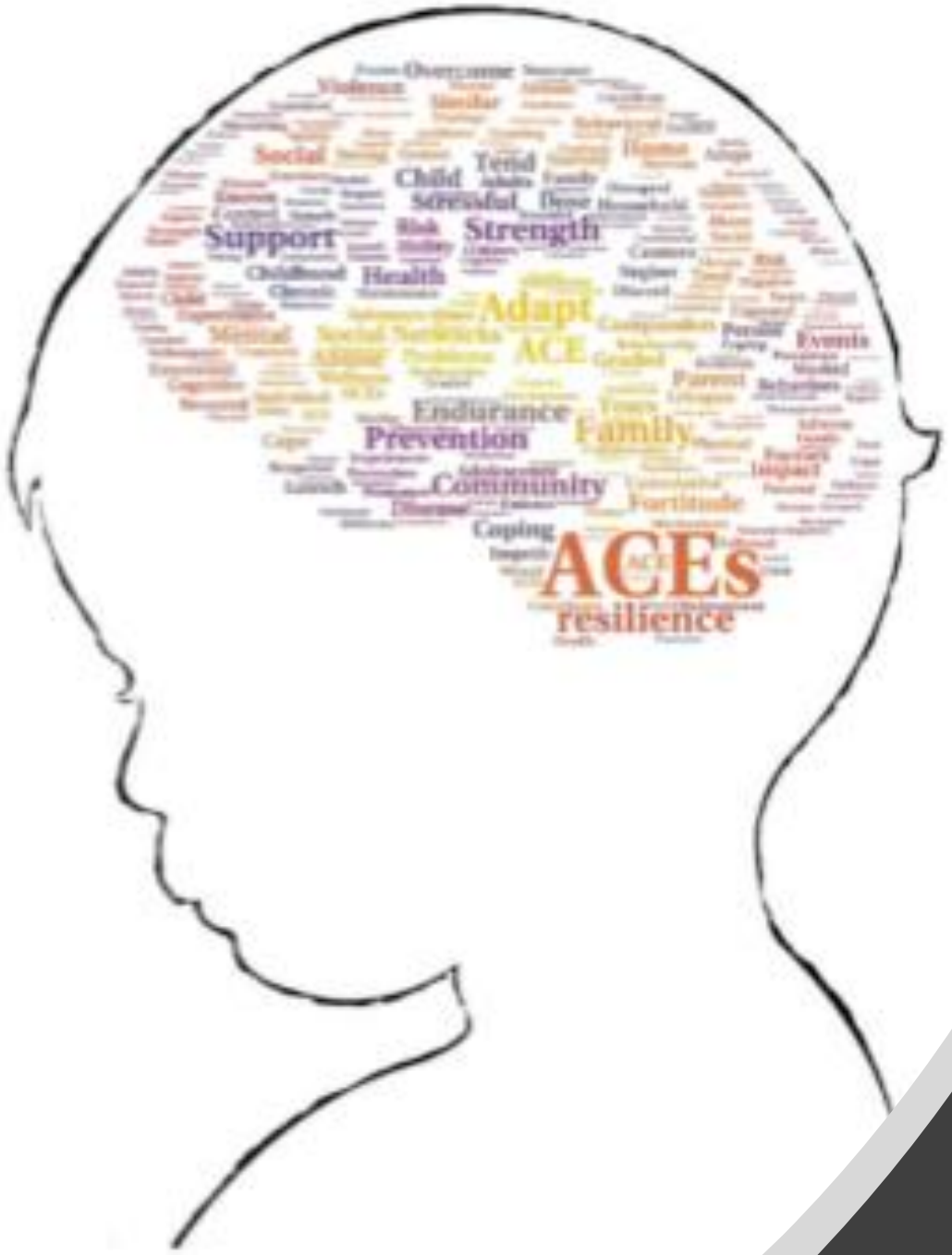


# Stoke Risk & Substance Use

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# Disclosures

- Relationship with financial interests:
- - nil

- Potential for conflict of interest:
- -nil

# Objectives

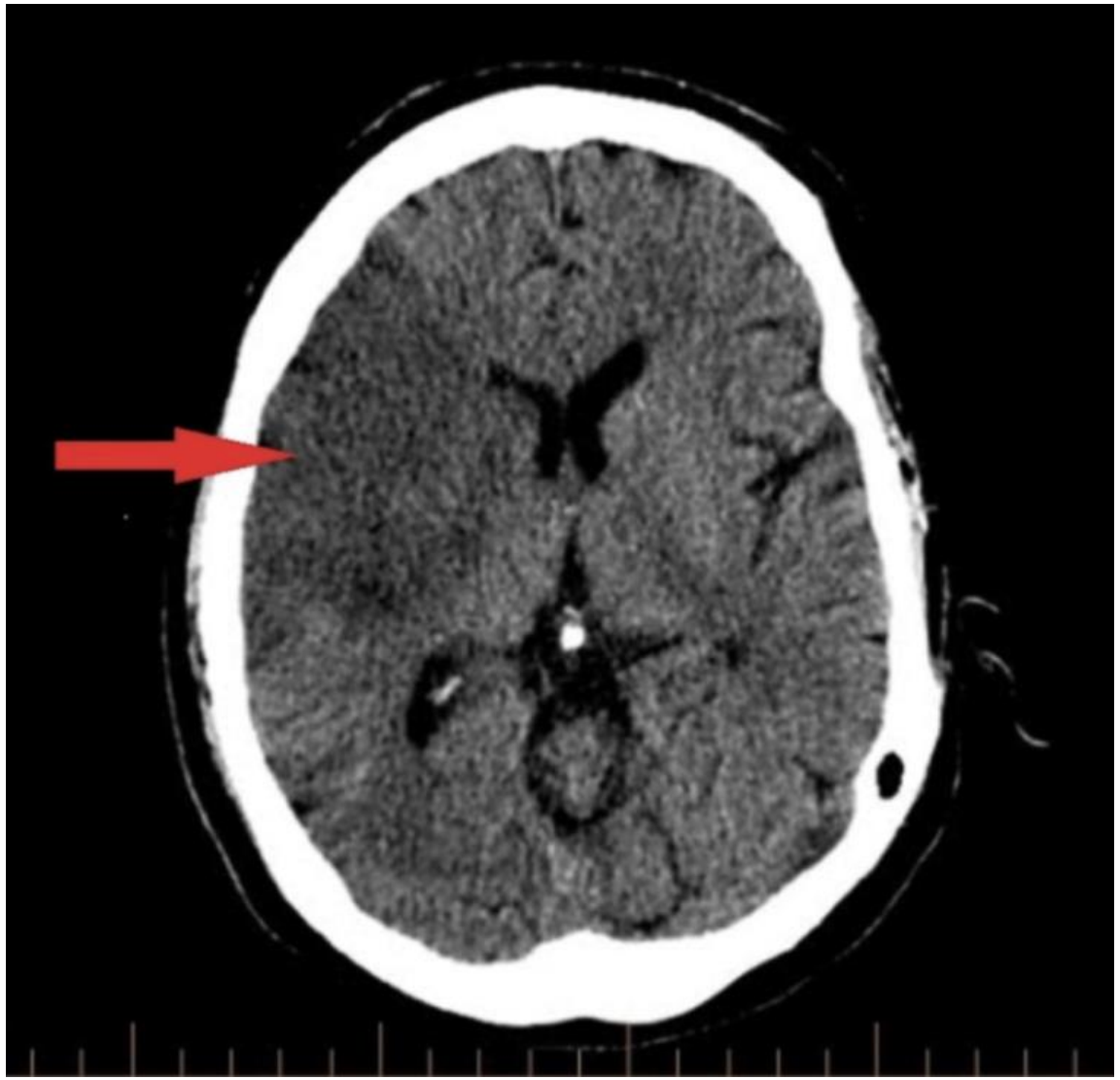
By the end of this presentation you will:

- Be familiar with substances as risk factors for stroke
- Be familiar with a Harm Reduction approach

# Mr. J.

- 60 yo ♂
- To ER May 5th 2020 w/ chest pain= dx ?infective endocarditis and biventricular heart failure.
- Admitted but left AMA May 8th ; unable to fill any discharge meds
- Pmhx + for:
  - HTN
  - Hyperlipidemia
  - Hep C (rxed)
  - Anxiety
  - Sleep apnea
  - Substance use- IVDU- opioids, methamphetamine
  - Prior epidural abscess/ osteomyelitis

- Returned to ER May 10th w/ SOB + altered LOC
- Transesophageal echo- no valvular lesions.
- Severe LV dysfunction likely secondary to non-ischemic dilated cardiomyopathy
- CT head done due to confusion- evolving R temporal occipital ischemic lesion.
- MRI head confirmed evolving R MCA ischemic stroke.

