Substance Use & Pregnancy

Randall Brown MD, PhD, FASAM
Director, UW Hospital Center for Addictive Disorders
Director, UW Addiction Medicine Fellowships
Associate Professor, Dept of Family Medicine & Community Health

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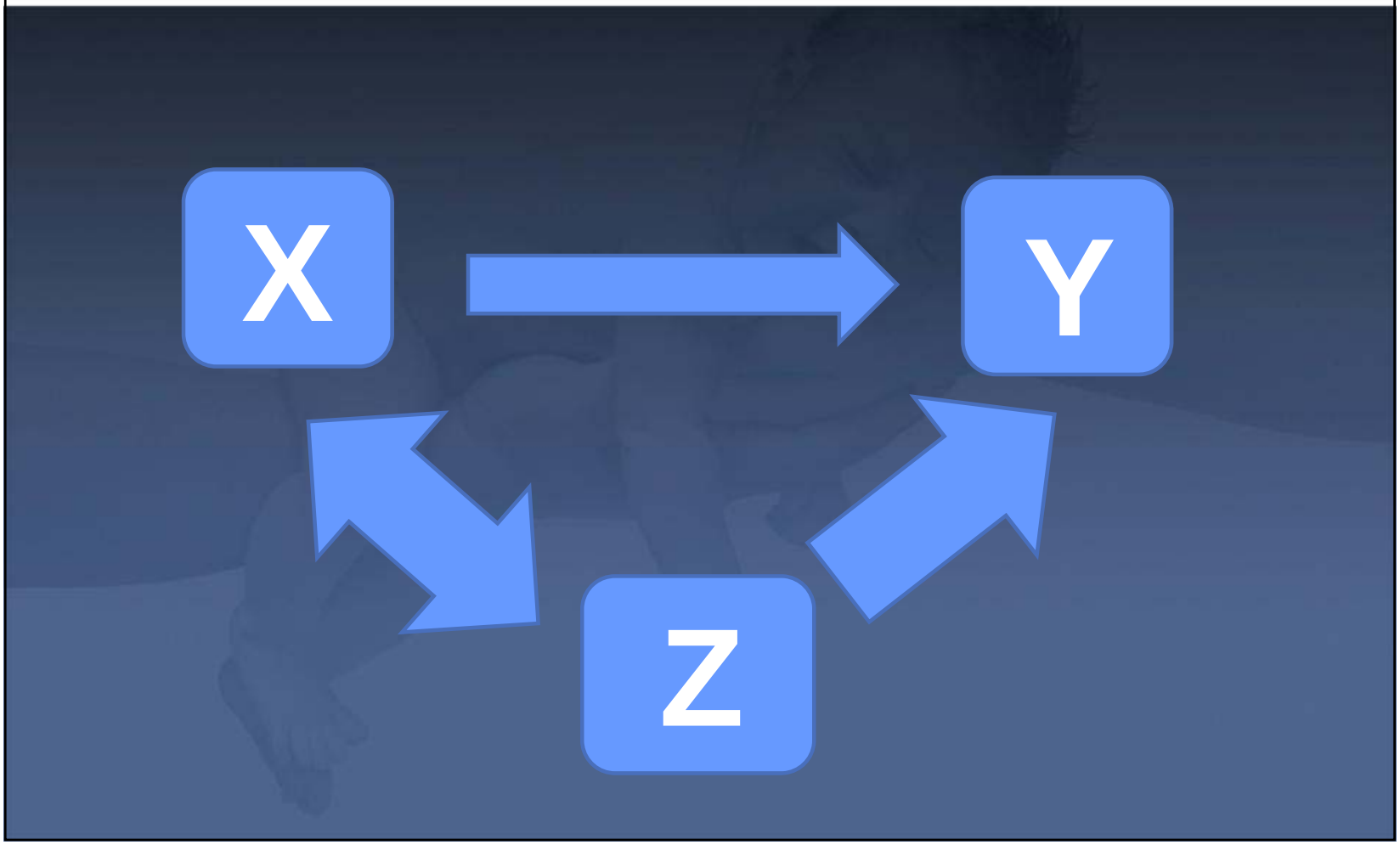
Introduction

