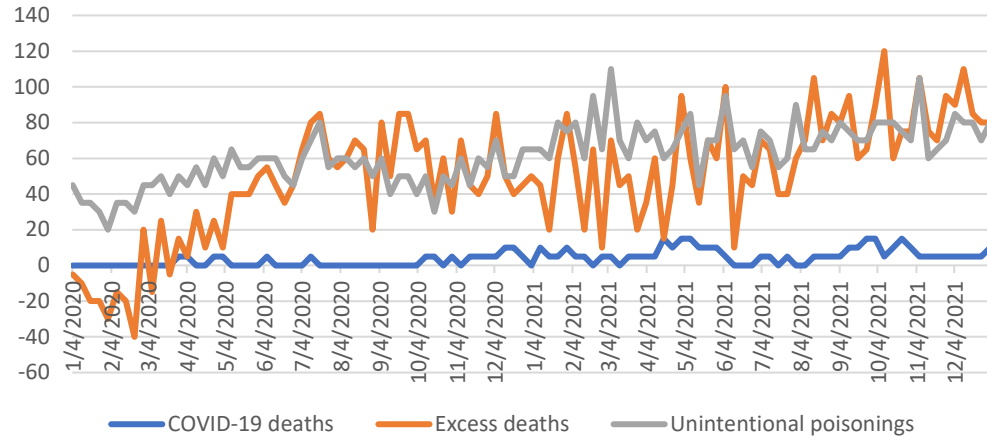


Is SUD a key driver of excess deaths?

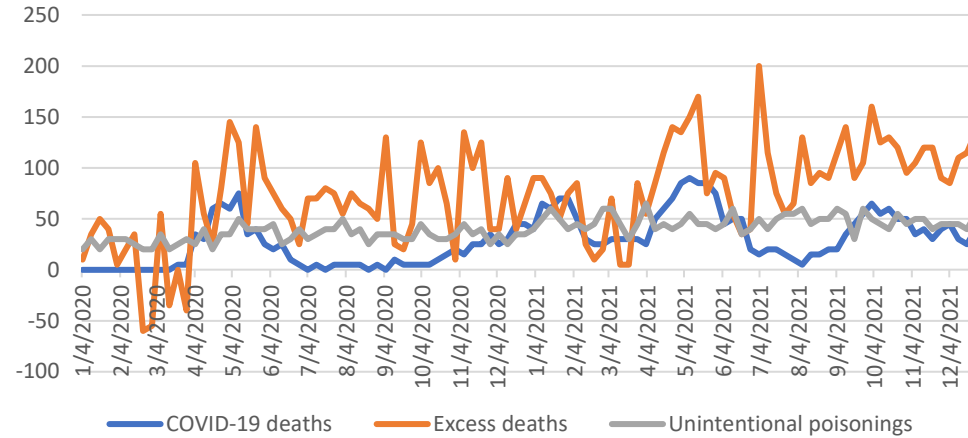


Is SUD a key driver of excess deaths?

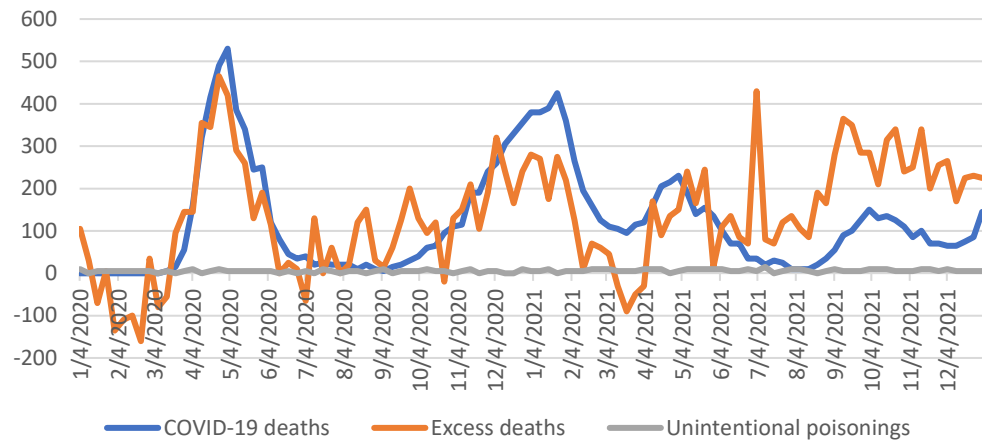
Deaths attributed to COVID-19, accidental poisonings and excess deaths among Canadians ages 0 to 44 years



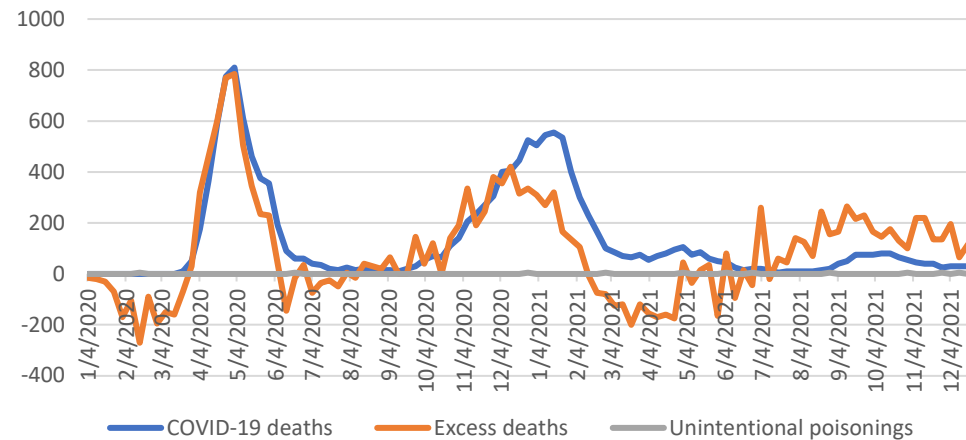
Deaths attributed to COVID-19, accidental poisonings and excess deaths among Canadians ages 45 to 64 years



Deaths attributed to COVID-19, accidental poisonings and excess deaths among Canadians ages 65 to 84 years



Deaths attributed to COVID-19, accidental poisonings and excess deaths among Canadians ages 85 years and older

