General Health Effects of Marijuana Use: Short-Term

- Impaired short-term memory
- Temporary loss of coordination
  - Increase in motor vehicle accident risk when driving soon after using
  - THC levels of 2 to 5 ng/mL associated with impaired driving skills
- Altered judgment
- At high doses
  - Stimulation: agitation, paranoia, psychosis
  - Followed by sedation: can lead to respiratory insufficiency in children
  - No specific antidote for marijuana toxicity

Hurley W, Mazor S. *JAMA Pediatr* 2013; 167:602-3
General Health Effects of Marijuana Use: Long-Term

• Increased symptoms of chronic bronchitis in persons who regularly smoke marijuana

• Dependence
  – ~1 in 10 who use marijuana will become addicted
  – Risk increases with
    • Earlier age of initiation
    • Daily use (25% to 50%)
  – Cannabis withdrawal syndrome: craving, irritability, sleep difficulties, anxiety, and depression

• Association with use of other substances

• Psychiatric symptoms
  – Associated with anxiety and depression
  – Unmasking of schizophrenia (genetic predisposition)

Cannabis Hyperemesis Syndrome

• AKA:
  – Cyclic vomiting syndrome
  – “Greening out”
• Paradoxical severe nausea and recurrent vomiting
• Epigastric abdominal pain
• Most common with heavy, long-term use
• Associated with personal or family history of migraines
• Unknown mechanism of pathology
• Treatment
  – Hot baths (diagnostic clue)
  – Haloperidol (resistant to standard antiemetics)
  – Fluids
• Self-limited, resolves with 48 hours
• Episodes end with cessation of cannabis use
Challenges to Assessing the Health Risks of Marijuana Use

• Health effects may not manifest for years
• Confounding from other substance use:
  – Tobacco
  – Alcohol
  – Other drug use
• Confounding from social determinants
  – Low income
  – Low educational attainment
  – Later prenatal care, lower use of folate
• Most studies do not address timing of exposure during gestation
• Increase in non-smoking utilization: edibles, vaping, dabbing
• Poor control for multiple comparisons
• Increasing THC concentration in smoked marijuana
Percent THC in Marijuana Seized by DEA, 1995-2012


Policy note: THC concentration often perceived as measure of quality
Health Effects of Legalization

• Depends on legalization’s effects on:
  – Prevalence of use and age-specific prevalence of use
  – Frequency and duration of use
  – Modalities of use
  – Regulation, taxation, market forces

Effects of Legalization on the Health System: Experience in Colorado

- Increased admissions to burn center
  - Butane used as solvent to extract THC
- Cyclic vomiting syndrome/marijuana hyperemesis syndrome ER visits
- THC intoxication from edible products
  - THC blood levels begin to rise ~30 minutes after consumption, peak at ~3 hours, and are cleared ~12 hours after ingestion
  - 10-30 mg THC for intoxication