- Substance use during pregnancy is common
  - Women are at highest risk for developing substance use disorder (SUD) during reproductive years
- Associated with adverse maternal and fetal outcomes
- Associated with childhood environmental risk
- Associated with developmental issues in childhood
- Pregnancy + SUD creates tension for care providers in addressing needs of mother and unborn fetus

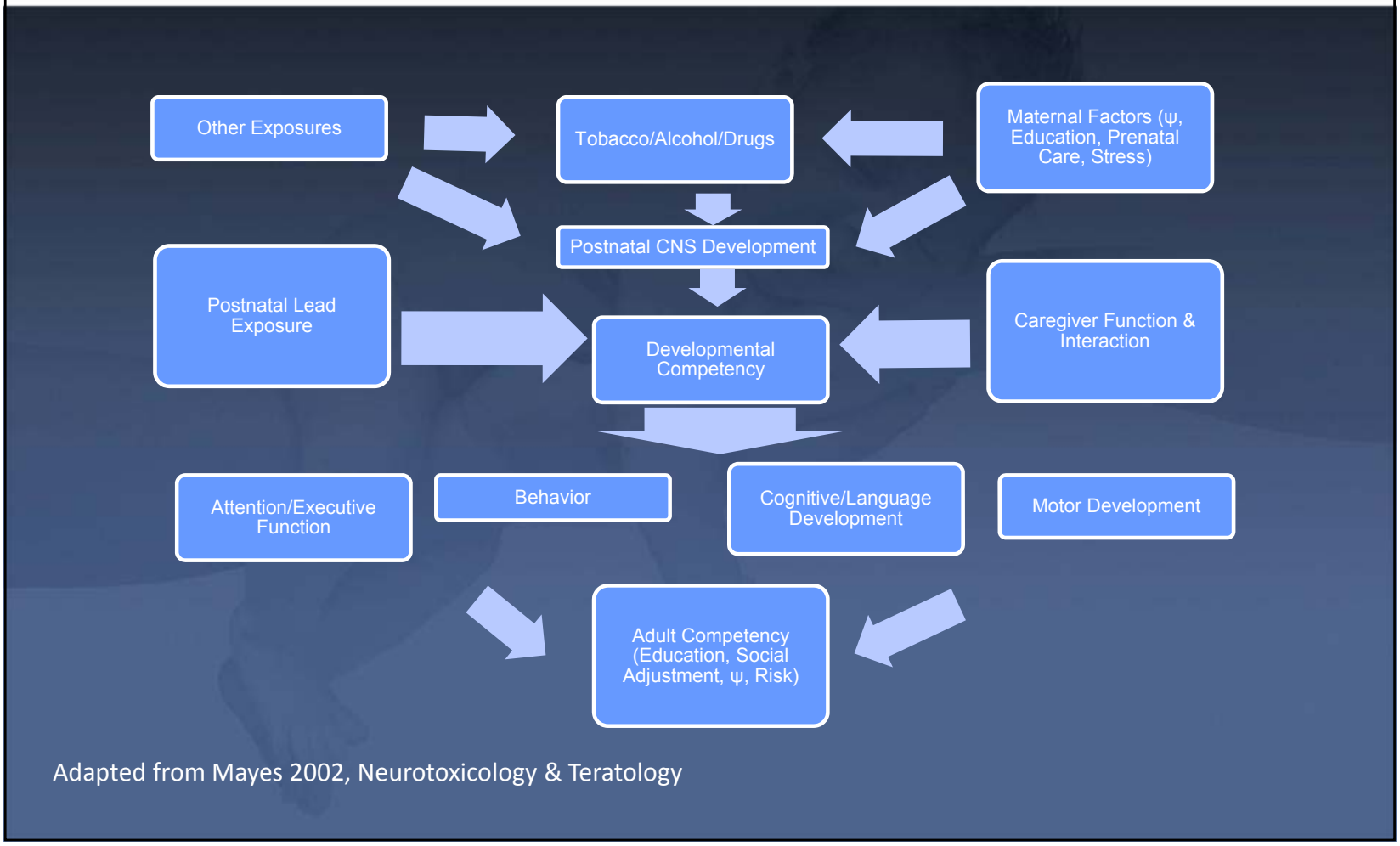
Overview

- Conceptualize pathways for drug-environment effects on developing fetus and child
- Discuss particular substances and associated neonatal and childhood outcomes
- Discuss evidence-based screening/assessment and treatment
- Discuss ethical, policy issues

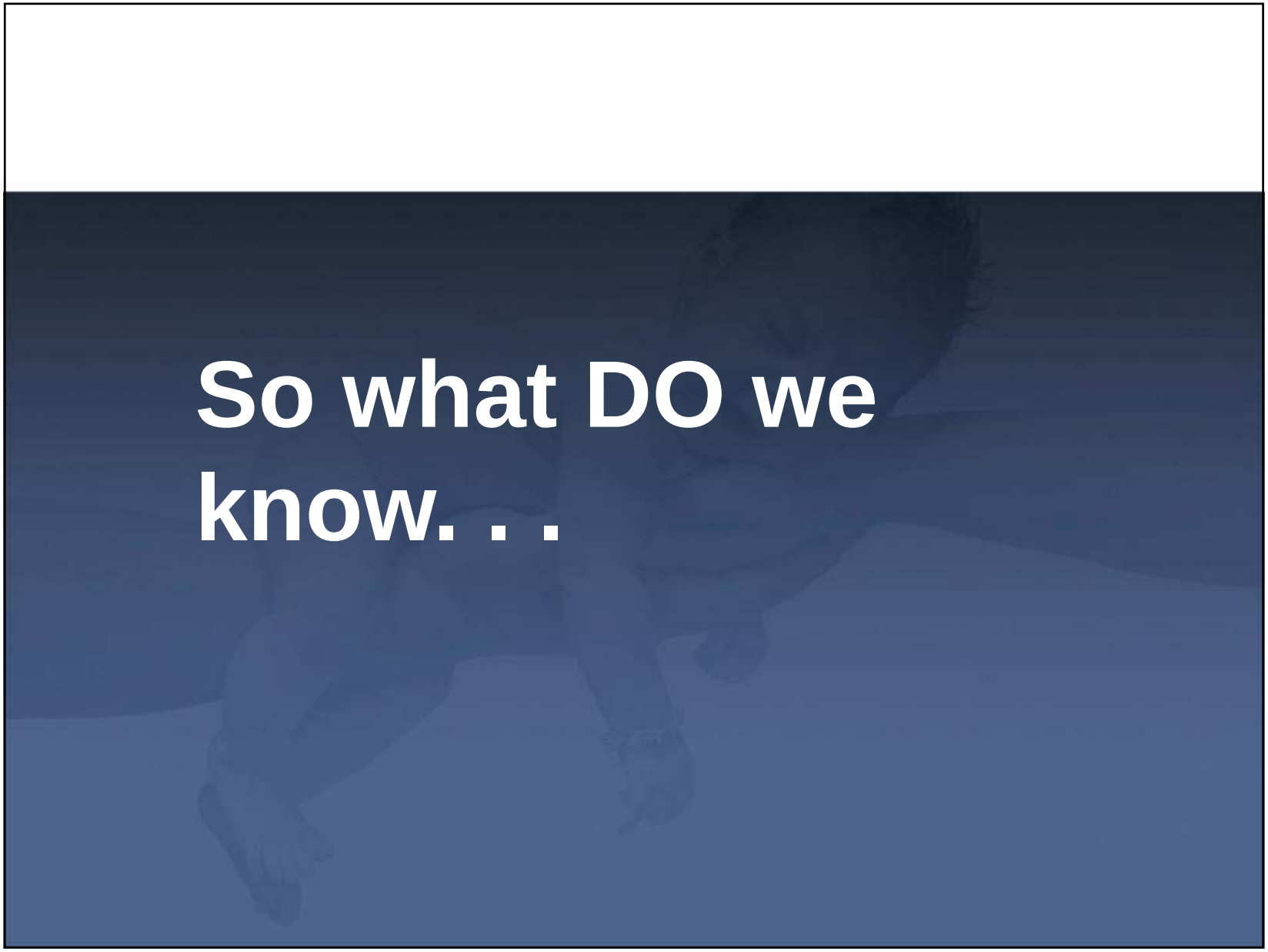
Confounding: Key Issue in Observational Studies