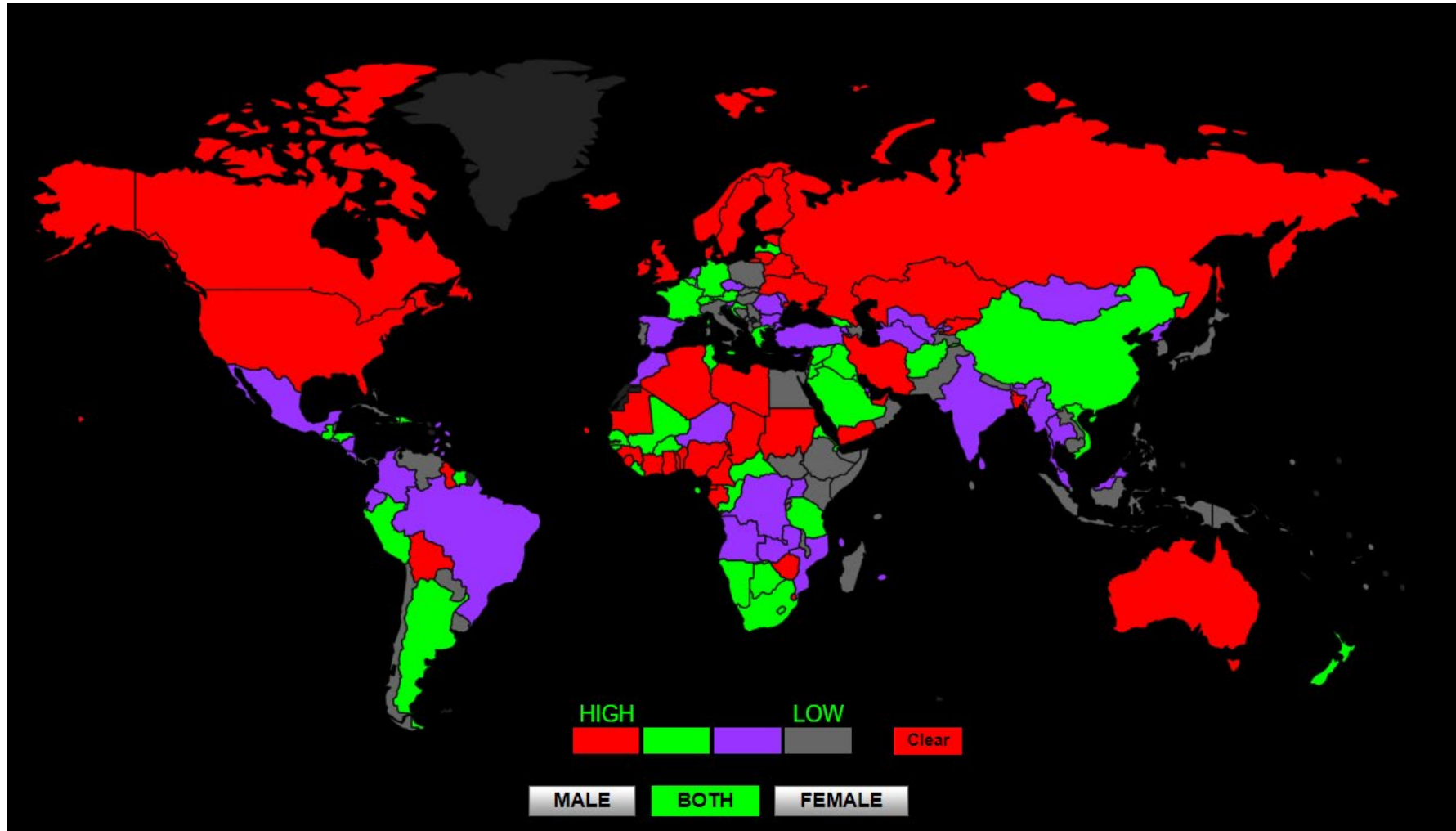


Topics for discussion

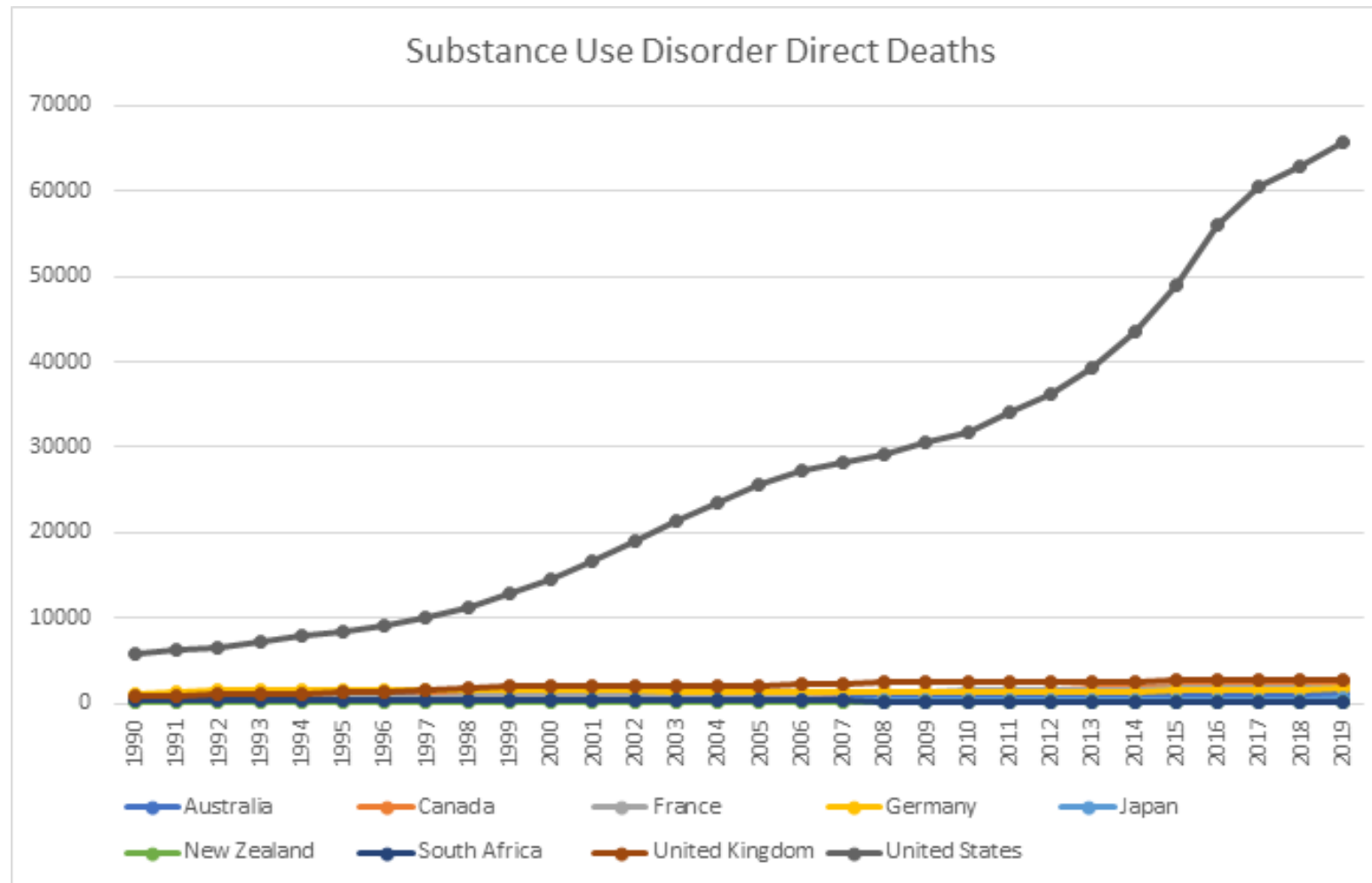
1. Substance misuse and addiction:
 - Context of COVID-19 pandemic
 - Definitions and current global state
 - Mexico landscape, spotlight on cannabis
2. Addiction 101
3. Practical implications: case studies
4. Where do we go from here?



Drug use death rate by country, per 100,000, 2019



The Global View: SUD Direct Annual Deaths 2019 (absolute numbers)



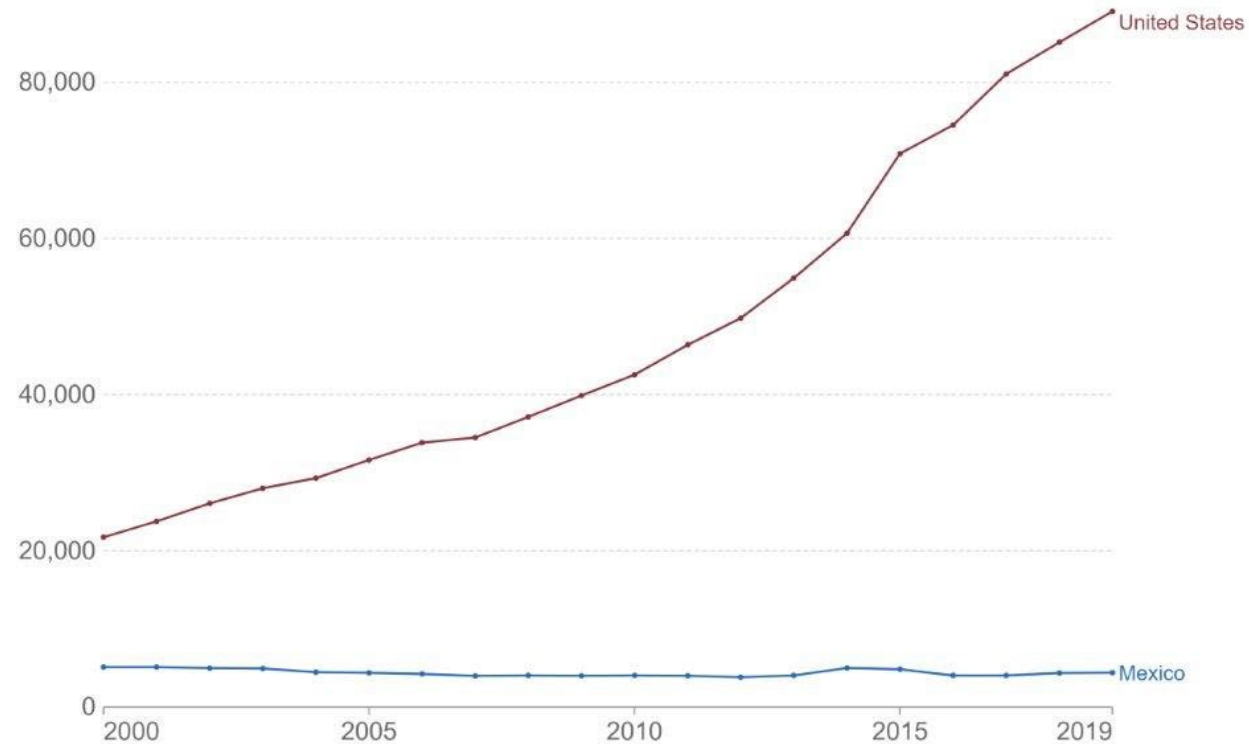
Hannah Ritchie and Max Roser (2022) - "Opioids, cocaine, cannabis and illicit drugs". Published online at OurWorldInData.org. Retrieved from: '<https://ourworldindata.org/illicit-drug-use>' [Online Resource]

Alcohol and drug use disorders deaths, 2000 to 2019

Alcohol and drug use disorders deaths, 2000 to 2019

Estimated annual number of deaths from alcohol and drug use disorders¹.