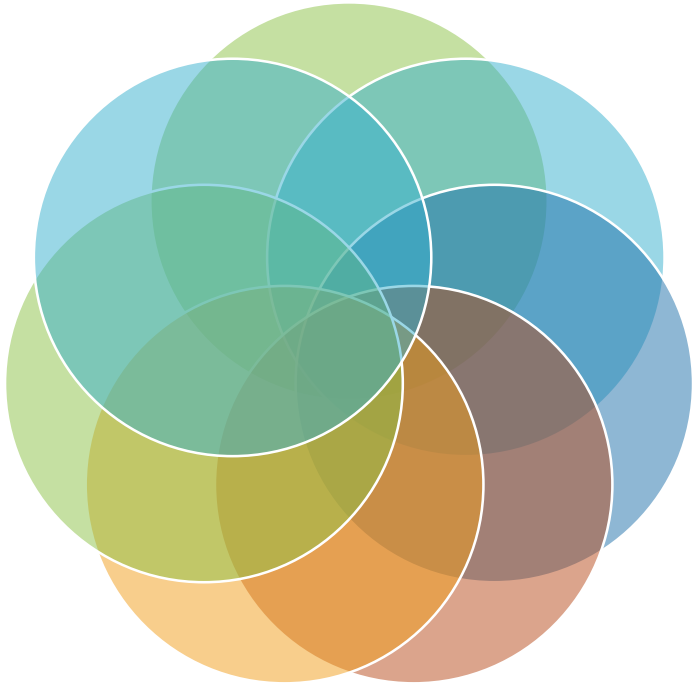


# Risk factors

Age/Sex/ Genetics

CM/ stimulant use

Smoking



Injection Drug Use
+/- ?IE

High BP- CM, lack of regular medication dosing (“non-compliance”)

Severe LV dysfunction/ cardiomyopathy

Hyperlipidemia

# 1 in 5


One in five adults aged 18 to 44 who had experienced a stroke in 2005 had abused illicit drugs

# Top five substances used in the past year by Canadians

| | #1 | #2 | #3 | #4 | #5 |
|---|---|---|---|---|---|
| General Population (15+) | Alcohol (78.2%) | Cannabis (14.8%) | Cocaine/Crack (2.5%)† | Hallucinogens and Salvia (1.5%) | Problematic Prescription Drugs (1.2%)† |
| Youth (15–19) | Alcohol (56.8%) | Cannabis (19.4%) | Hallucinogens and Salvia (2.8%) | Problematic Prescription Drugs (2.1%)† | Ecstasy (1.6%)† Cocaine/Crack (1.6%)† |
| Youth (20–24) | Alcohol (83.5%) | Cannabis (33.2%) | Cocaine/Crack (6.2%) | Hallucinogens and Salvia (5.1%) | Problematic Prescription Drugs (3.6%)† |
| Adults (25+) | Alcohol (79.4 %) | Cannabis (12.7%) | Cocaine/Crack (2.2%)† | Number suppressed | Number suppressed |

(Canadian Tobacco Drugs Alcohol Survey, 2017/8)

# Cocaine

Preclinical data:

- ↑BP & HR, & diffuse vasoconstriction
- ↓supply of cerebral blood flow & ↑ vascular resistance in the CNS.
- Hypercoagulable state
- Arrythmias
- Endothelial dysfunction

Chronic use: HTN, cardiomyopathy

Risks of hemorrhagic stroke: aOR: 2.33-6.1

(95% CI:1,74-3.11 and 3.3-11.8)

Risks of ischemic stroke: aOR: 2.03

( 95% CI: 1.48-2.79)

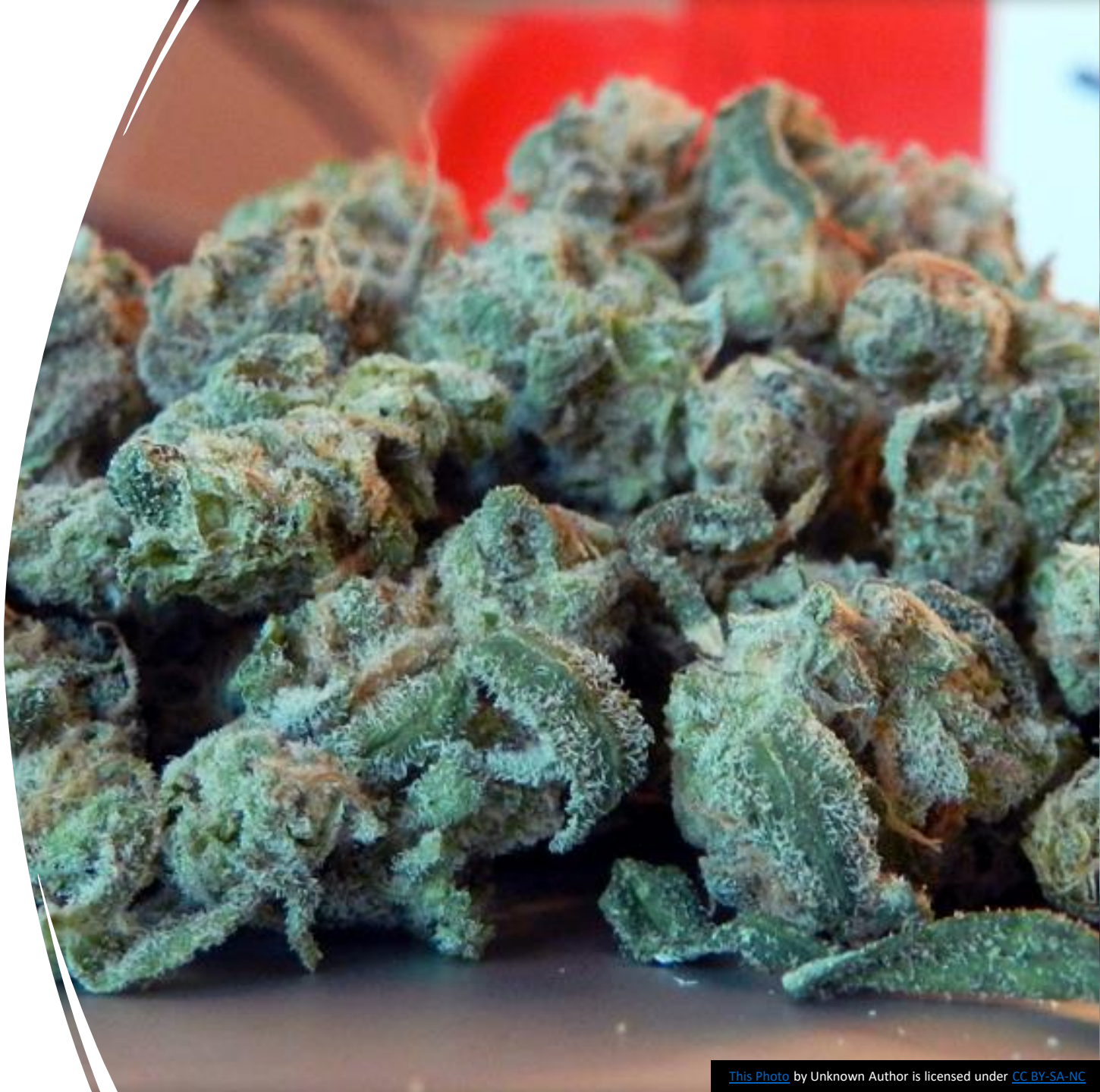
(Sordo, Bravo (2014). Cocaine use and risk of stroke: A systemic review. Drug and Alcohol Dependence; 142(1): 1-13.)

# Crystal Meth

- ↑BP & HR, vasospasm, vasculitis, & direct vascular toxicity.
- Longer ½ life than cocaine
- Chronic use can cause long-term systemic hypertension & cardiomyopathy
- Hemorrhagic stroke studies for young adults; reported methamphetamine use 7-13%

# MJ & Stroke Risk

- Physiologic effects of cannabis are mediated through interaction of THC w/ endocannabinoid system.
- Activation of sympathetic system, temporary vasoconstriction, procoagulant effects, cannabis-induced angiopathy
- More studies needed

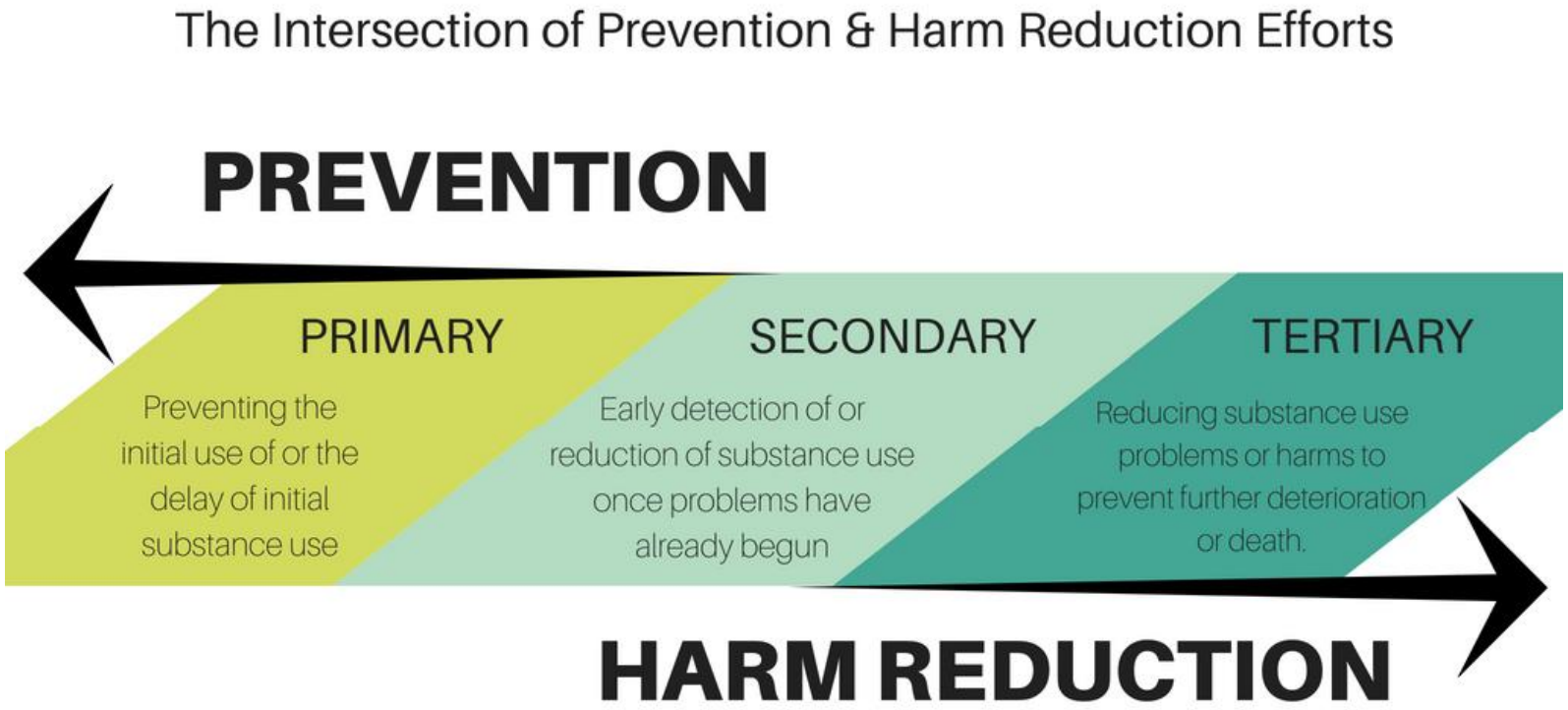


# Alcohol and Stroke Risk

- 25-35% risk reduction for light to moderate drinking
- Antithrombotic effects alcohol
- Alcohol at high doses may increase BP- increases risk hemorrhagic stroke.
- Complex relationship; differs by stroke subtype w/ slightly lower risk of ischemic stroke but higher risk of hemorrhagic stroke

# Harm Reduction Strategies

- Patient-centered, trauma-informed care
- Decrease stigma
- Safe supplies
- Offer treatment of  SUD
- Liaise w/ community partners
- Address barriers to care



# Image Credits

- Slide 1: https://drugfreelasvegas.org/adverse-childhood-experiences-aces
- Slide 4: https://www.ncbi.nlm.nih.gov/books/NBK556132/figure/article-25121.image.f3/
- Slide 7 : https://americanaddictioncenters.org/health-complications-addiction/substance-abuse-heart-disease