What Problems do Drugs "Cause?"



Adapted from Mayes 2002, Neurotoxicology & Teratology


So what DO we know. . .

Tobacco

- Placental abruption
- Intrauterine death
- Decreased birth weight
- Preterm labor/delivery
- ↓ breastfeeding
- ↑ risk of SIDS
- Hyperactivity
- Anti-social behavior, conduct disorder
- Learning disabilities, ↓ IQ

Pineless et al 2014. Am J Epi
Quesada et al 2012. J Matern Fetal Neonatal Med
Salihu et al 2007. Early Human Dev
Ratner et al 1999. Birth

Alcohol

- Preterm delivery
- Growth deficiencies
- Craniofacial abnormalities
- Intellectual disability
- Attention deficits
- Hyperactivity
- Impaired motor development
- Speech/language deficits

O'Leary et al 2009. BJOG
Fox et al 2017. MMWR
Fugelstad et al 2015. Child Neuropsych

Cannabis

- Findings conflict
- Adverse effects most frequently observed with other co-morbid substance use & w/ heavy use
- Fetal growth effects (?)
- Preterm labor
- No congenital anomalies
- Subtle withdrawal (autonomic, state regulation)
- Heavy use (≥ 1 joint/d) associated w/ subtle academic deficits (reading, spelling), but no impact on IQ
- Adolescent depression (?)

Hayatbakhsh et al 2012. Pediatr Res
Fergusson et al 2002. BJOG
Goldschmidt et al 2004. Neurotox & Teratol

Stimulants

- Cocaine
  - ↓ placental blood flow → abruption, preterm labor/delivery, IUGR
  - No physical abnormalities
  - Mild behavioral issues (?)
    - Subtle attentional deficits, impulsivity
    - Likely ameliorated by appropriate care/environment
- Methamphetamine
  - Limited knowledge/studies
  - Low birth wt, increased stress, decreased achievement
- Amphetamines for ADHD → no known effects

Gouin et al 2011. Am J Ob/Gyn
Frank et al 2001. JAMA
Mansoor et al 2012. J Dev Behav Pediatr
Dyk et al 2014. J Popul Ther Clin Pharmacol
Gorman et al 2014. Am J Ob/Gyn

Opioids

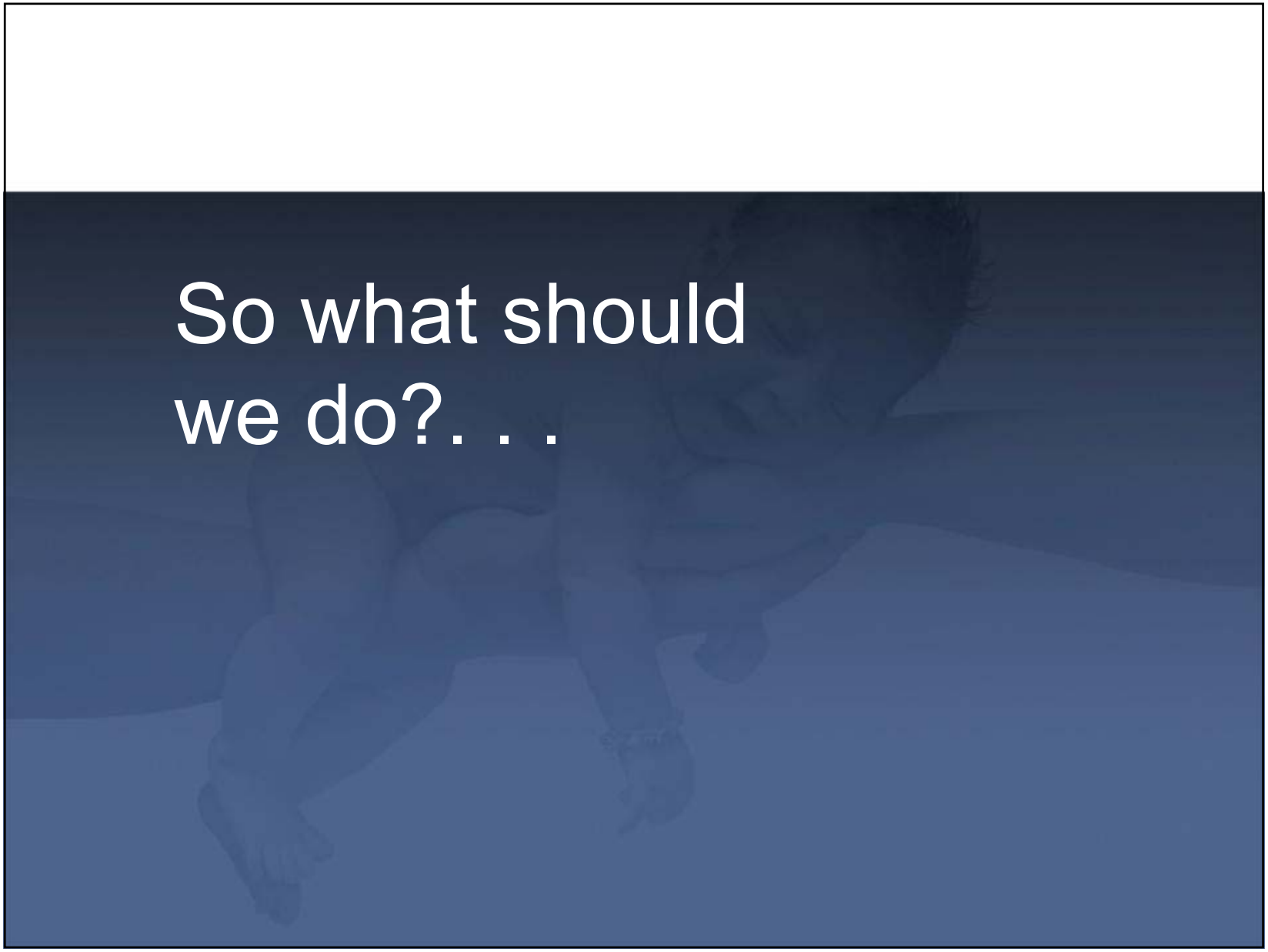
- Complications primarily related to withdrawal, other substance use (esp tobacco), and associated environmental factors
- Agonist therapy (methadone, buprenorphine) reduces complications
- No physical deformities
- Possible cognitive/behavioral issues
  - verbal, arithmetic, reading abilities (age 3)

Minozzi et al 2013. Cochrane Database
Patrick et al 2012. JAMA

Yazdy et al 2013. Ob/Gyn

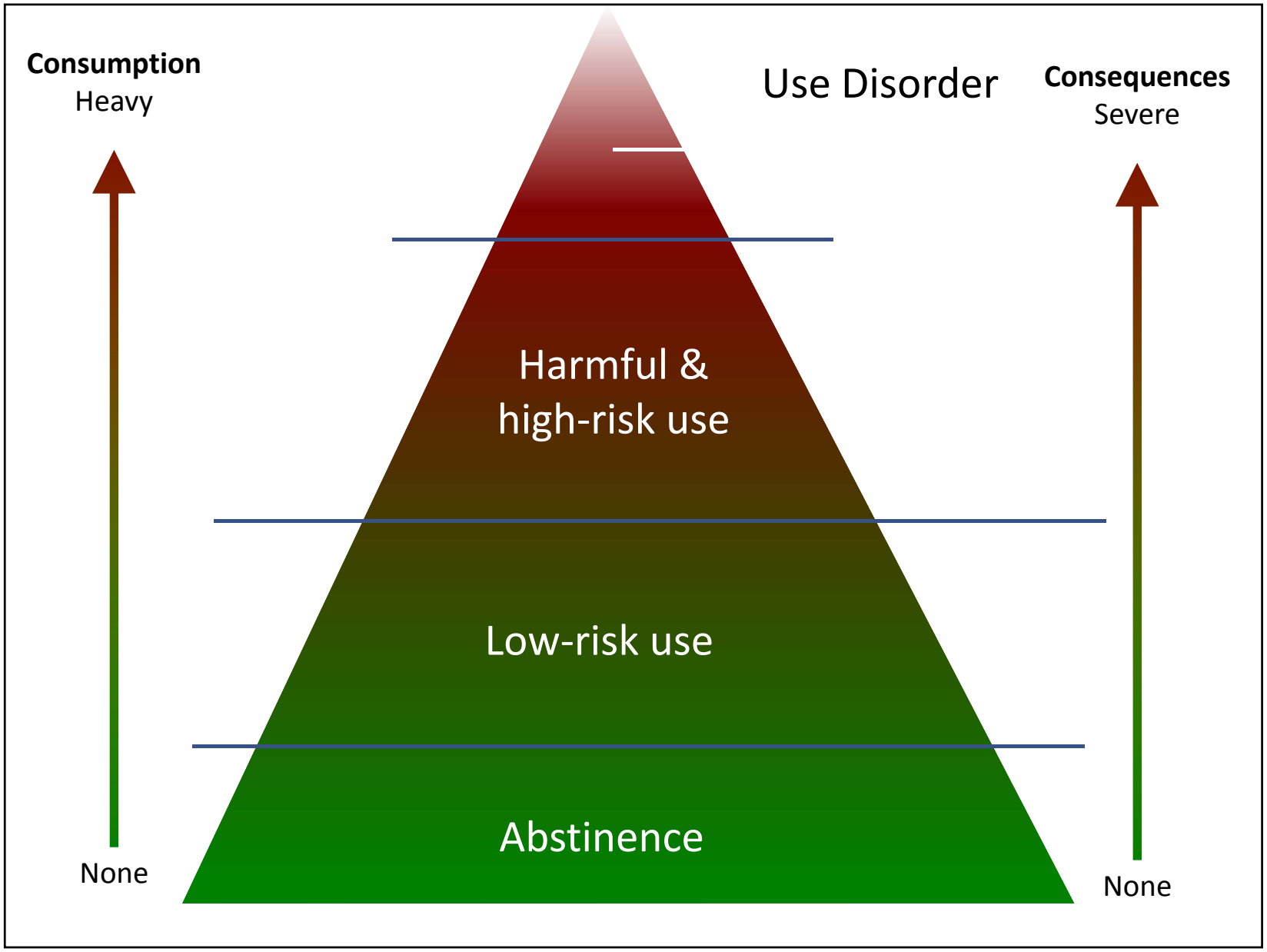
Opioids

- Neonatal Abstinence Syndrome
  - Not clearly related to “dose”
  - Onset 48-72 hr & some symptoms last weeks
  - Features
    - Excessive cry/irritability
    - Erratic sleep
    - Startle
    - Tremor
    - Increased tone
    - