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Seminario de Suscripción y Vida 2023

The spectrum of substance misuse and addiction

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Mexico City

23/08/2023

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2. Respond to activity
3. Hit “skip” when/if it asks you for your name

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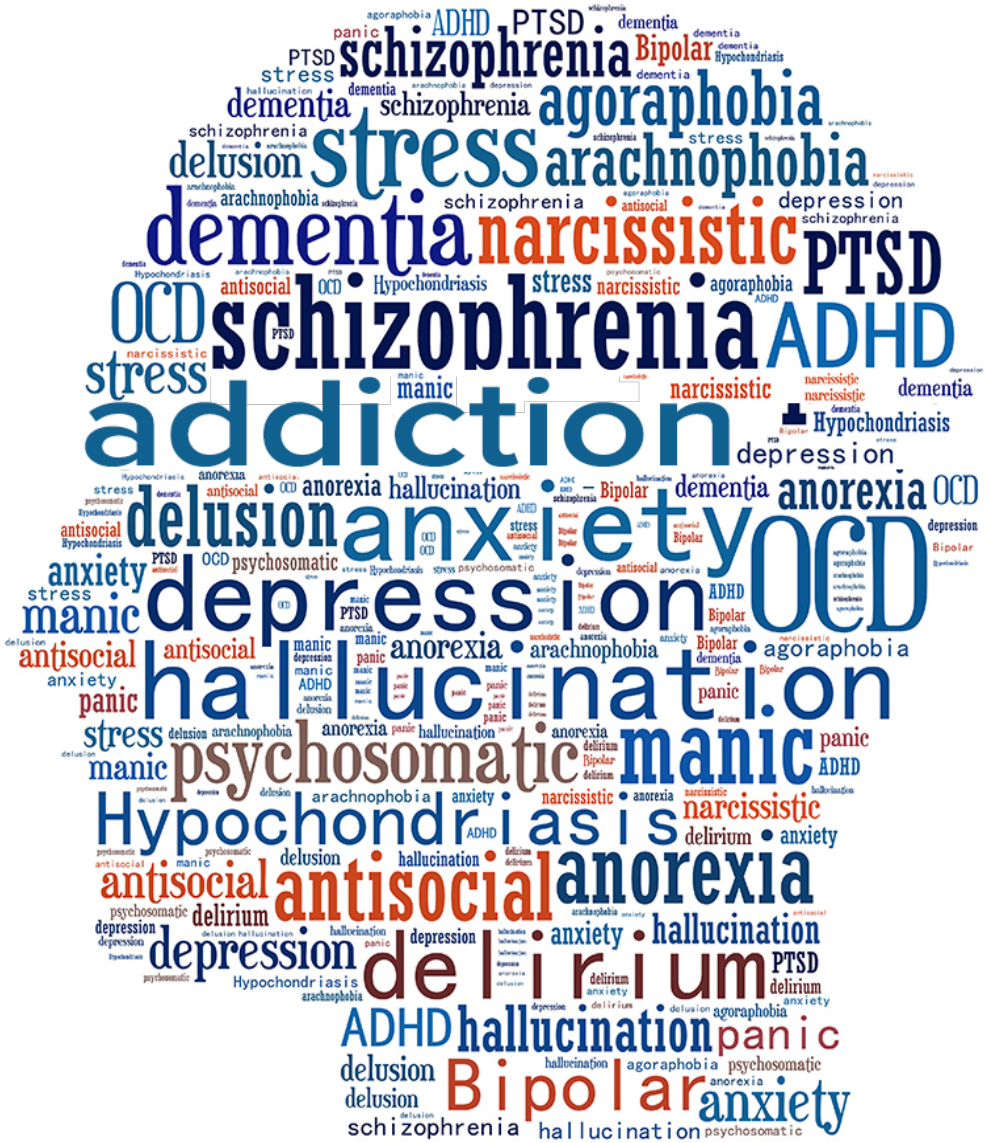
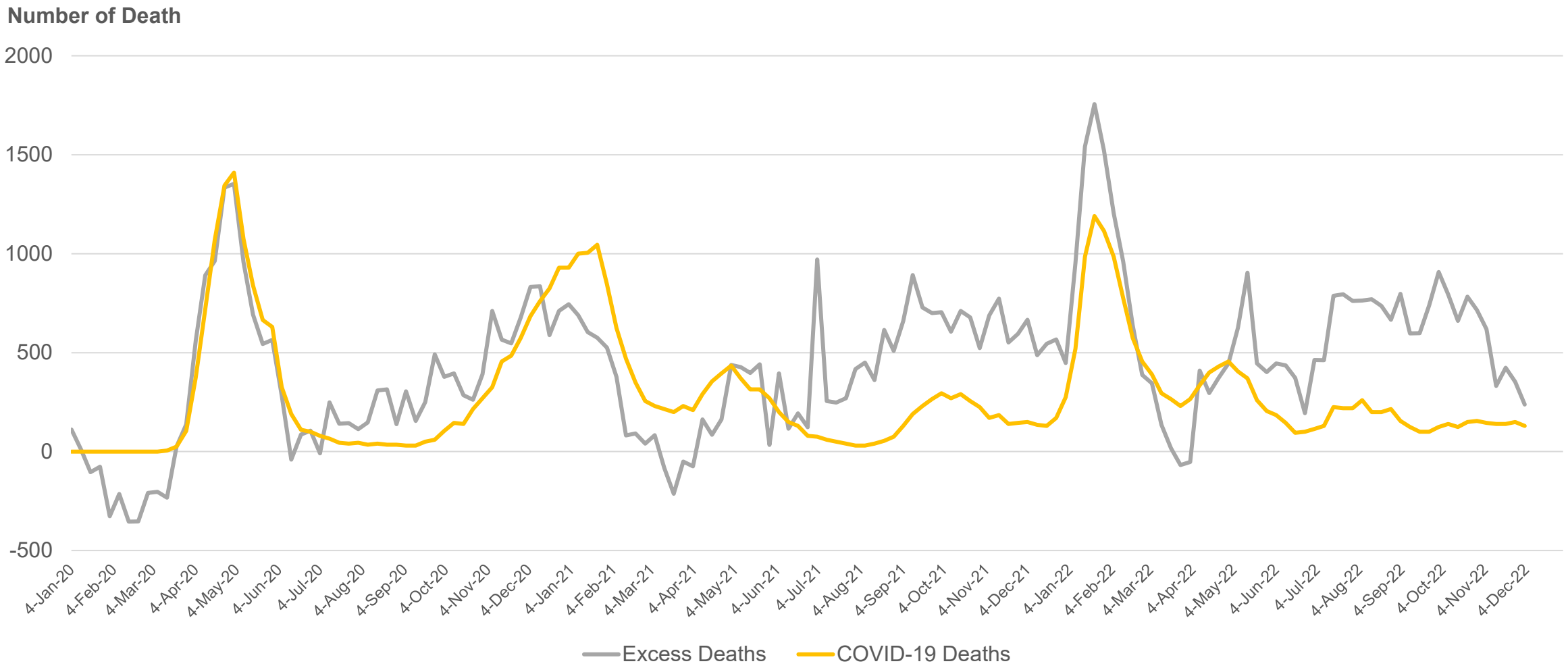
Take a picture of the QC with your phone

Is excessive use of cell phones an addiction?

- Why this topic and why now?



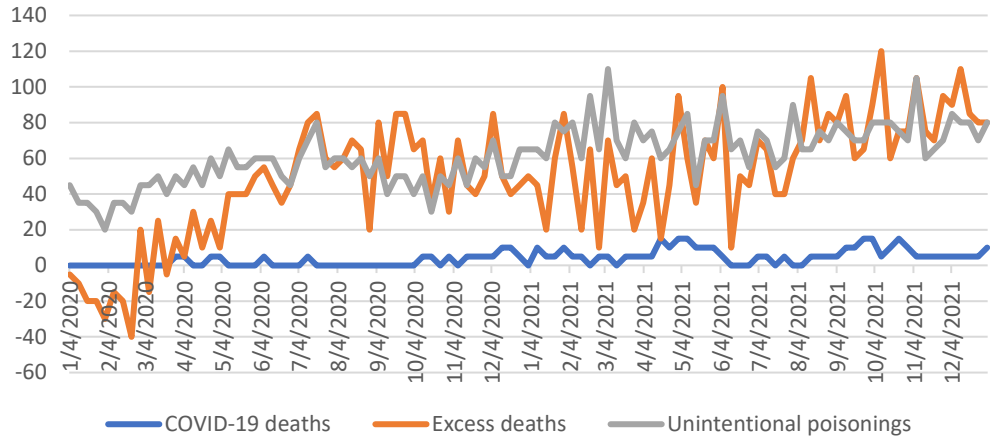
Is SUD a key driver of excess deaths?



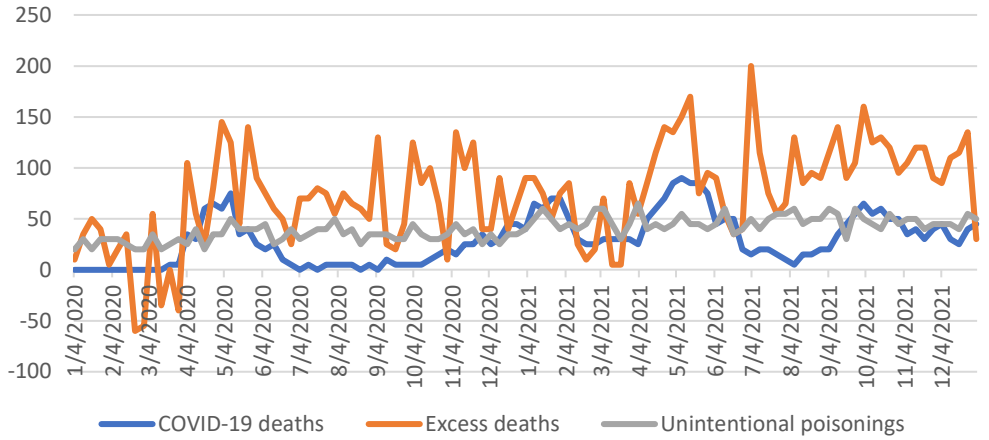
Source: Stats Canada

Is SUD a key driver of excess deaths?

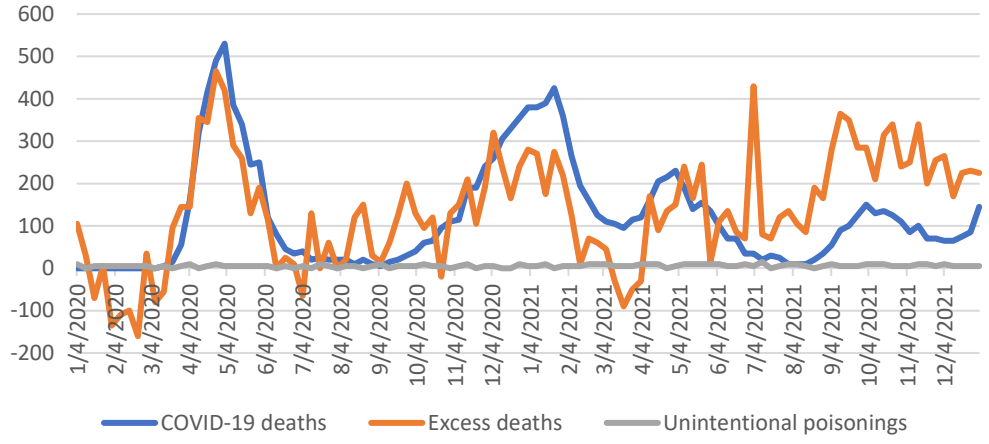
Deaths attributed to COVID-19, accidental poisonings and excess deaths among Canadians ages 0 to 44 years



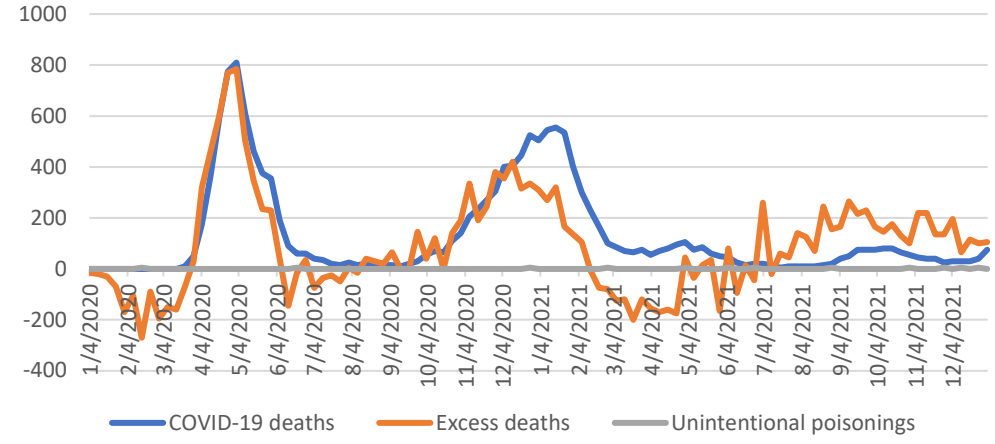
Deaths attributed to COVID-19, accidental poisonings and excess deaths among Canadians ages 45 to 64 years



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

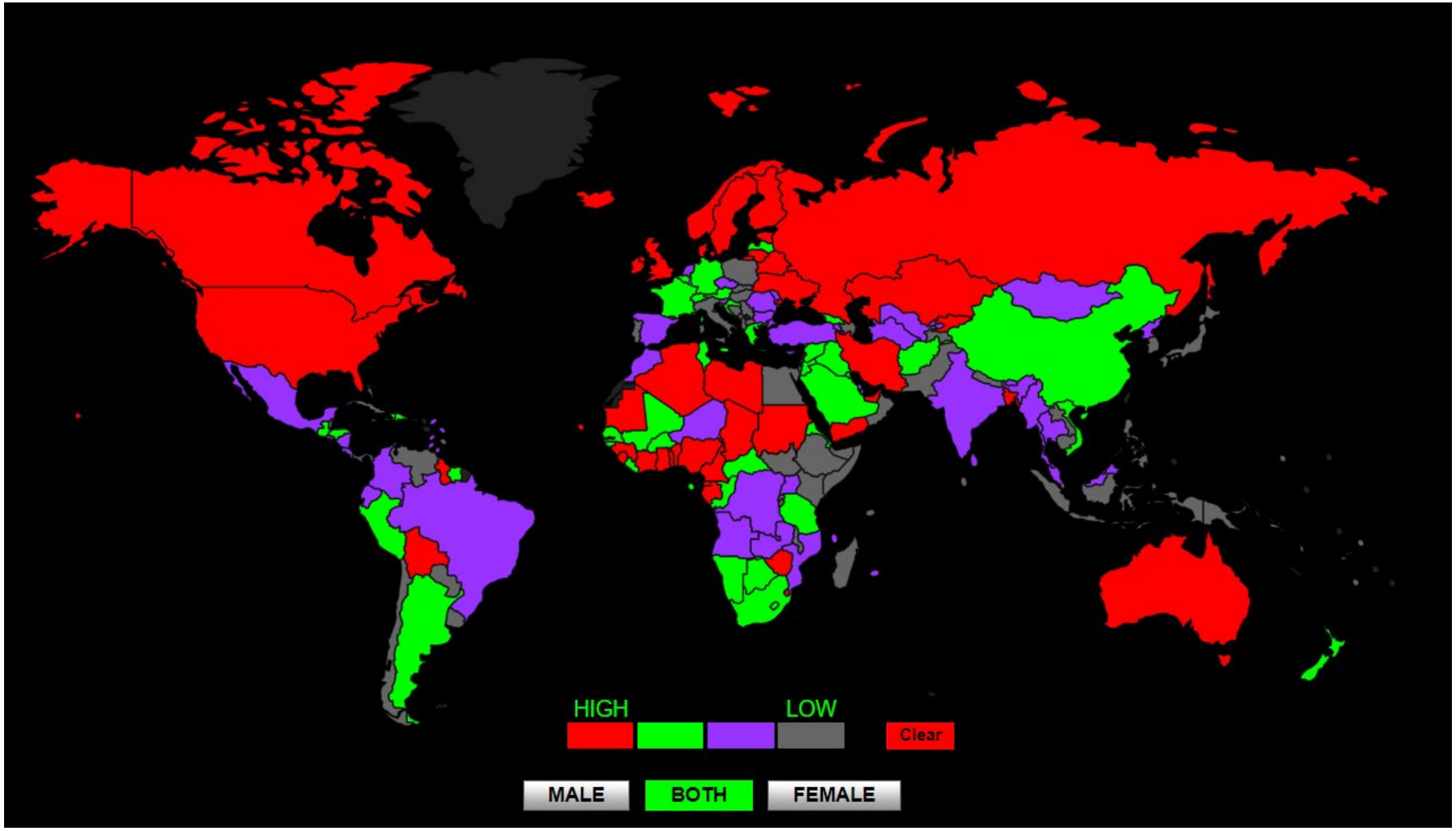


Source: Stats Canada

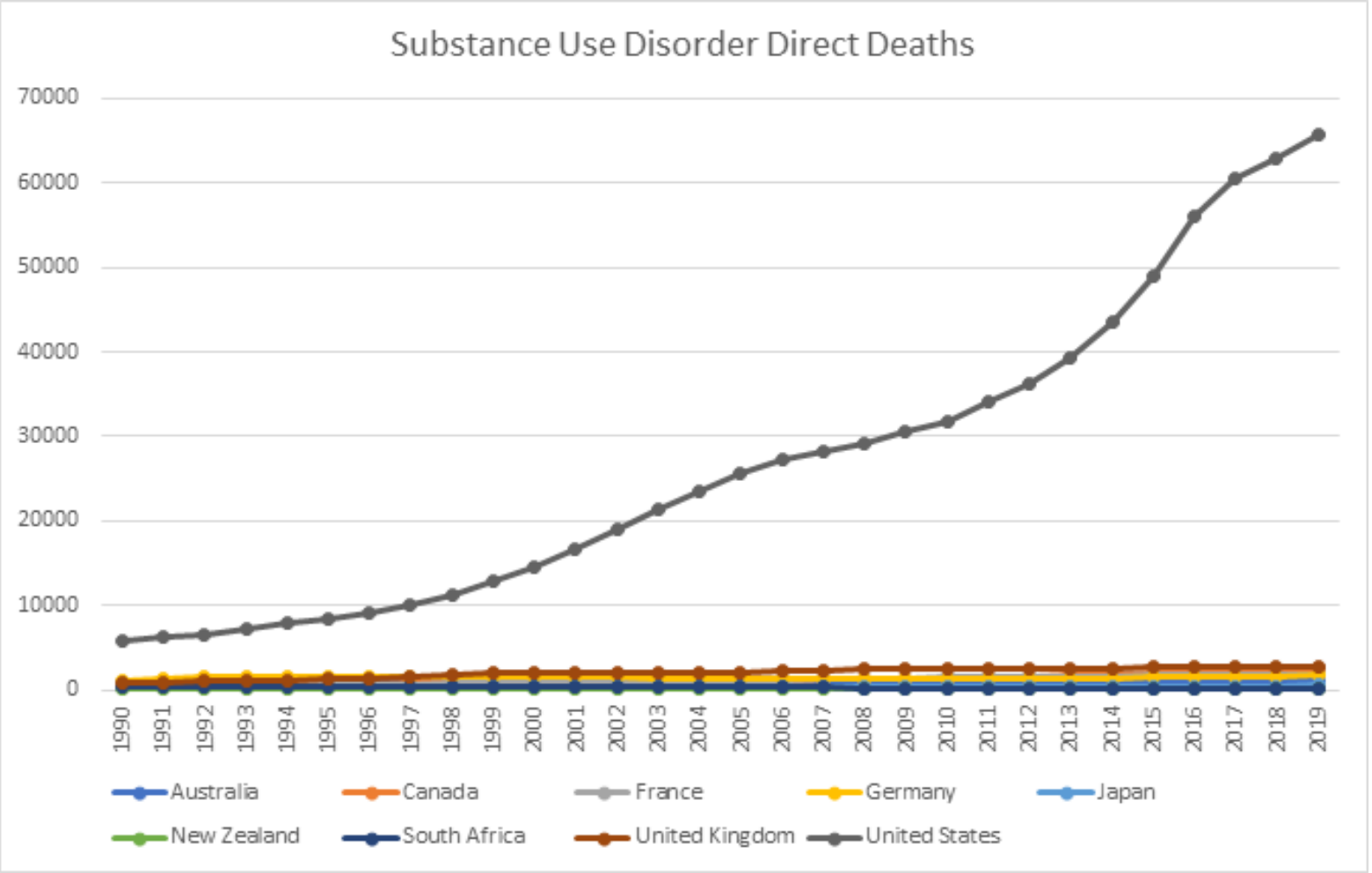
Topics for discussion

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]

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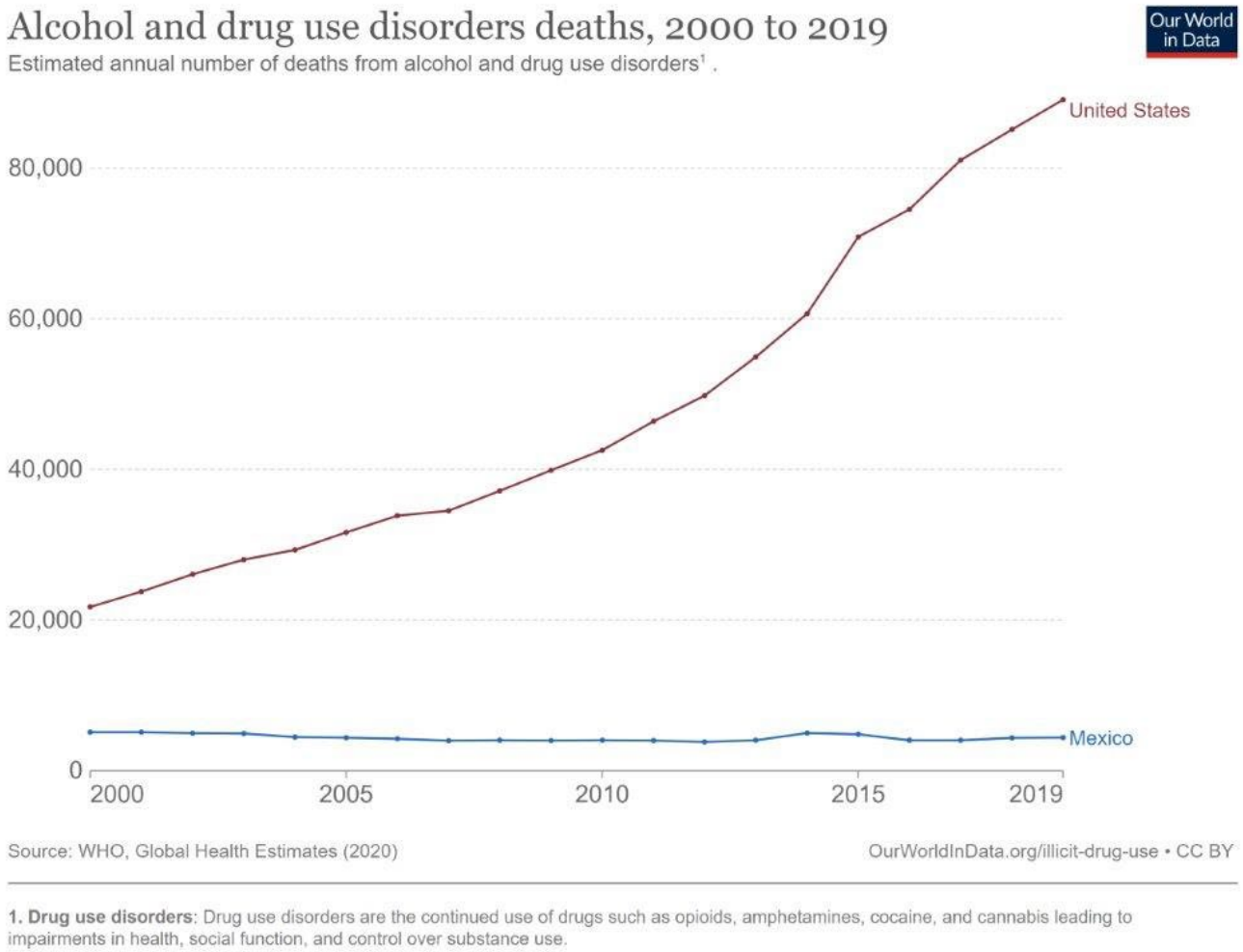
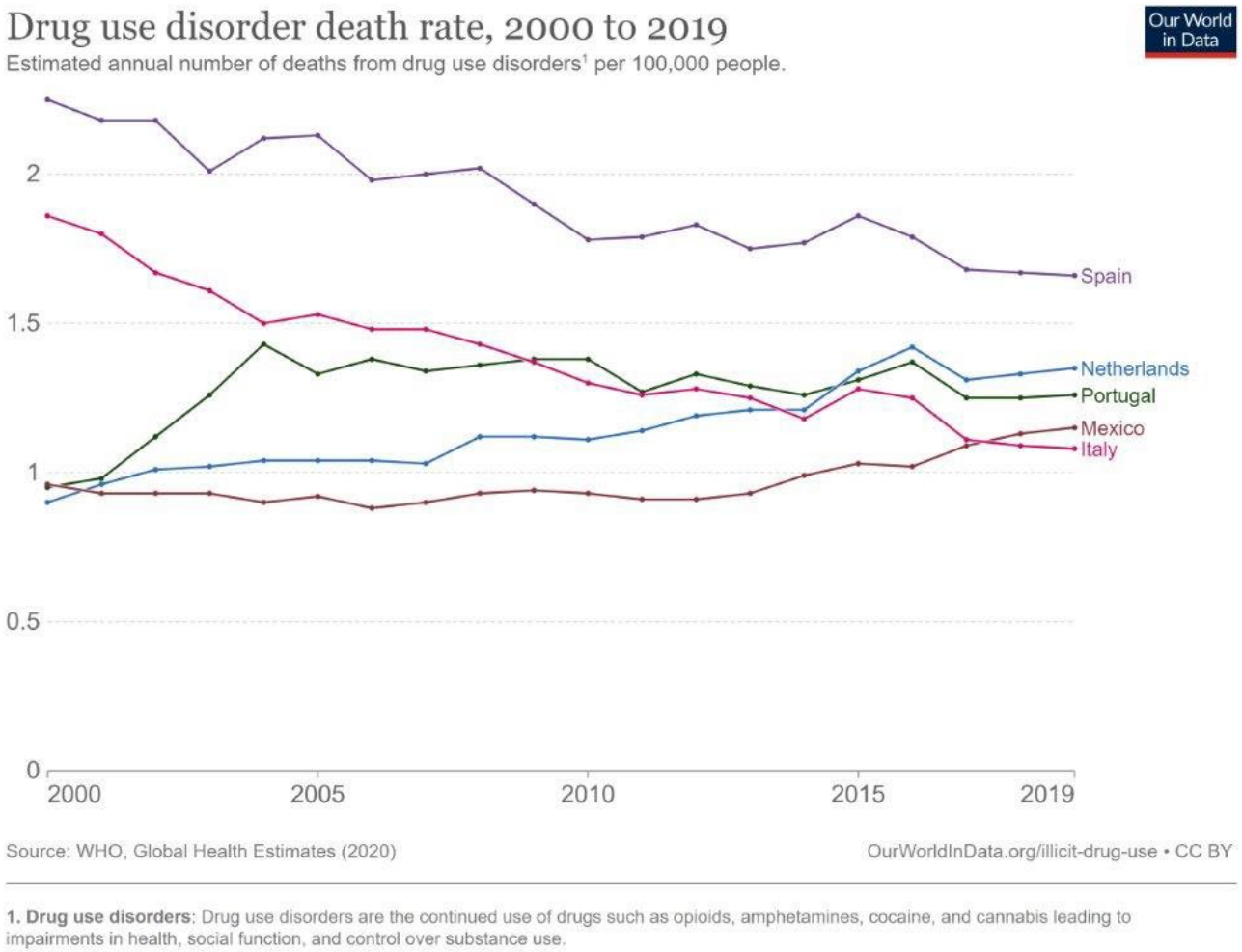
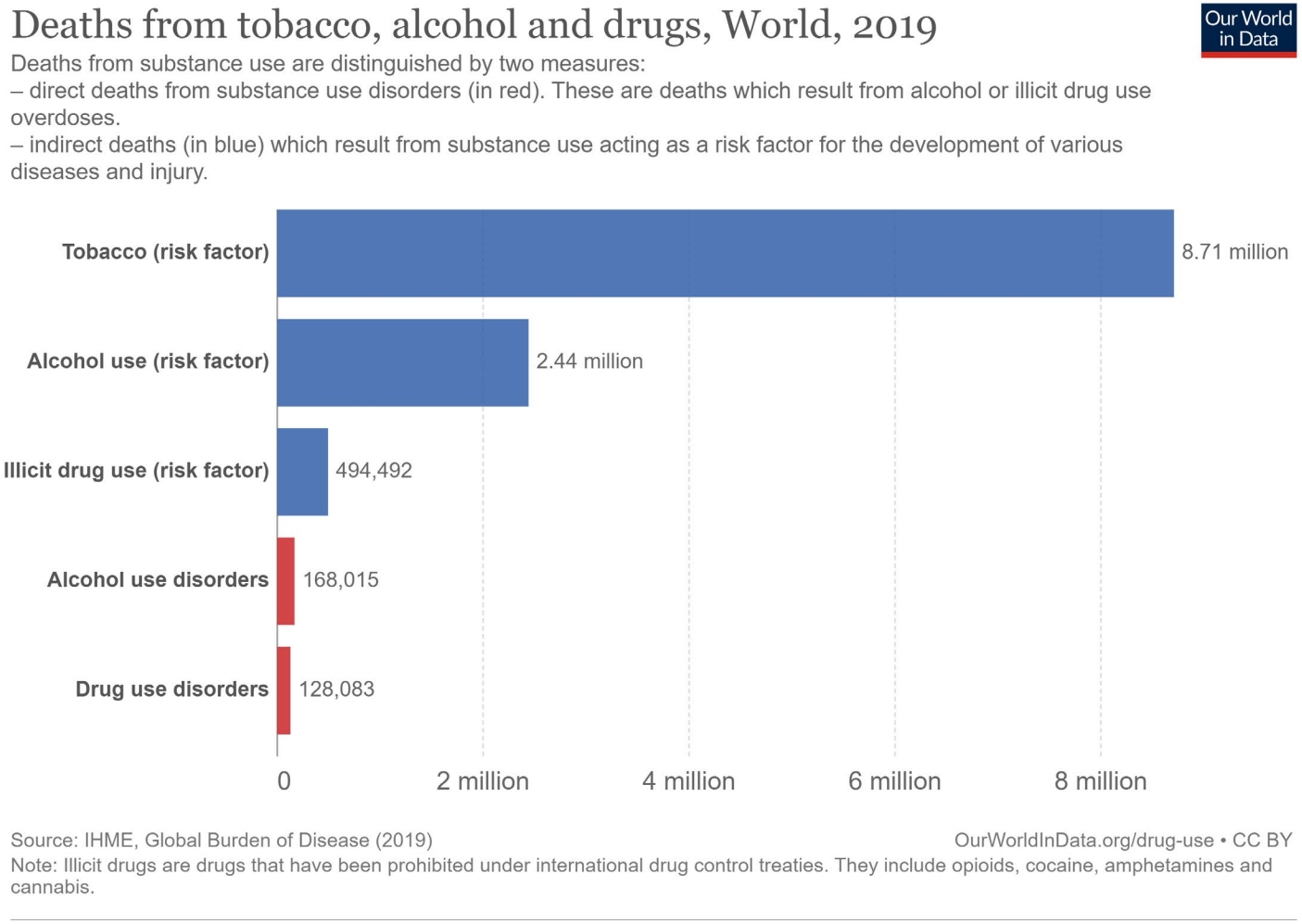
Alcohol and drug use disorders deaths, 2000 to 2019



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

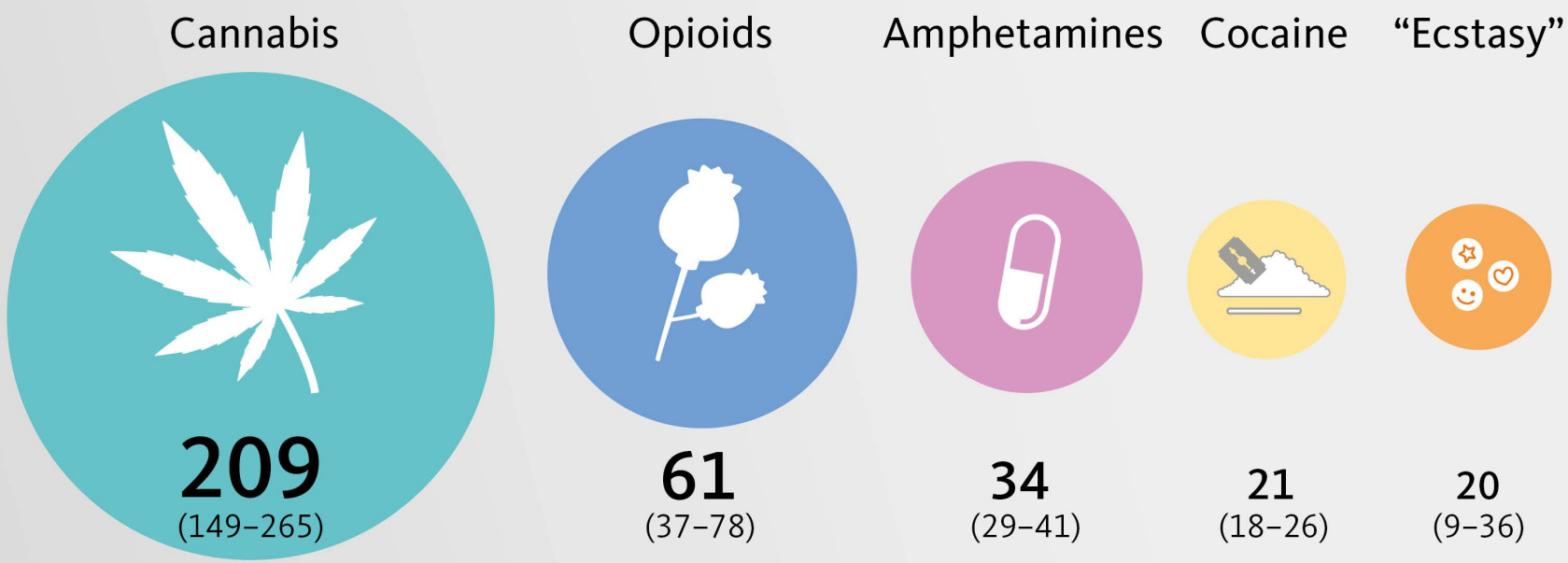


Deaths from substance use, World, 2019: 11.8 million each year



Current State

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



UNODC Research

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Source: The World Drug Report 2022 https://wdr.unodc.org/wdr2020/field/WDR20_Booklet_2.pdf, accessed on Sept. 15, 2022

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

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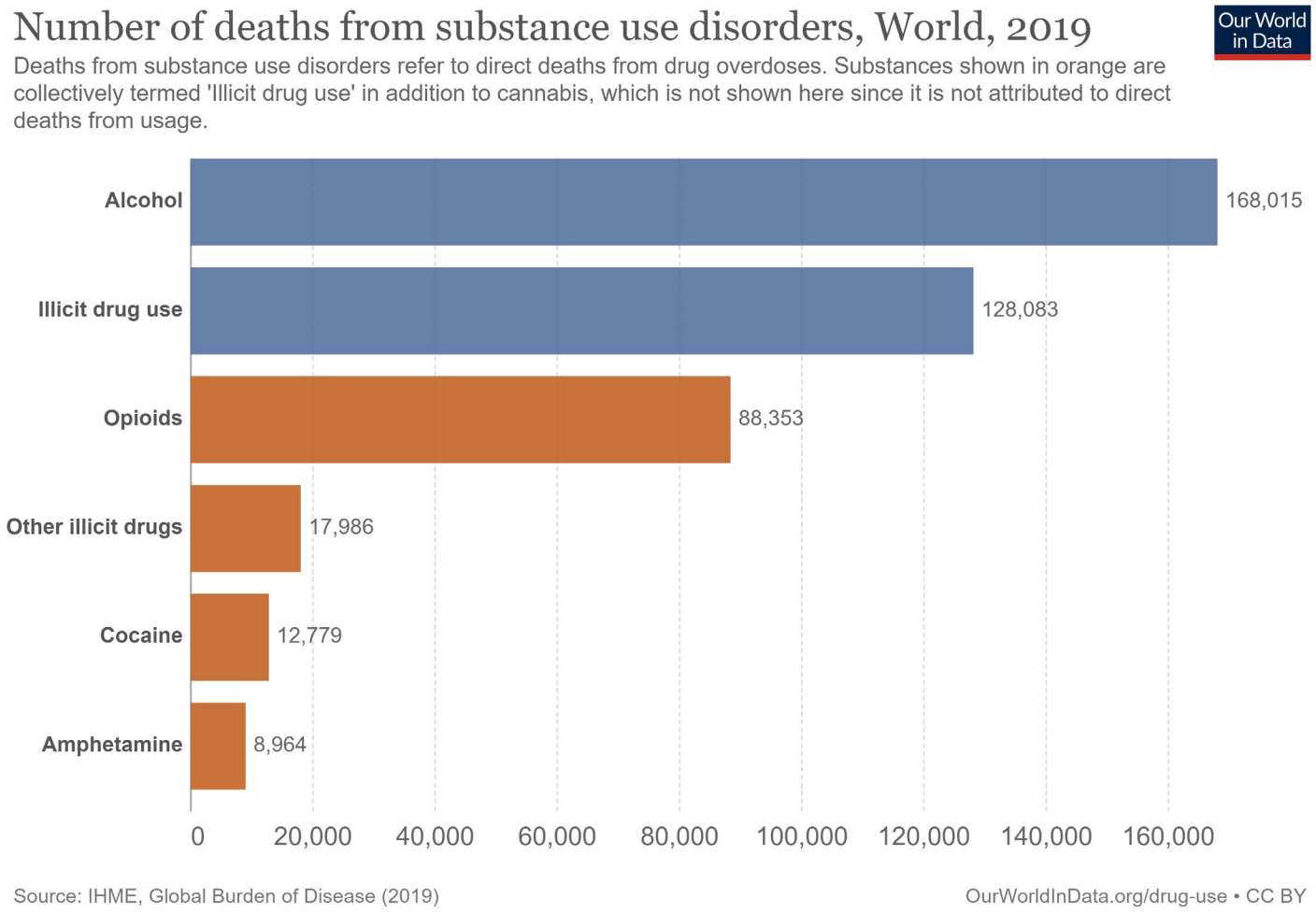
Number of deaths from SUDs, World, 2019



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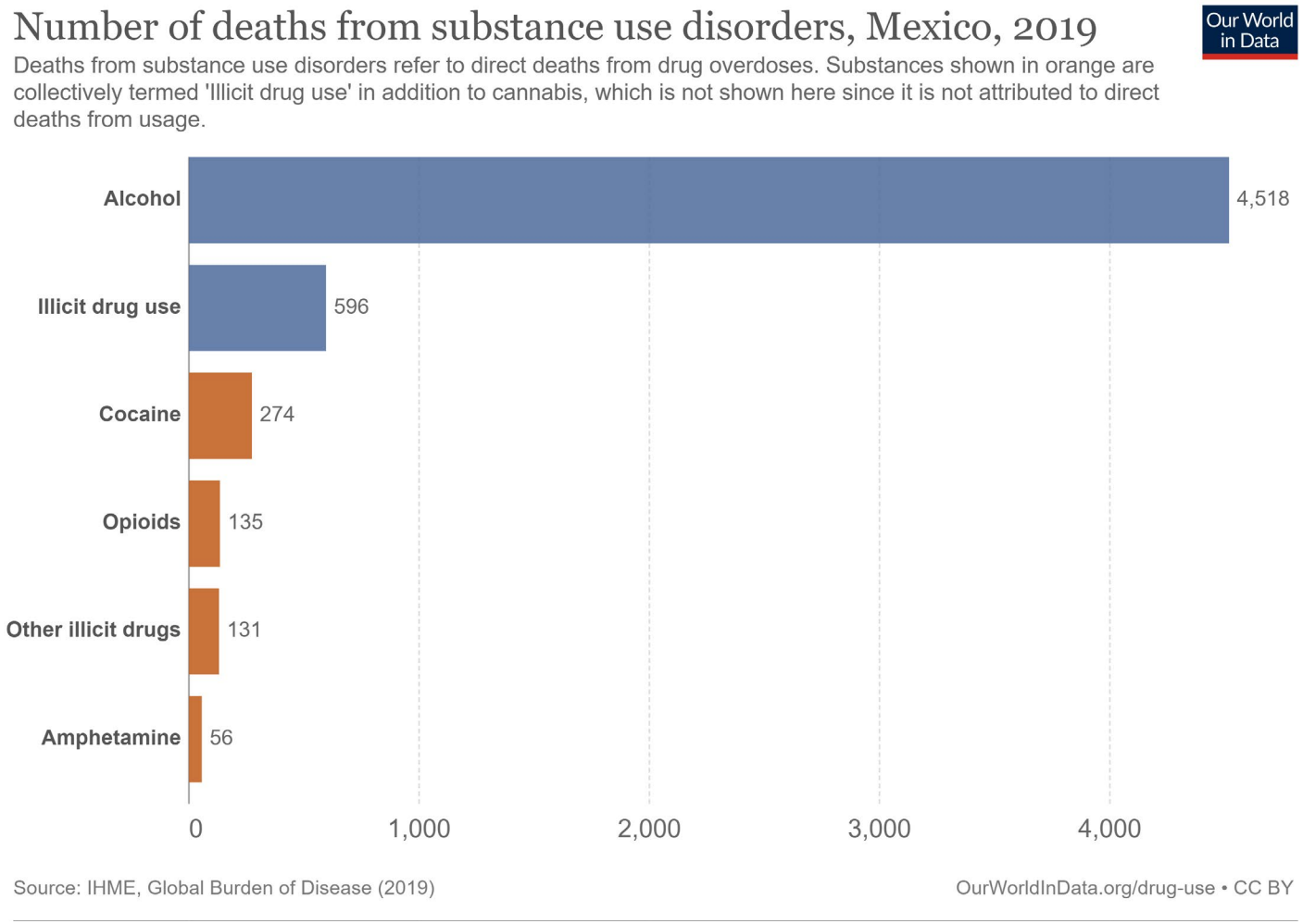
Number of deaths from SUDs, Mexico, 2019

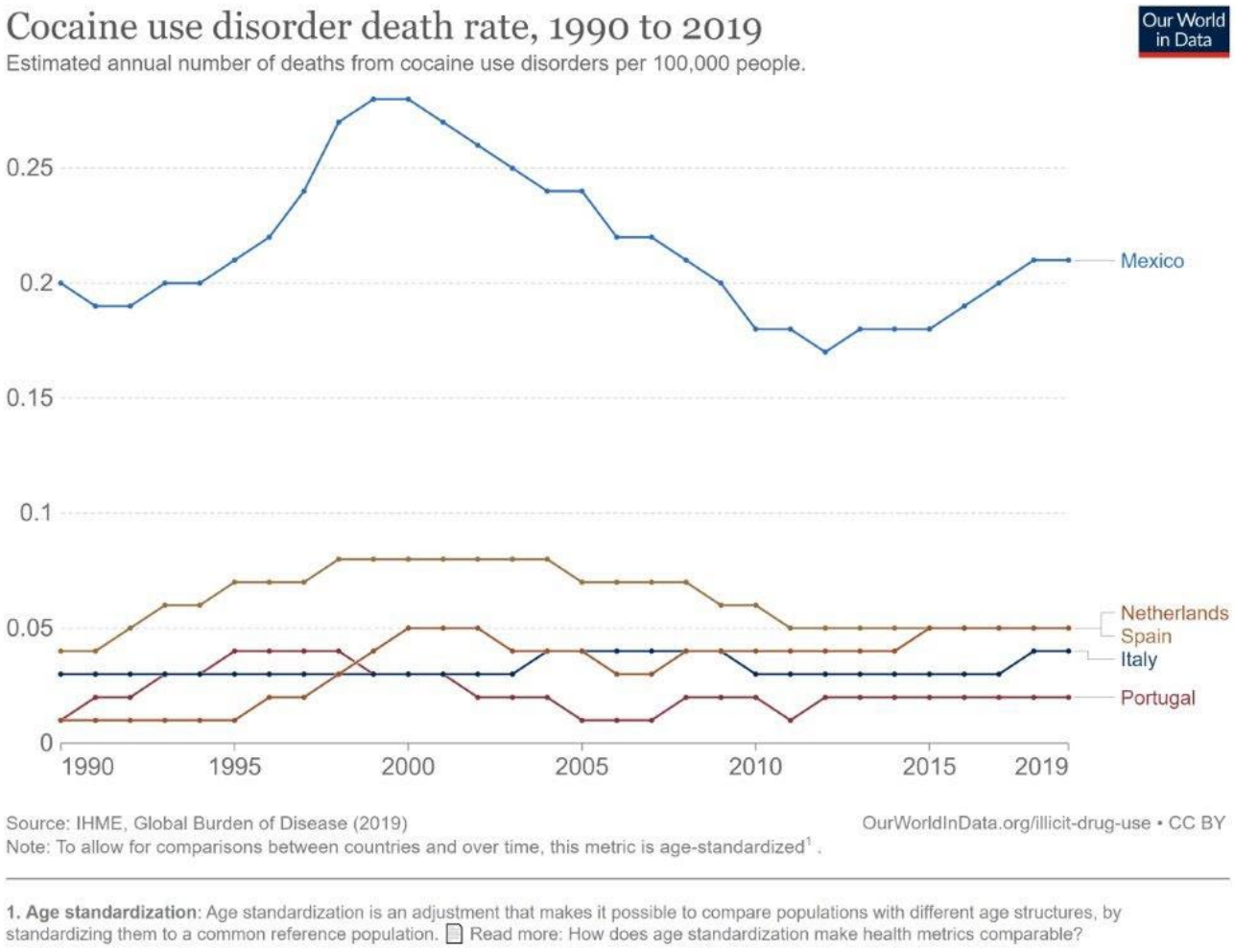


Alcohol, drugs, and road traffic injuries- ER department in Mexico City

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



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

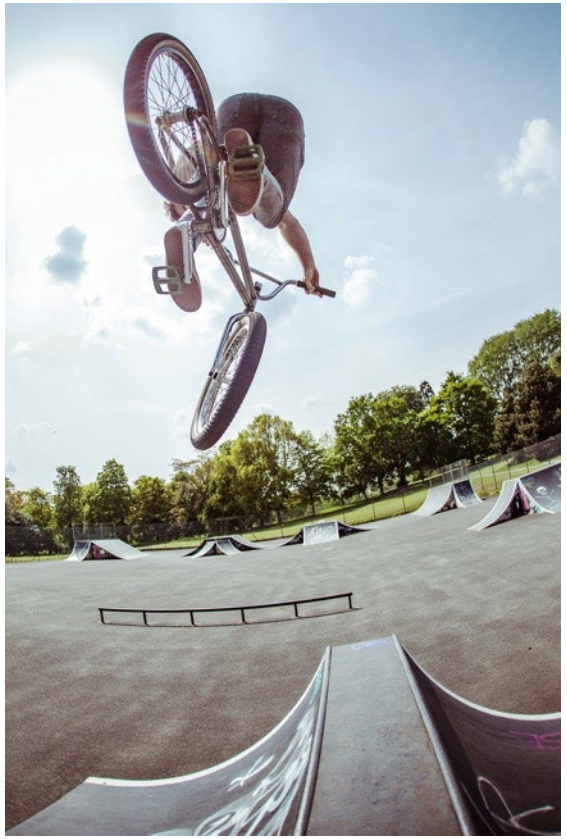
The 4C's approach

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

The cycle of craving, binging, remorse, repeat

Who is most vulnerable to SUD?

Risk Factors

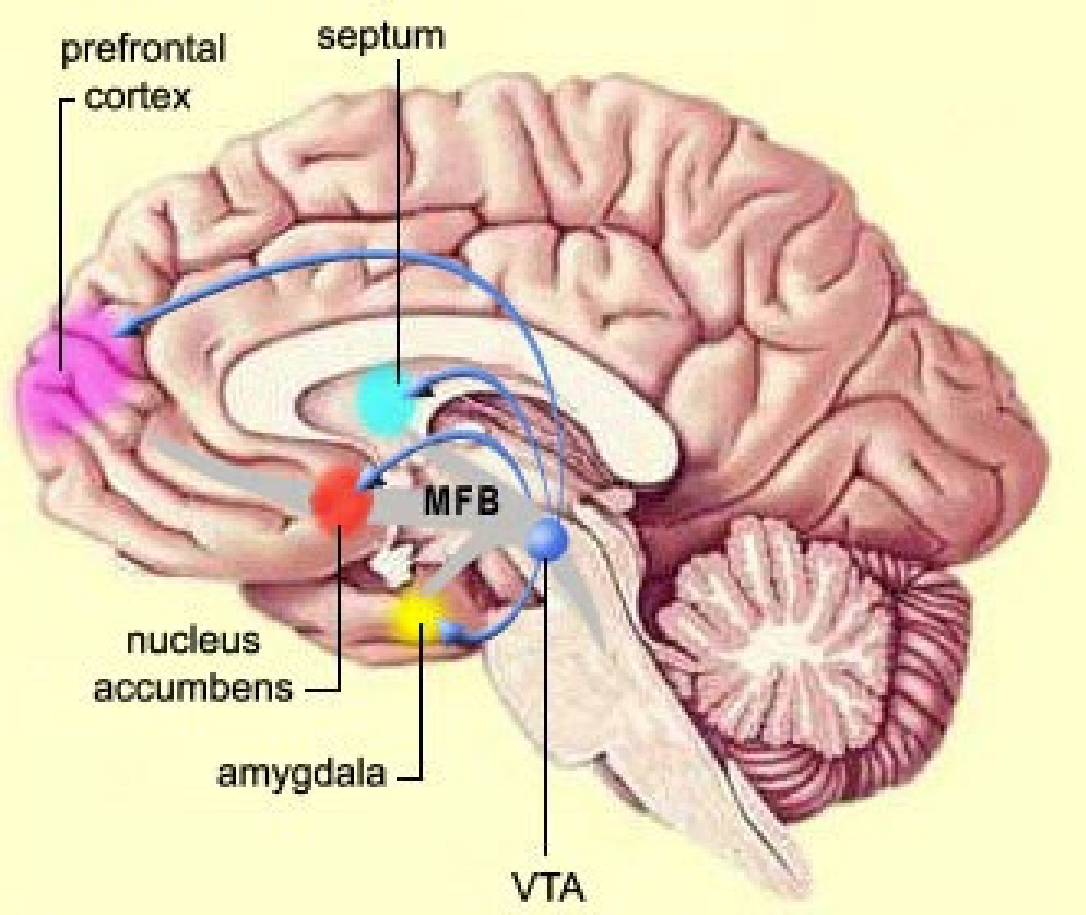


- 40-60% of predisposition to addiction is genetic (studies on twins)
- Environment
  - Detrimental social factors
  - Exposure

Addiction 101

The spectrum of substance misuse and addiction

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

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Would you?

A Make a substandard offer?

0%

B Decline?

0%

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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

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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

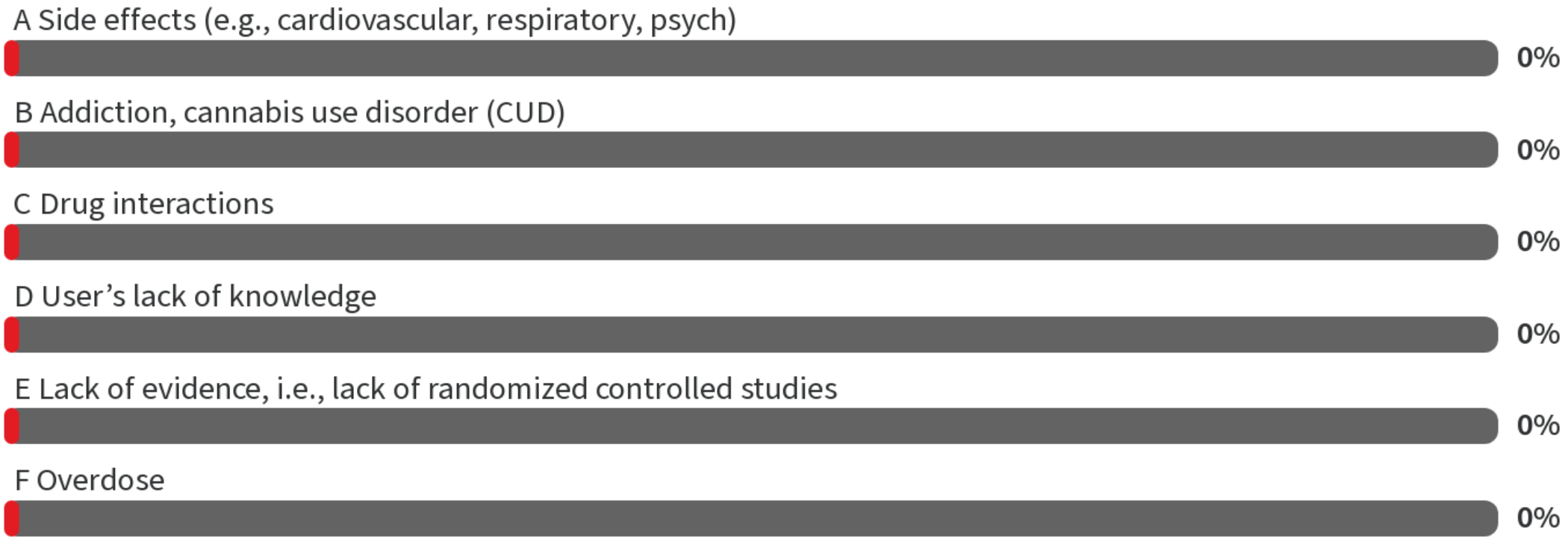
Cannabis use for “wellbeing and mood”

- 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?



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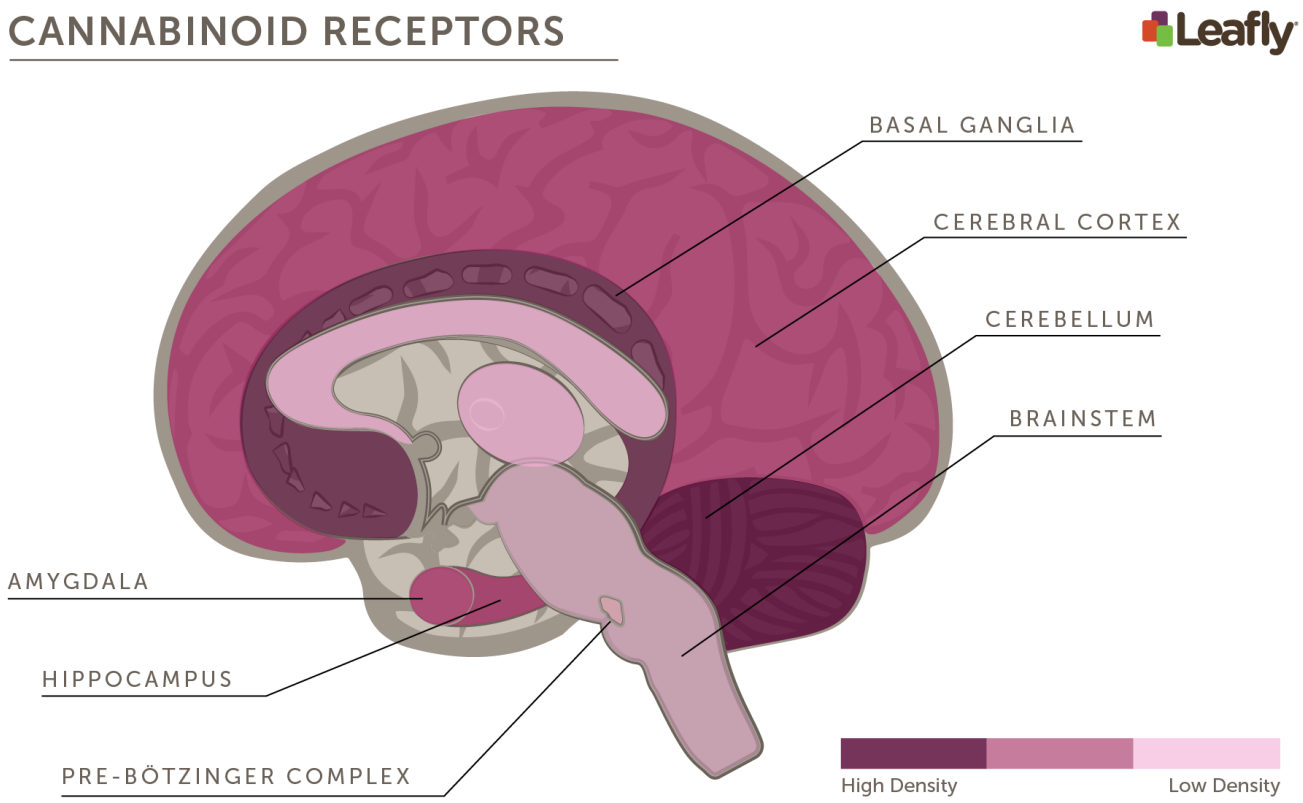
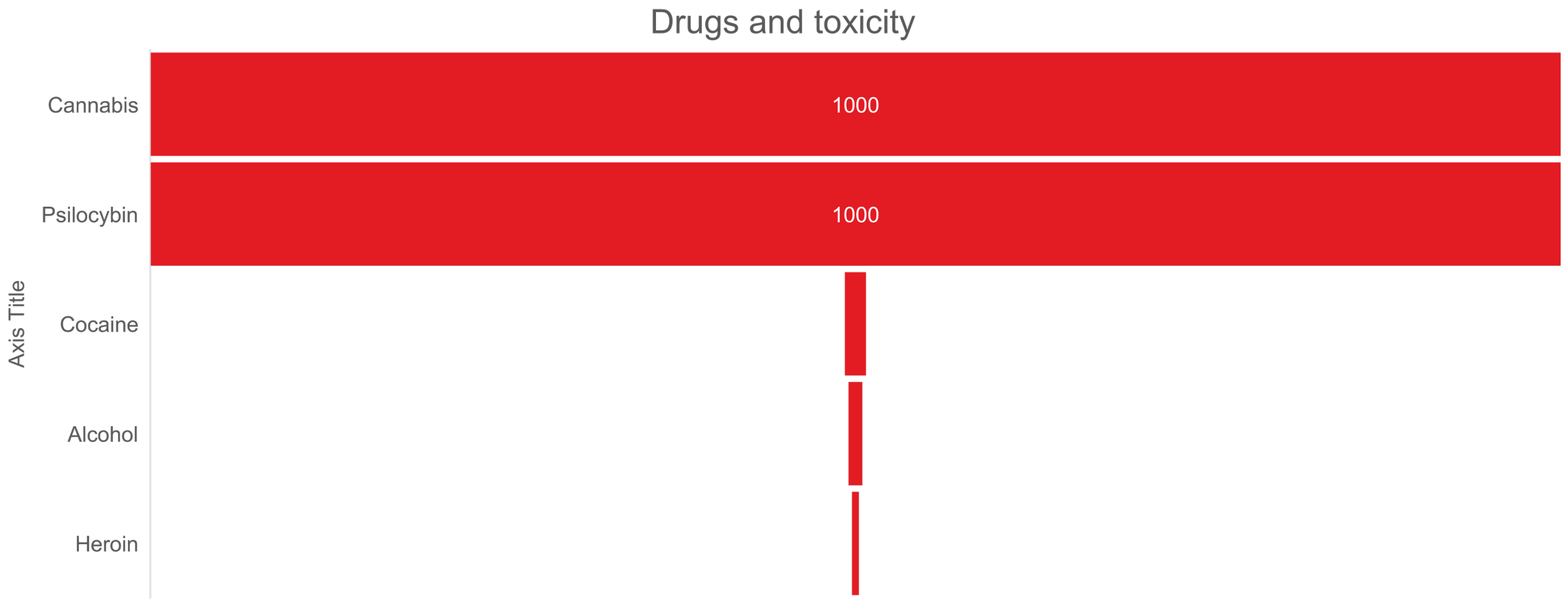
Neuroanatomical distribution of cannabinoid receptors in the brain



Which Drugs are the most lethal?

Ratio of fatal dose to effective dose



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?

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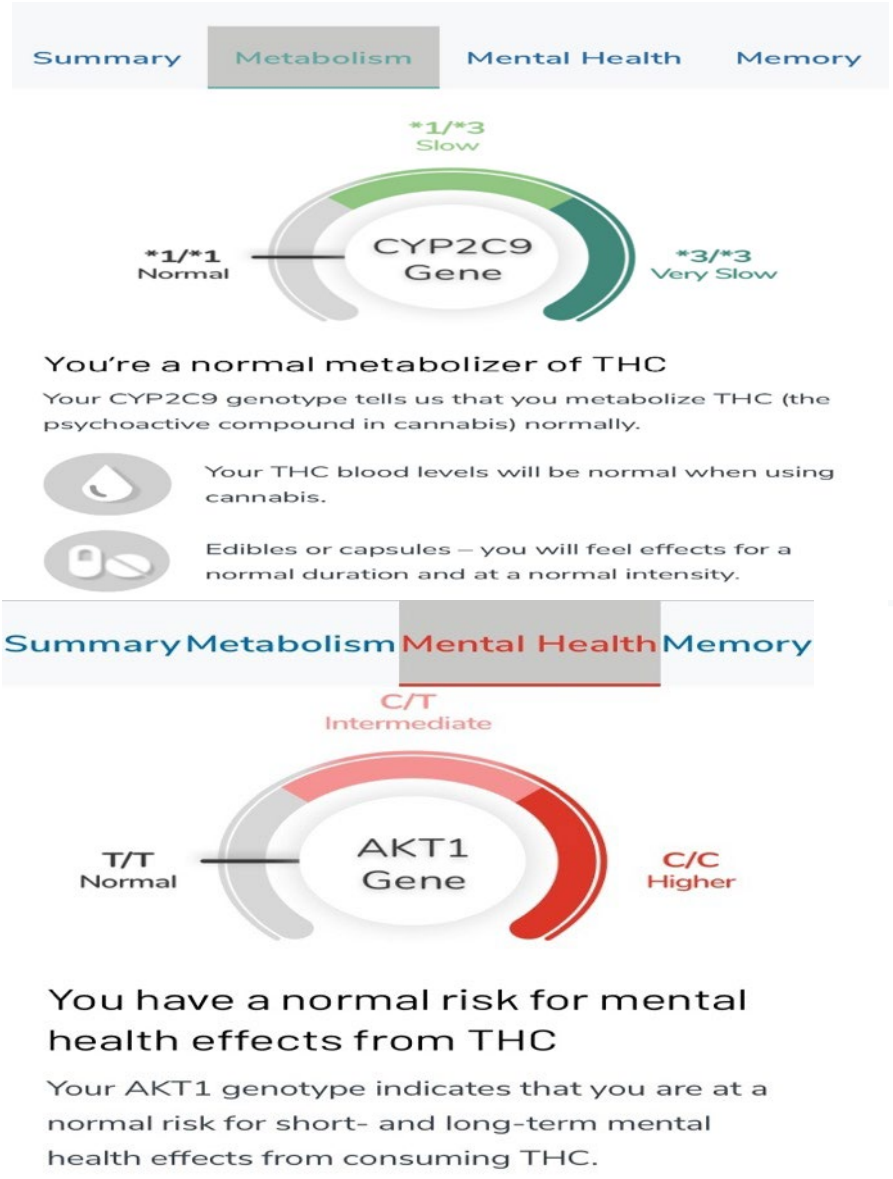
The role of cannabinoids in the management of chronic pain

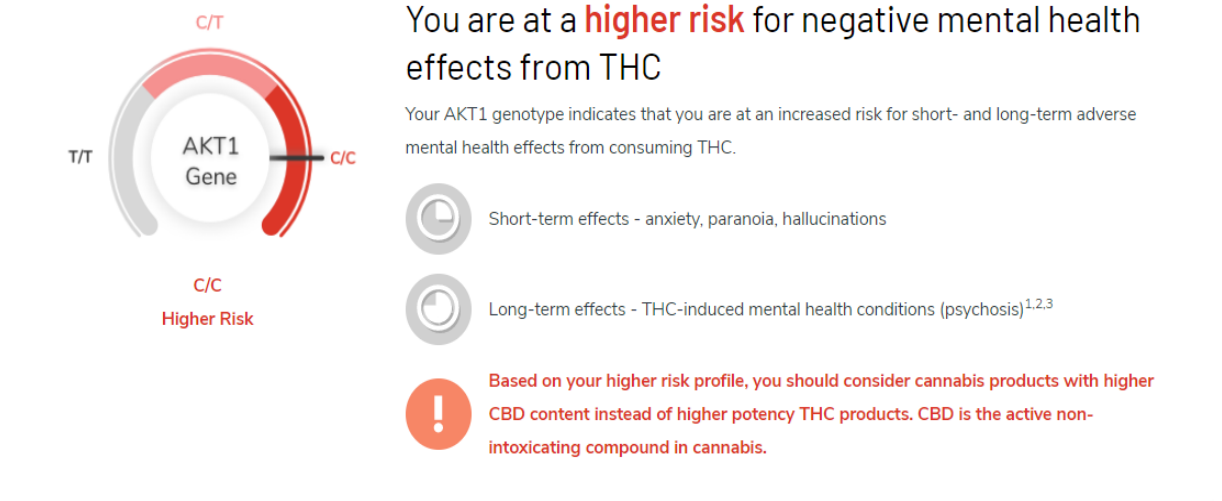
- 2022 US survey: More than half reported their medical cannabis use led to a decrease in prescription opioid and non-opioid use
- Systematic reviews of randomised controlled trials have come to different conclusions about their efficacy
- Concerns that cannabis use disorder (CUD) may develop in patients 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

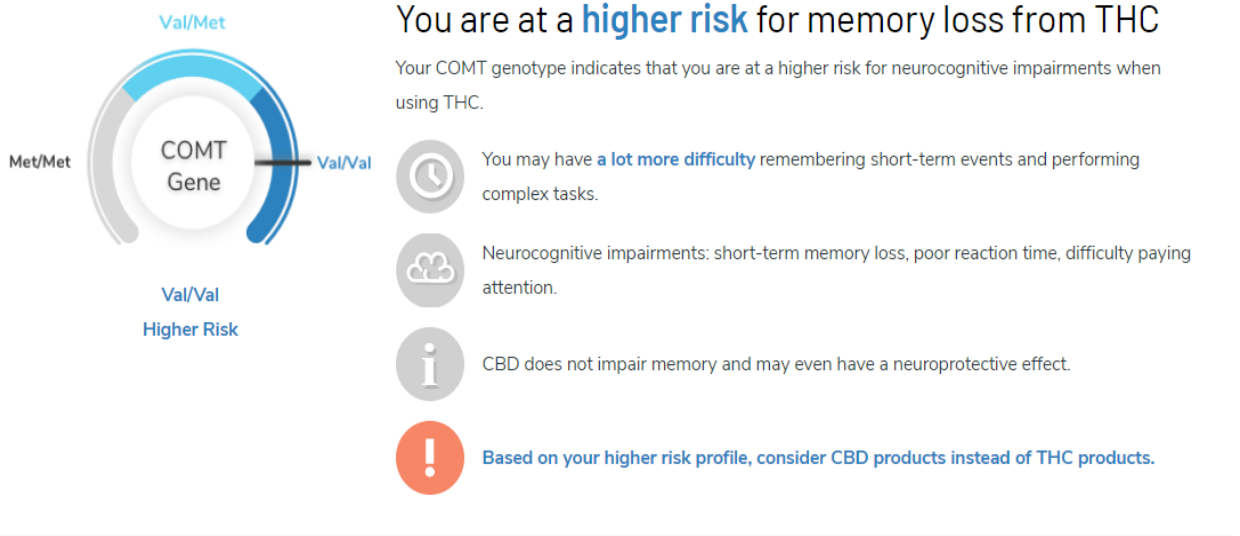
What isn’t cannabis indicated for?

- 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







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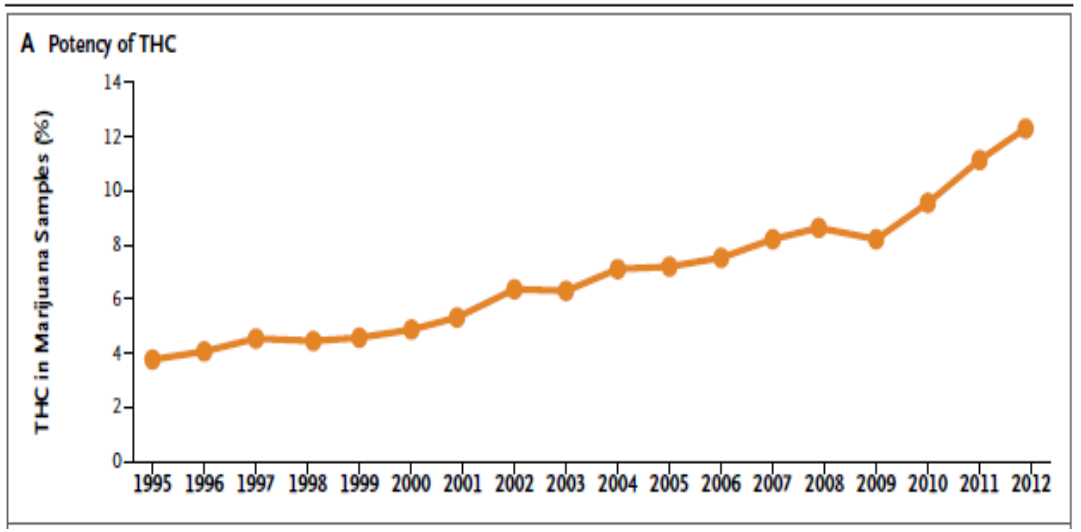
Addiction Risk

Debate around the threshold % for THC

- 1993: average marijuana potency was 3.% 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?

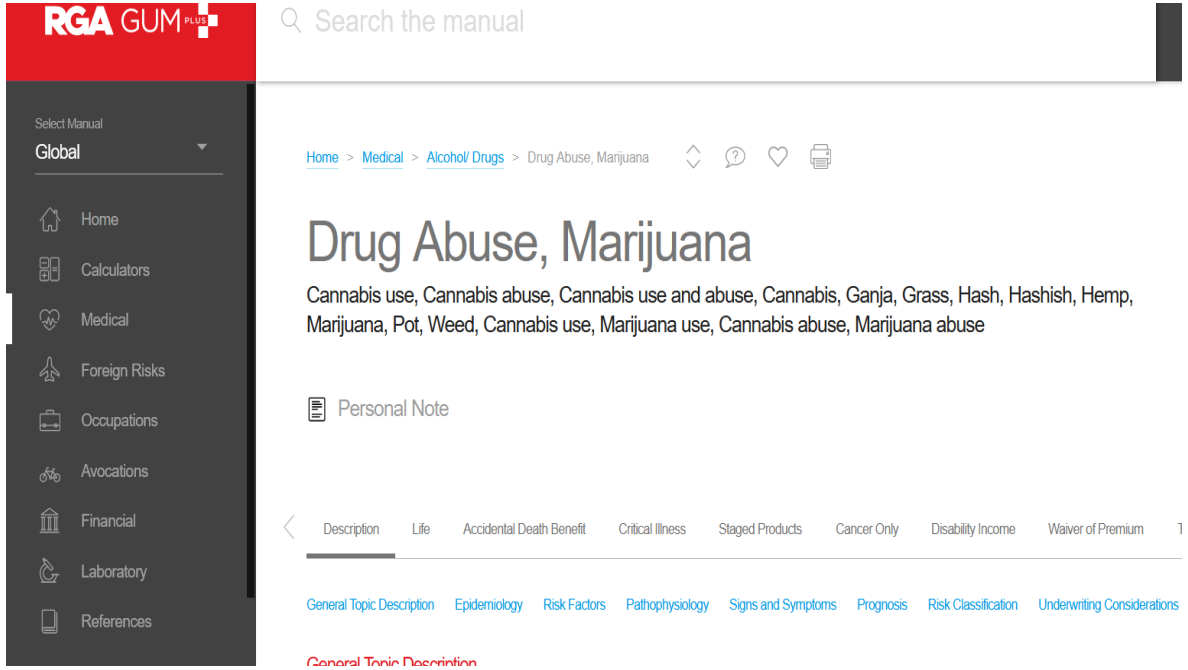
CUD

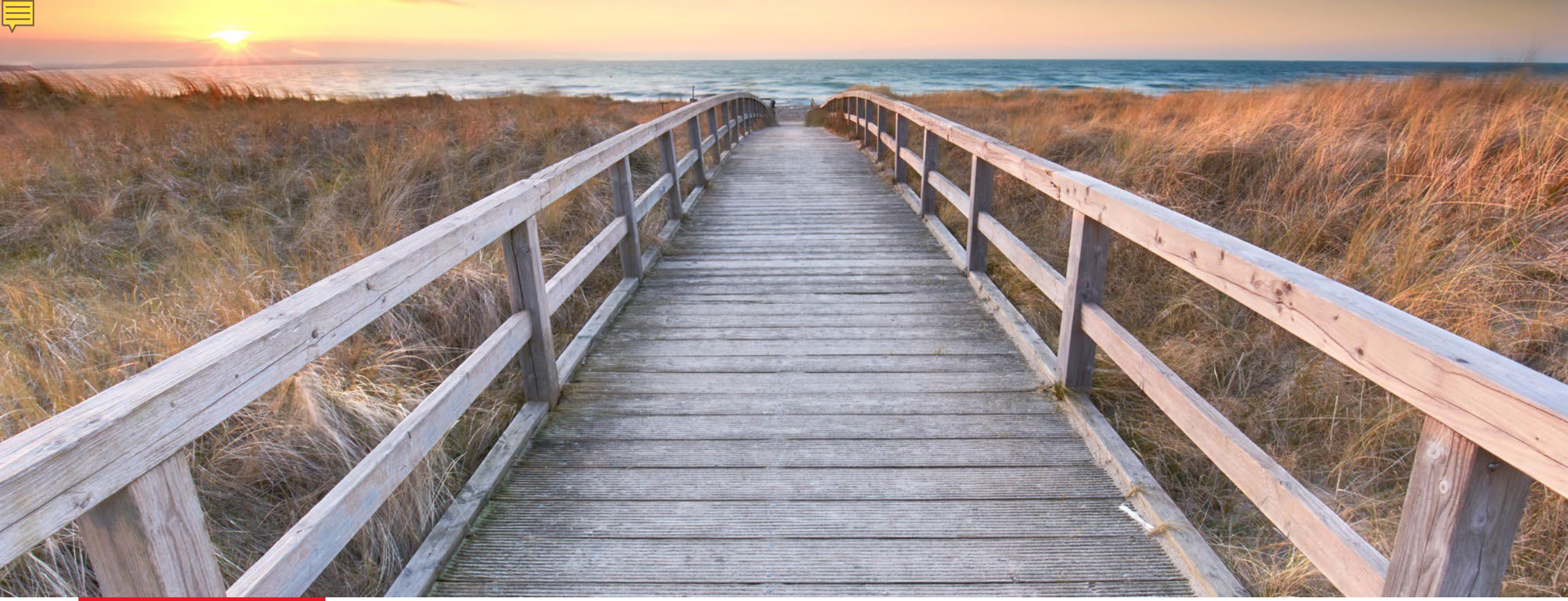
A Pattern of Using Cannabis that Leads to

- 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 Road to Recovery: can addiction be cured?

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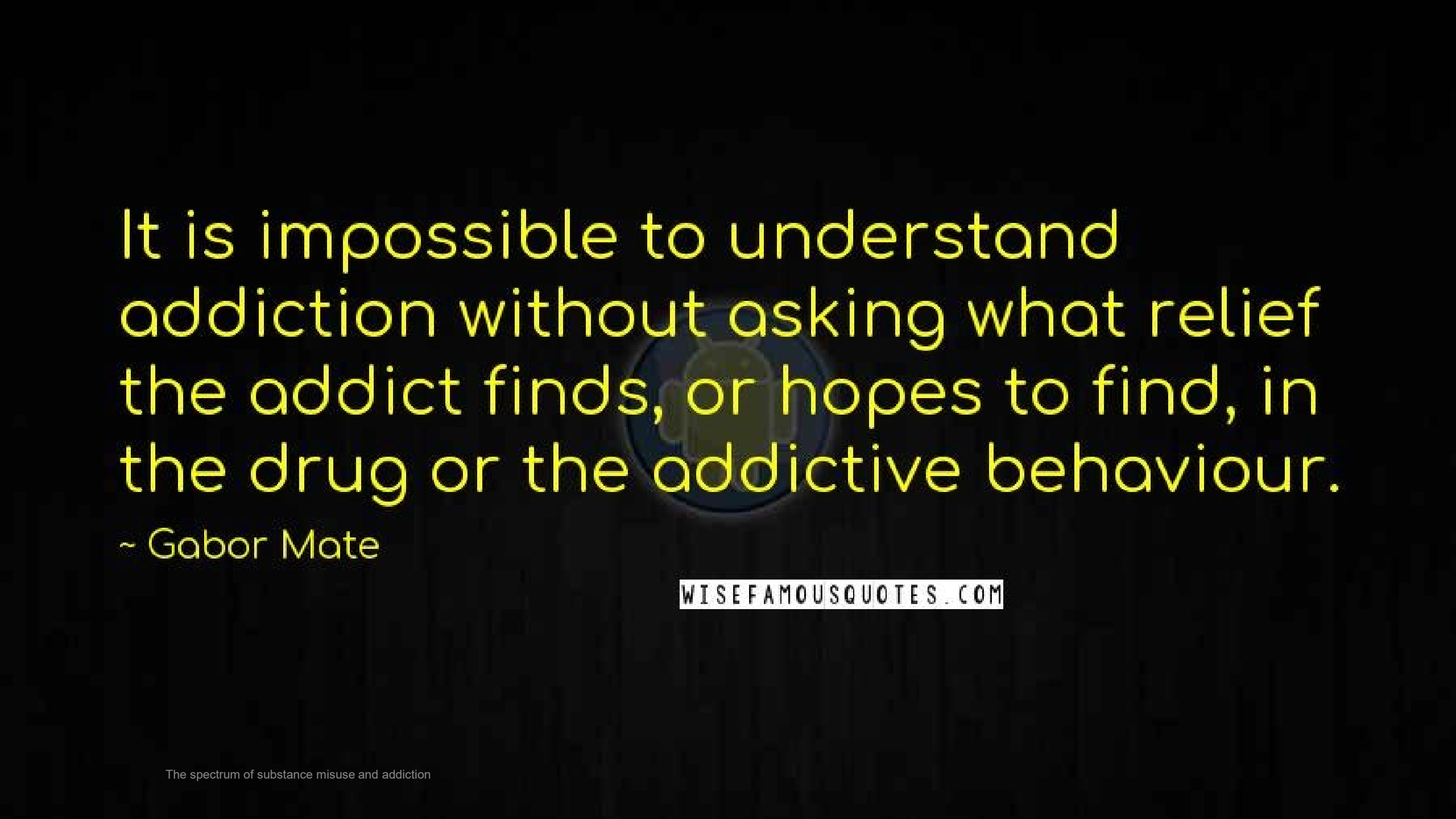
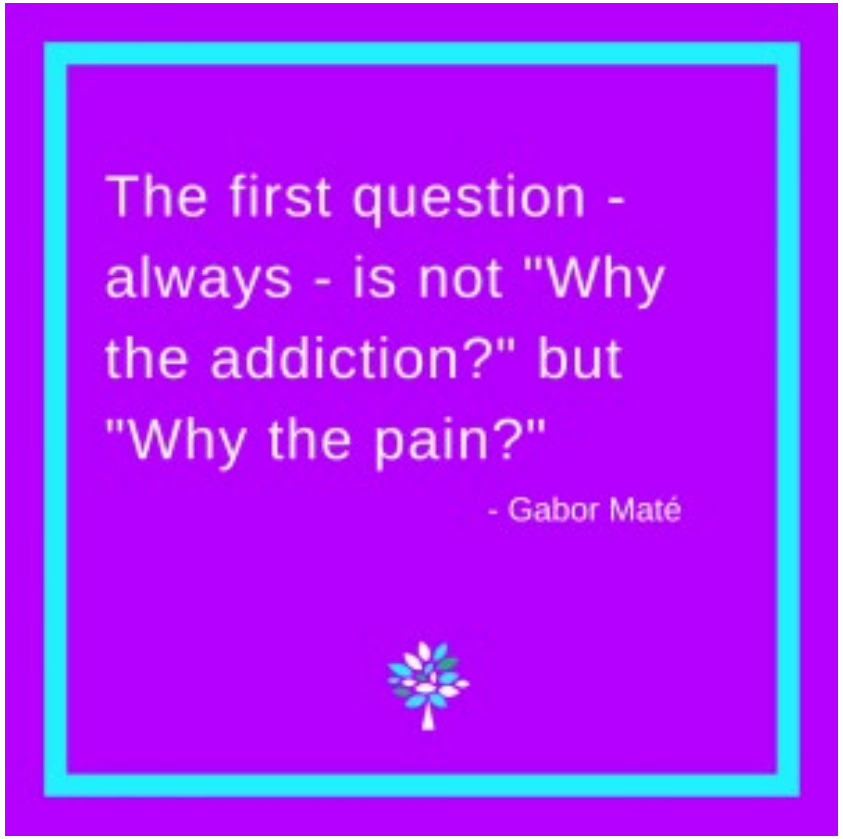

It is impossible to understand addiction without asking what relief the addict finds, or hopes to find, in the drug or the addictive behaviour.
~ Gabor Mate
WISEFAMOUSQUOTES.COM

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



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?

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