Our World
in Data

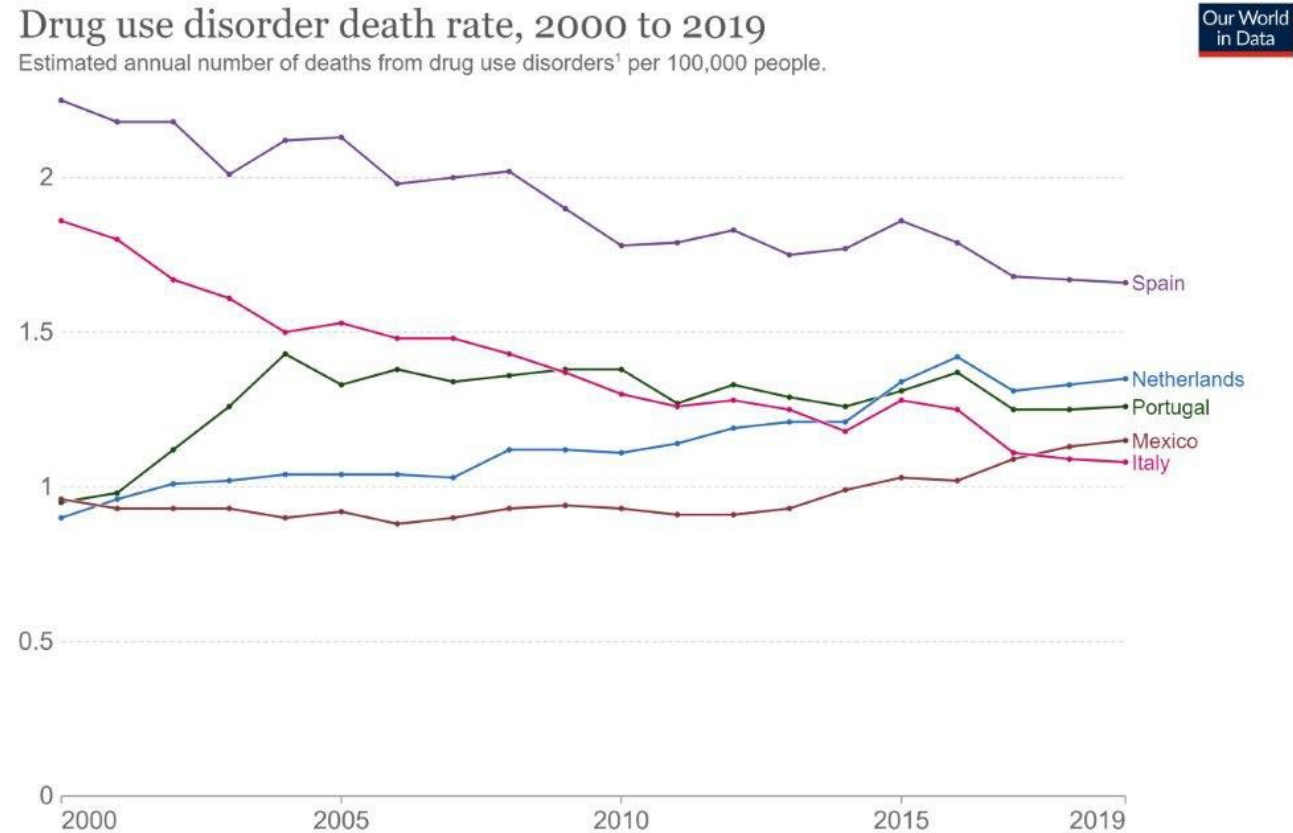


Source: WHO, Global Health Estimates (2020)

OurWorldInData.org/illicit-drug-use • CC BY

1. Drug use disorders: Drug use disorders are the continued use of drugs such as opioids, amphetamines, cocaine, and cannabis leading to impairments in health, social function, and control over substance use.

Drug use disorder death rate, 2000 to 2019 per 100,000 people



Source: WHO, Global Health Estimates (2020)

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1. Drug use disorders: Drug use disorders are the continued use of drugs such as opioids, amphetamines, cocaine, and cannabis leading to impairments in health, social function, and control over substance use.

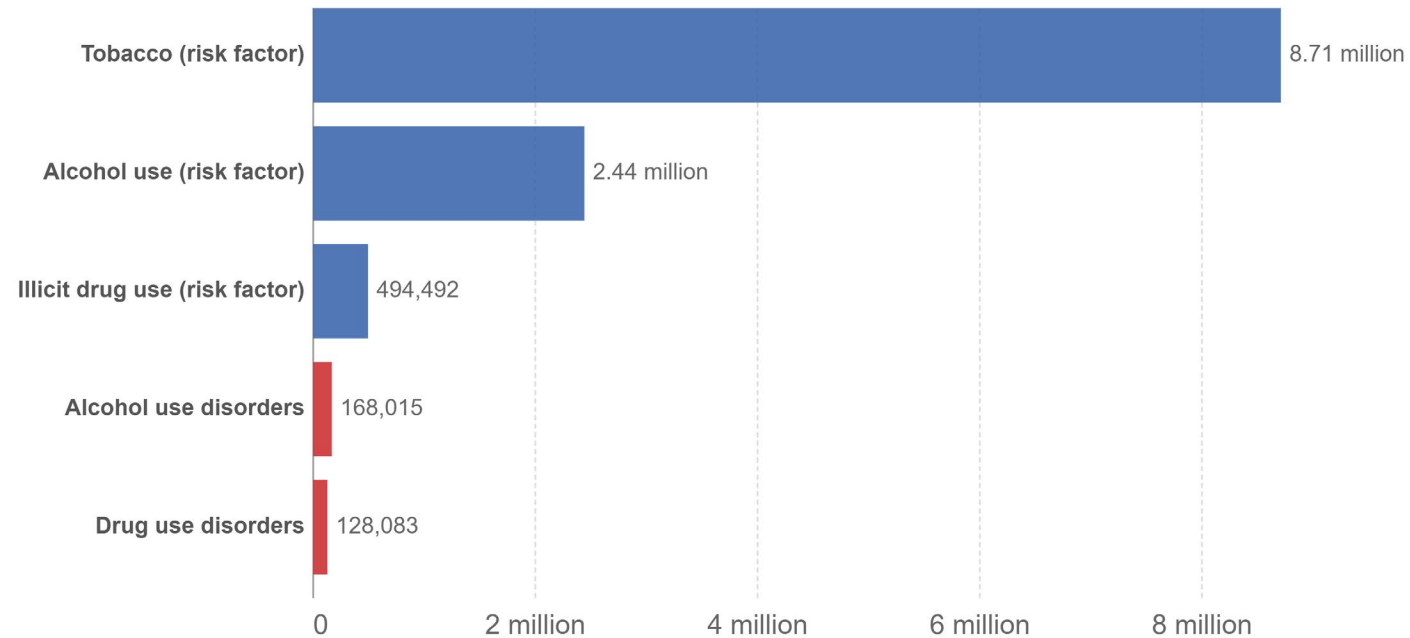
Deaths from substance use, World, 2019: 11.8 million each year

Deaths from tobacco, alcohol and drugs, World, 2019

Our World
in Data

Deaths from substance use are distinguished by two measures:

- direct deaths from substance use disorders (in red). These are deaths which result from alcohol or illicit drug use overdoses.
- indirect deaths (in blue) which result from substance use acting as a risk factor for the development of various diseases and injury.



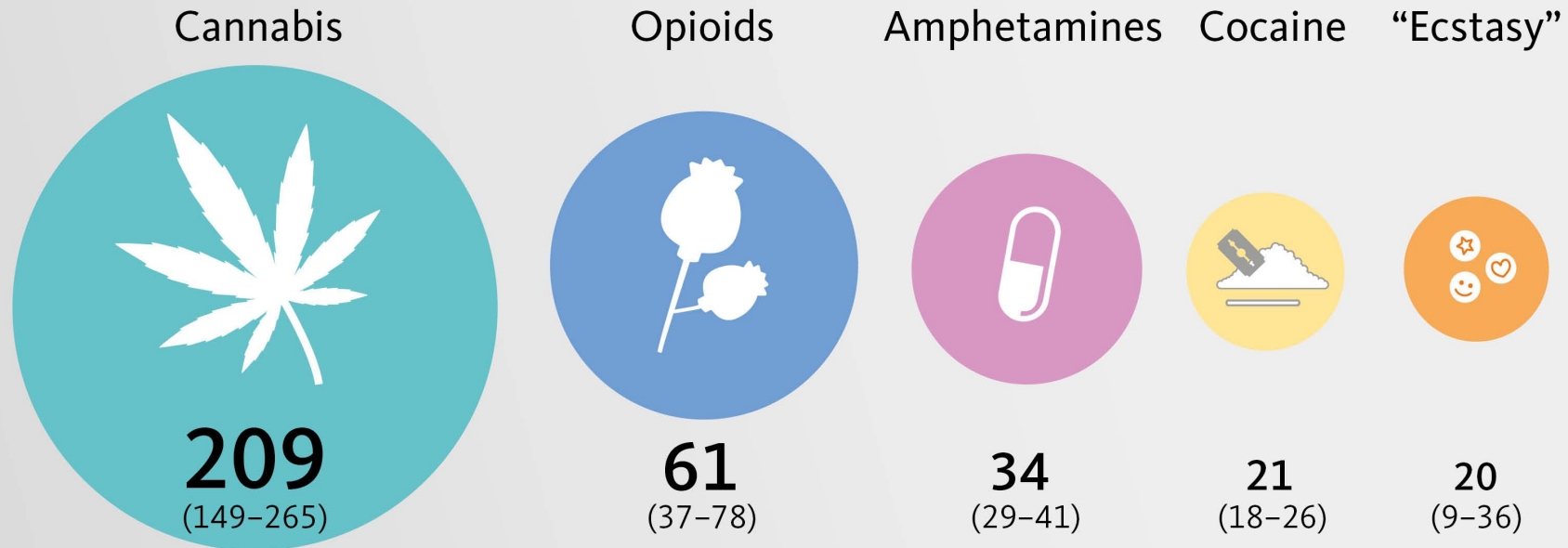
Source: IHME, Global Burden of Disease (2019)

OurWorldInData.org/drug-use • CC BY

Note: Illicit drugs are drugs that have been prohibited under international drug control treaties. They include opioids, cocaine, amphetamines and cannabis.

Current State

GLOBAL ESTIMATES OF THE NUMBERS OF DRUG USERS IN MILLIONS (2020)



Respond at pollev.com/mariannerams182

Text **MARIANNERAMS182** to **37607** once to join, then **A, B, C, D, or E**

Which is the most used drug that is also the most harmful?

Amphetamines

Opioids

Alcohol

Cocaine

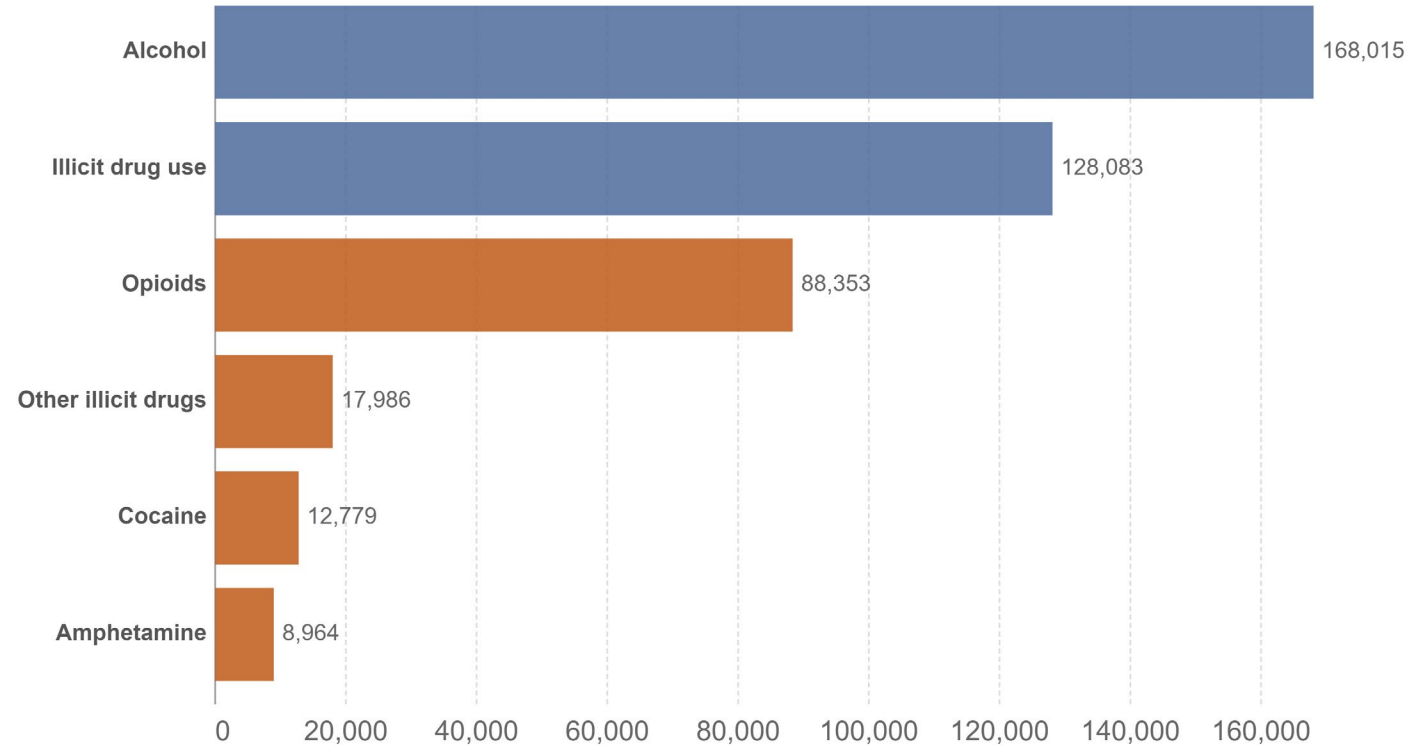
Cannabis

Number of deaths from SUDs, World, 2019

Number of deaths from substance use disorders, World, 2019

Our World
in Data

Deaths from substance use disorders refer to direct deaths from drug overdoses. Substances shown in orange are collectively termed 'illicit drug use' in addition to cannabis, which is not shown here since it is not attributed to direct deaths from usage.



Source: IHME, Global Burden of Disease (2019)

OurWorldInData.org/drug-use • CC BY

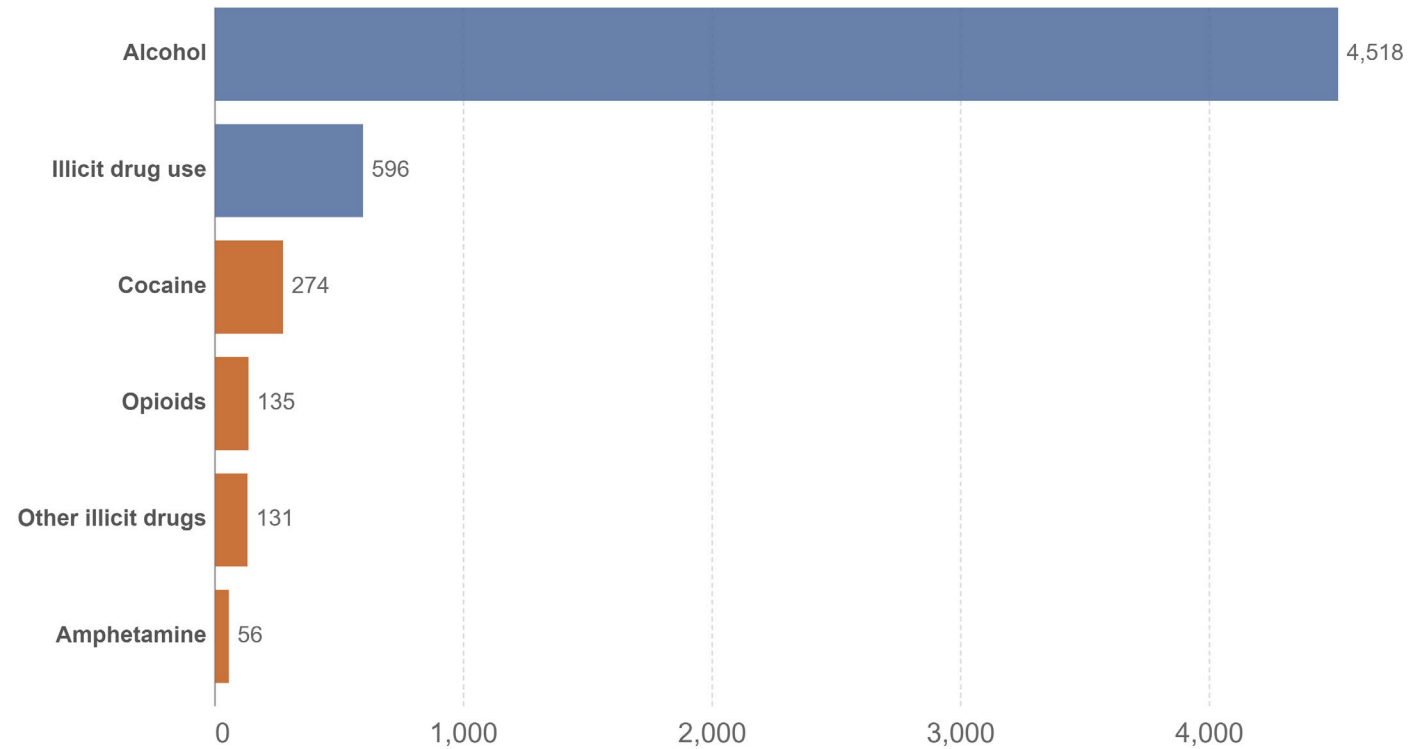
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Number of deaths from SUDs, Mexico, 2019

Number of deaths from substance use disorders, Mexico, 2019

Our World
in Data

Deaths from substance use disorders refer to direct deaths from drug overdoses. Substances shown in orange are collectively termed 'illicit drug use' in addition to cannabis, which is not shown here since it is not attributed to direct deaths from usage.



Source: IHME, Global Burden of Disease (2019)

OurWorldInData.org/drug-use • CC BY

Alcohol, drugs, and road traffic injuries- ER department in Mexico City

Borges, et al; Feb. 2023

- Large public ED in Mexico City
 - At least one in every four patients screened positive for a psychoactive substance (alcohol or drugs)
 - A Breath alcohol concentration + was found in 16.1% of the sample
 - Amphetamines were the most common substances detected in saliva (8.6%), followed by cocaine (7.0%) and cannabis (6.9%)

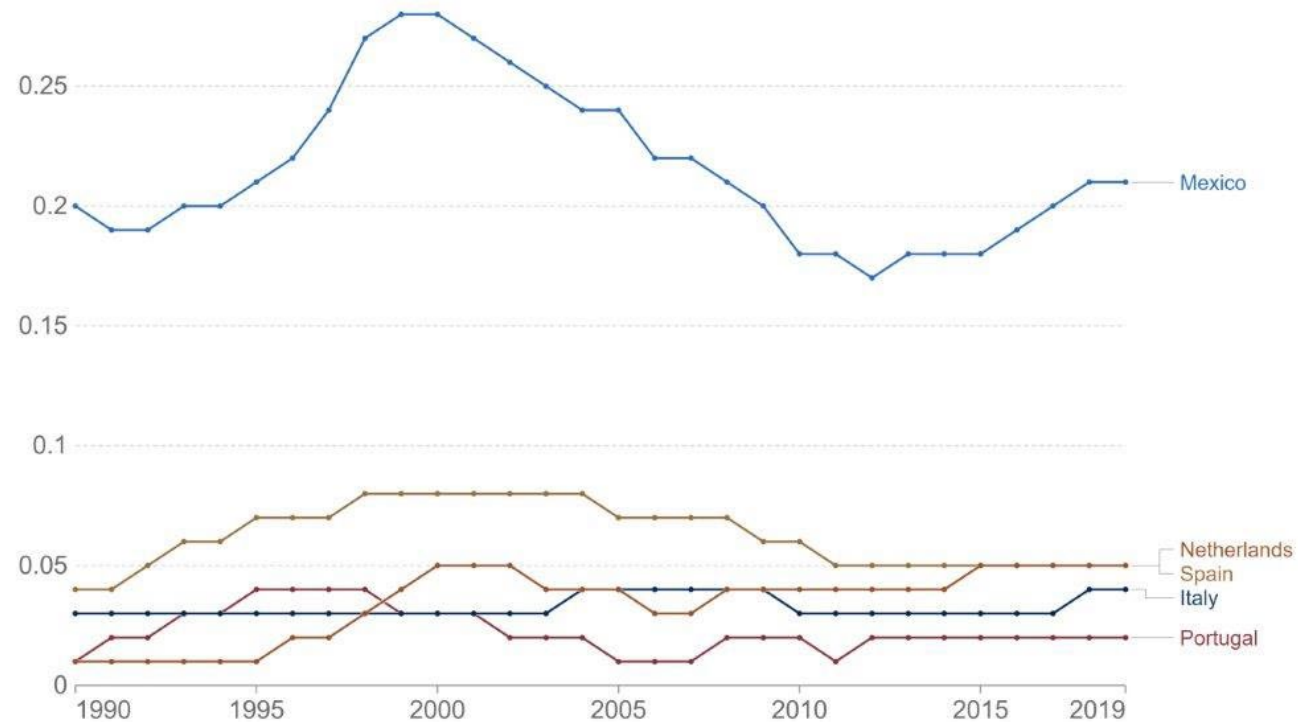


Cocaine Use Disorder Death Rate, 1990 to 2019

Cocaine use disorder death rate, 1990 to 2019

Estimated annual number of deaths from cocaine use disorders per 100,000 people.

Our World
in Data



Source: IHME, Global Burden of Disease (2019)

Note: To allow for comparisons between countries and over time, this metric is age-standardized¹.

OurWorldInData.org/Illicit-drug-use • CC BY

1. Age standardization: Age standardization is an adjustment that makes it possible to compare populations with different age structures, by standardizing them to a common reference population. [Read more: How does age standardization make health metrics comparable?](#)

Case #1

50-year-old male, nonsmoker, life coverage, occupation manager

Application

- 1995 MVA, went through windshield, brain injury, depression post-MVA, fully recovered however recurrent headaches/migraine
- 2006: broken back, was offered surgery but didn't take
 - Tramadol used on average 1 tablet every second day (mainly after long distance driving)
- Cannabis: first used 1993, occ use, used in the last 12 months, no more than 2 x in the last year
- Occasional alcohol intake



Case #1

50-year-old male, nonsmoker, life coverage, occupation manager

Pertinent medical notes

- 2010: ADHD and “drug addiction”
- 9/16 - syncope, complete negative workup, “very likely related to hypovolemia from alcohol consumption & dehydration”
- 2017: stress at work, increased alcohol consumption, 1 bottle red wine in an evening (3-4 evenings pw like this), plus 5-8 stubbies of beer Fri, Sat nights
- Longstanding history of mild LFTs abnormalities, improving
- 2020: stress at work, anxiety and sleepless nights
- January 2021: gout attack

Case analysis

- Successful career, no time off work, stable familial situation
- What do you think of his “diagnosis” of addiction?
- Would you make an offer?



Is he?



A Misusing alcohol?

0%



B Abusing alcohol?

0%



C Addicted to alcohol?

0%



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How is alcohol handled by the body?

- One drink produces an average blood alcohol concentration (BAC) 30 mg%
- One drink metabolized every 60-90 min, assuming normal liver function
- Blood alcohol level physiologic effects
 - 30 mg% Decreased reaction time, fine motor control, judgment
 - 150 mg% Slurred speech, euphoria subsides
 - 200 mg% Disorientation, asphyxiation or injury risk
 - 400 mg% Coma, respiratory arrest, average fatal concentration



The spectrum of substance misuse...how do we differentiate between misuse, abuse and addiction?

What is a “substance”?

- Any psychoactive compound with the potential to cause health and social problems, including addiction
 - legal (e.g., alcohol and tobacco)
 - illegal (e.g., heroin and cocaine)
 - controlled for use by licensed prescribers for medical purposes such as hydrocodone or oxycodone
- Substance misuse: using any of these substances at high doses or in inappropriate situations causing a health or social problem
 - E.g., binge drinking (men 5 or more standard alcoholic drinks in one sitting, women, 4 or more)
- Prolonged, repeated use of any of these substances at high doses and/or high frequencies =substance use disorder (SUD)
- Severe and chronic SUDs are commonly called addictions

“loss of behavioral control” — the cardinal feature of addiction

How is drug abuse different from drug addiction?

- Drug addiction is a severe form of drug abuse or SUD
- The distinction between the two disorders lies in how much control the user can exercise over themselves
- Since a person who abuses drugs still has control over their life, they don't experience major disruption in their life

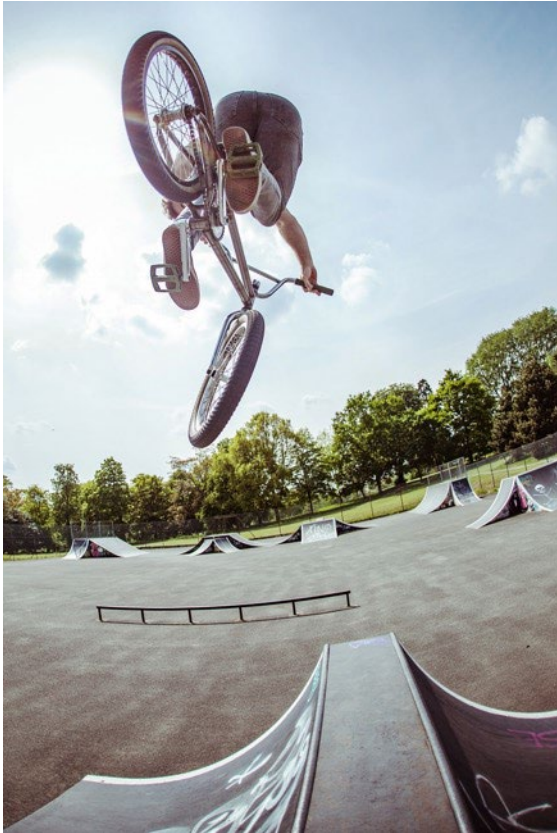
The 4C's approach

- **C**raving
- Loss of **c**ontrol of amount or frequency of use
- **C**ompulsion to use
- Continued substance use despite **c**onsequences

The cycle of craving, bingeing, remorse, repeat

Who is most vulnerable to SUD?

Risk Factors



- 40-60% of predisposition to addiction is genetic (studies on twins)
- Environment
 - Detrimental social factors
 - Exposure



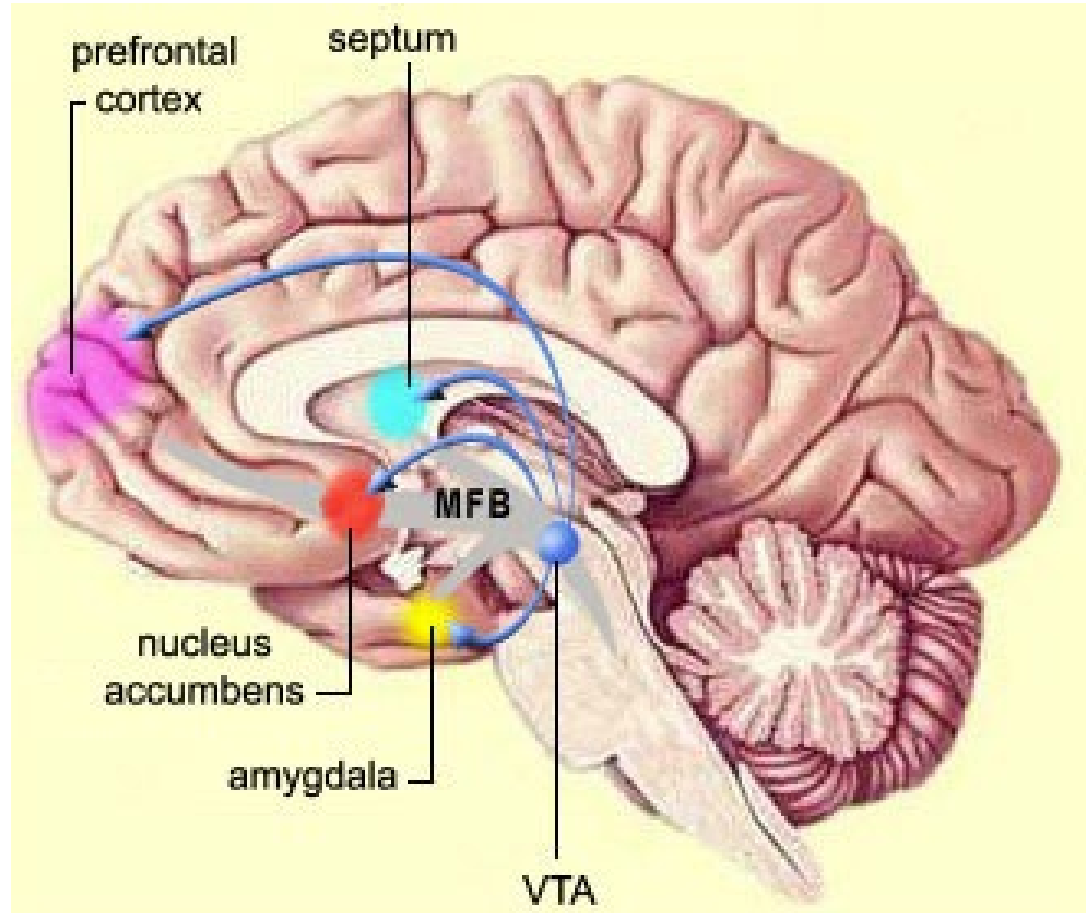
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Addiction 101



Who is to blame?



- Neurons connect one area to another via pathways to send and integrate information
- Reward system: pathway in the brain
 - Plays an important role in sustaining life
 - Linking activities needed for survival, e.g., eating, nurturing and reproduction with pleasure and reward
- The neurotransmitter dopamine drives the reward system
- Drugs increase the activity of the reward pathway by increasing dopamine transmission

Drug of choice

Drug/Host interaction





Would you?

A Make a substandard offer?

0%



B Decline?

0%





Morbidity and mortality implications

Alcohol associated mortality and morbidity

Deaths related to excessive alcohol use

- 1 in 10 deaths among working age adults
- Suicide (lifetime rate of suicide attempts of 7% comparing to 1% in general population-US)
- 28% of road fatalities involved alcohol



- Most deaths are chronic, the result of many years of steady alcohol consumption
- Twenty-five chronic disease in the International Classification of Disease 10 are entirely attributable to alcohol use

Alcohol-associated mortality and morbidity

- Contributing role in the risk of developing certain chronic diseases, e.g., diabetes, colon cancer, CAD and liver cirrhosis
- Alcohol use is among the top three leading risk factors for death from cancer worldwide
 - 4% of all cancer are attributable to alcohol drinking
 - Established causal link between alcohol use and multiple cancers (oral cavity, esophagus, colon, rectum, liver, larynx and breast)



Alcohol use disorder

- Interplay of genetics, environmental influences, and specific personality traits
- Red flags:
 - social or legal problems
 - trauma or injury
 - mood or anxiety disorders
 - comorbid substance use disorders
 - common alcohol-related medical problems: hypertension, gastrointestinal issues, increased liver enzymes, bone marrow suppression (low blood counts), or macrocytosis
 - other lab abnormalities: increased ferritin, HDL cholesterol, uric acid, low serum albumin

Where are all the claims?

- The opioid crisis is intensifying in the whole country
 - Opioid-Related deaths in Canada are linked to Socioeconomic Status
 - In a retrospective, observational study of national data from 2000 to 2017, the rate of opioid-related mortality was 3.8 times higher in the lowest income quintile
- Newer data is showing the progression of the epidemic over time, with its effects moving from less to more privileged areas
- Drug poisonings deaths are often acute and due to overdose
- Most alcohol-induced deaths are chronic and are the result of many years of steady alcohol consumption
 - 25 chronic conditions are entirely attributable to alcohol use



Case Study: The spectrum of cannabis use and abuse

Cannabis legal status in Mexico

- Medicinal marijuana- legal in Mexico since 2017
- 2021
 - law to decriminalize cannabis for recreational, scientific, medical uses was approved
 - adults 18+ can possess up to 28 grams of cannabis and grow up to six marijuana plants
- Most used drug, lifetime prevalence ~ 8.6%



Two underwriting scenarios

Cannabis use for “wellbeing and mood”

- Female age 26, nonsmoker, cashier, stable occupation for the past 2 years
- Part-time student, pursuing sociology degree; no alcohol or driving criticism
- History of mood disorder, depression, anxiety, insomnia, previously on Celexa but for the past 2 years on “medicinal marijuana”, symptoms controlled
- No authorization, buys online, vaping 1.5 g/day, 22% THC, THC:CBD 2:1
- No time off work, no other criticism

Cannabis use disorder “CUD”

- Male age 34, smoker
- Drug questionnaire:
 - cannabis 5x per week from age 22 - 31
 - cocaine 1x per week from age 25 - 31
 - Addiction care 12.2020- Feb. 2021 for CUD; CBT, early remission
- Sick leave 9.2020 - 3.2021
- Retrained and successfully employed now

What is your most significant concern related to cannabis use?

A Side effects (e.g., cardiovascular, respiratory, psych)



B Addiction, cannabis use disorder (CUD)



C Drug interactions



D User's lack of knowledge



E Lack of evidence, i.e., lack of randomized controlled studies

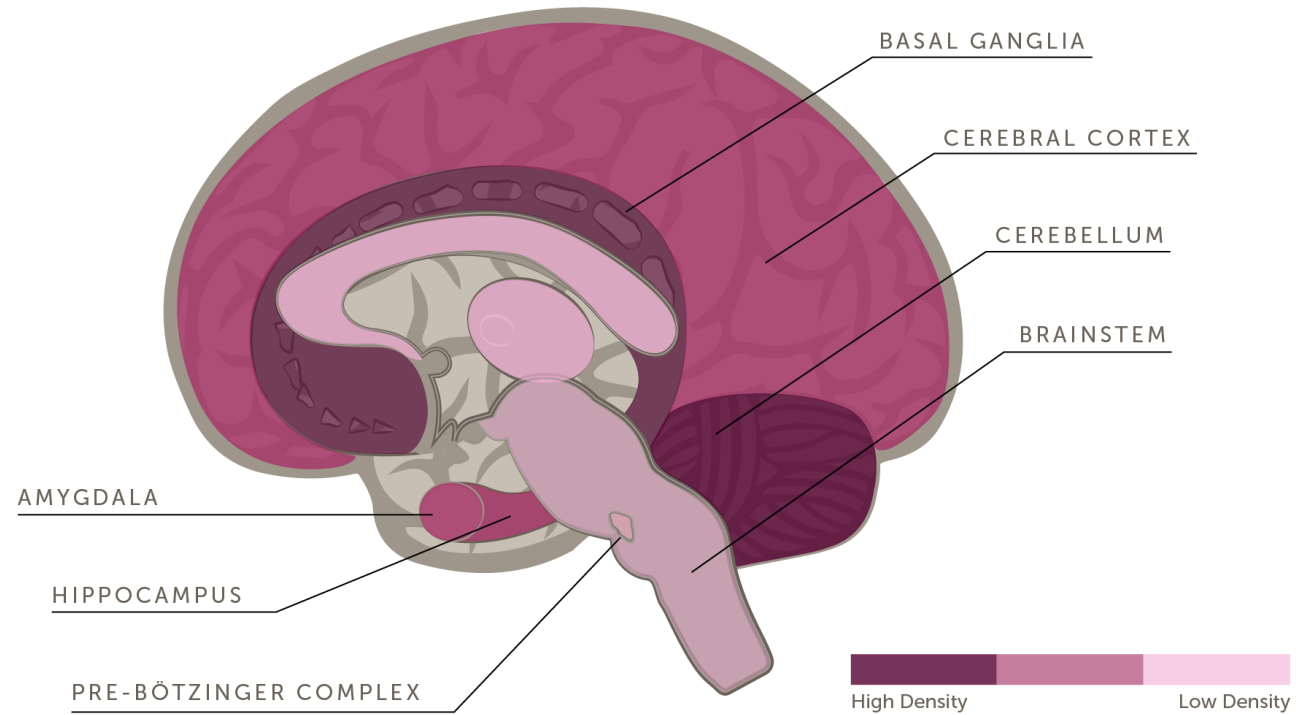


F Overdose



Neuroanatomical distribution of cannabinoid receptors in the brain

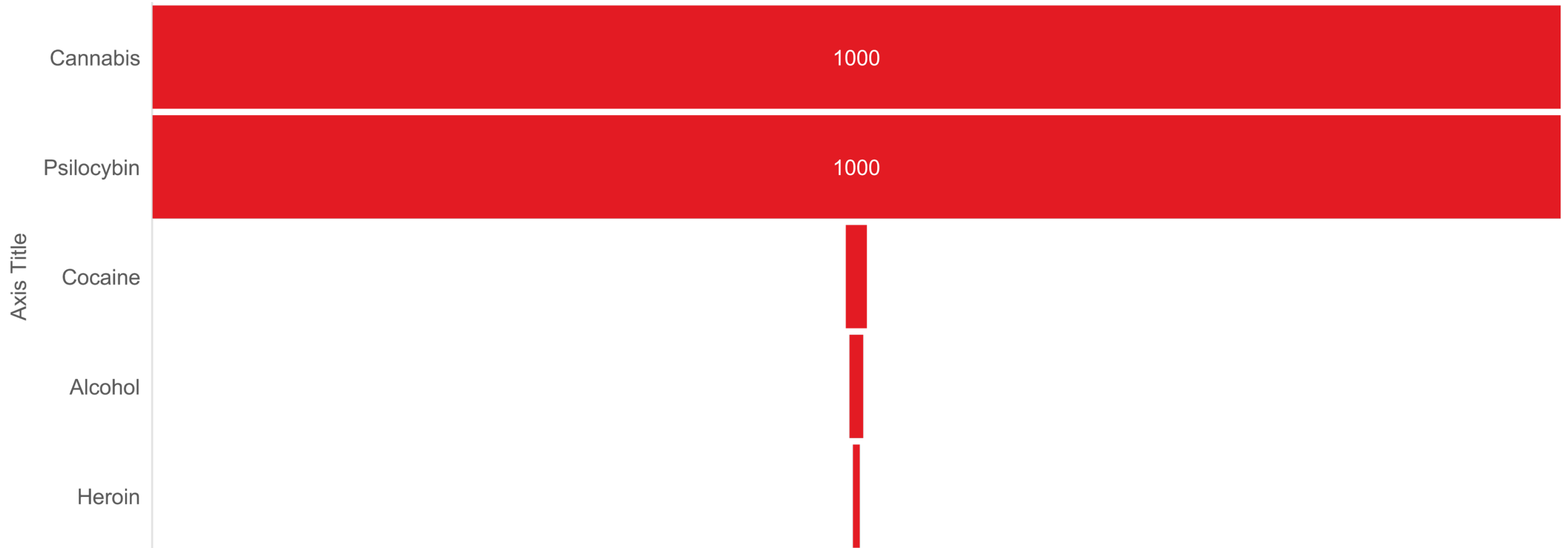
CANNABINOID RECEPTORS



Which Drugs are the most lethal?

Ratio of fatal dose to effective dose

Drugs and toxicity



Adverse effects

- Respiratory: Bronchitis (cough & sputum)
- Cardiovascular: Tachycardia (+/- PVCs, a.fib)
- Risk of supine HTN, postural Hypotension
- Increased risk of heart attack and stroke in the acute period
- Psychiatric : Acute psychosis, worsening anxiety and depression, possible earlier onset/unmasking of schizophrenia
- Potential interactions with: antidepressants, antipsychotics, antibiotics, antihypertensives, anti-epileptics, etc.
- Impairs the cognitive and motor abilities necessary to operate a motor vehicle and doubles the risk of crash involvement

Which of the following conditions do you feel that cannabis has a therapeutic role to play?



The role of cannabinoids in the management of chronic pain

- 2022 US survey: More than half reported their medical cannabis use led to a decrease in prescription opioid and non-opioid use
- Systematic reviews of randomised controlled trials have come to different conclusions about their efficacy
- Concerns that cannabis use disorder (CUD) may develop in patients with chronic pain prescribed medical cannabis
- Not first or second line in any condition and higher quality evidence for chronic pain, anxiety, and sleep is evolving and is currently weak overall



What isn't cannabis indicated for?

- Anxiety, depression, insomnia, PTSD, Parkinson's all lack high quality evidence
- While there is limited evidence for these conditions, therapeutic potential is inconclusive
- Epilepsy appears to have emerging higher quality evidence (UBC CPD Course 2020)



Pharmacogenetic Testing: not everyone is affected in the same way

Summary **Metabolism** Mental Health Memory



You're a normal metabolizer of THC

Your CYP2C9 genotype tells us that you metabolize THC (the psychoactive compound in cannabis) normally.

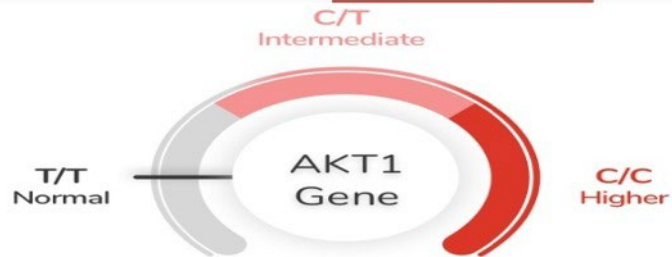


Your THC blood levels will be normal when using cannabis.



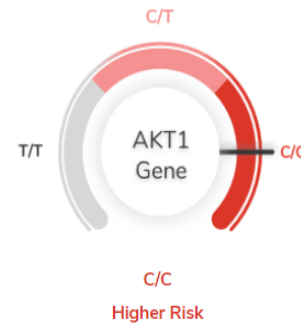
Edibles or capsules – you will feel effects for a normal duration and at a normal intensity.

Summary **Mental Health** Metabolism Memory



You have a normal risk for mental health effects from THC

Your AKT1 genotype indicates that you are at a normal risk for short- and long-term mental health effects from consuming THC.



You are at a **higher risk** for negative mental health effects from THC

Your AKT1 genotype indicates that you are at an increased risk for short- and long-term adverse mental health effects from consuming THC.



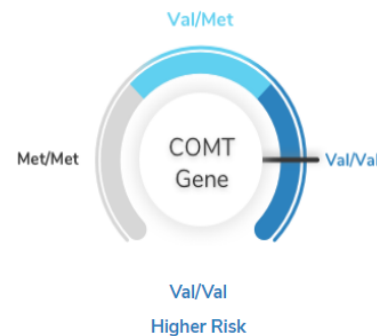
Short-term effects - anxiety, paranoia, hallucinations



Long-term effects - THC-induced mental health conditions (psychosis)^{1,2,3}



Based on your higher risk profile, you should consider cannabis products with higher CBD content instead of higher potency THC products. CBD is the active non-intoxicating compound in cannabis.



You are at a **higher risk** for memory loss from THC

Your COMT genotype indicates that you are at a higher risk for neurocognitive impairments when using THC.



You may have a **lot more difficulty** remembering short-term events and performing complex tasks.



Neurocognitive impairments: short-term memory loss, poor reaction time, difficulty paying attention.



CBD does not impair memory and may even have a neuroprotective effect.



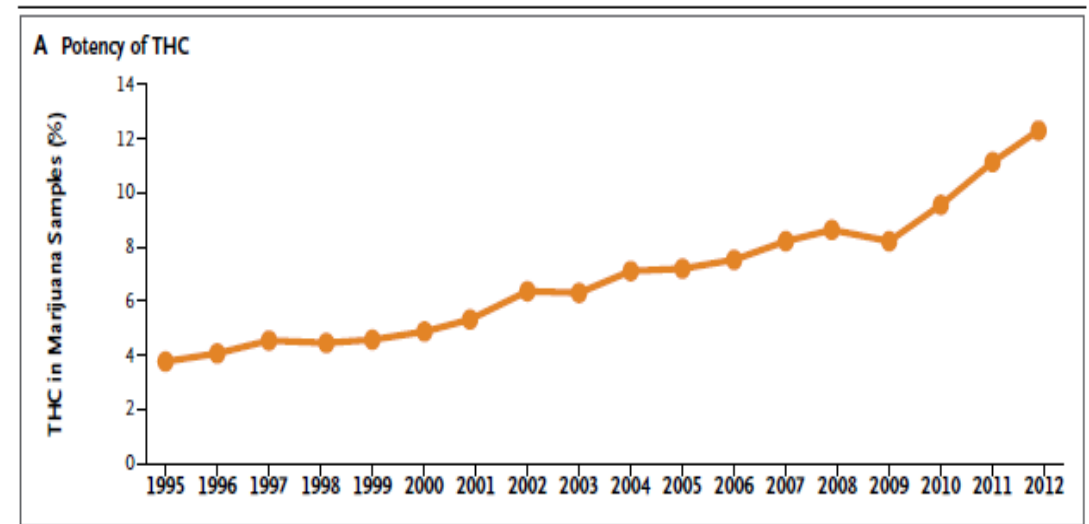
Based on your higher risk profile, consider CBD products instead of THC products.

Addiction Risk

Debate around the threshold % for THC

- 1993: average marijuana potency was 3.5% THC - Colorado's legal marijuana ~ potency of 18.7 percent THC (Lancet Blog- Nov 2017)
- CBD strains either no addictive potential or relatively low addictive potential in comparison to THC - *not definitive*
- Some literature refers to 10% THC when mitigating for risk of addiction

THC Potency: not your grandmother marijuana



CUD risk (Health Canada)

- 9% of users
- 17% if started as teenagers
- 25-50% if daily users

Cannabis Thoughts

- Dynamics of addiction might be different when
 - People use it for medicinal purpose versus recreational
 - People buy from dispensaries as opposed to on the street
- Medical users versus non-medical users: higher THC content products in recreational users



Potential for intersection between therapeutic use and CUD risk in the setting of frequency and potency?

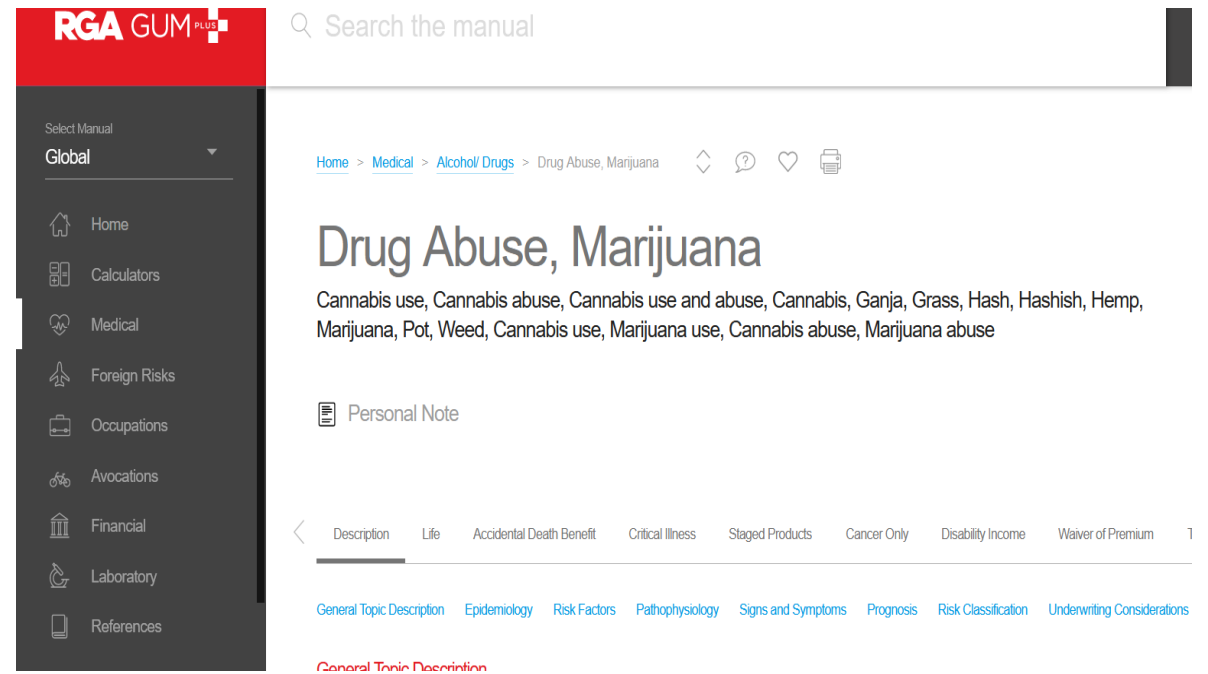
CUD

A Pattern of Using Cannabis that Leads to

- Tolerance
- Withdrawal
- Use more than intended
- Unsuccessful efforts to cut down
- Life revolves around substance (time & activities)
- Compulsive use despite harm
- Pattern of use resulting in failure to fulfill major roles at work, home or school
- Pattern of use in physically hazardous situations (driving, operating heavy machinery)
- Repeated substance related legal problems
- Continued use despite persistent social problems caused or **MADE WORSE** by substance

What kind of history makes them high risk?

- Early-onset users who also engage in intensive and frequent use
- Frequent use of high THC-content products
- History of substance use disorder
- Heavy users of alcohol or other addictive drugs
- History of mental illness(es)
- Driving criticism



The screenshot shows the RGA GUM PLUS manual interface. The top navigation bar is red with the RGA GUM PLUS logo and a search bar. Below the logo, a sidebar menu lists various manual sections: Home, Calculators, Medical, Foreign Risks, Occupations, Avocations, Financial, Laboratory, and References. The main content area displays the title "Drug Abuse, Marijuana" and a list of related terms: Cannabis use, Cannabis abuse, Cannabis use and abuse, Cannabis, Ganja, Grass, Hash, Hashish, Hemp, Marijuana, Pot, Weed, Cannabis use, Marijuana use, Cannabis abuse, Marijuana abuse. Below this, there is a "Personal Note" section and a navigation bar with tabs for Description, Life, Accidental Death Benefit, Critical Illness, Staged Products, Cancer Only, Disability Income, and Waiver of Premium. The "Description" tab is currently selected.



The Road to Recovery: can addiction be cured?

It is impossible to understand addiction without asking what relief the addict finds, or hopes to find, in the drug or the addictive behaviour.

~ Gabor Mate

WISEFAMOUSQUOTES.COM

What is the residual risk?

“Dry Drunk Syndrome”

- “The presence of actions and attitudes that characterized the alcoholic prior to recovery”
- Dry drunk syndrome can be overcome; it simply requires a willingness to uncover the root of one’s addiction
- Underlying medical, societal, social and environmental factors need to be addressed to ensure people remained in recovery

The first question -
always - is not "Why
the addiction?" but
"Why the pain?"

- Gabor Maté



Natural ways to increase our dopamine levels

Finding a way out of the crisis

Runner's high



HEAL initiative

- The Helping to End Addiction Long-term
 - initiative of the National Institutes of Health
 - scientific solutions to the evolving opioid crisis

“Nothing has made me feel as good as the connection with people..”

Helping others





Questions?

RGGA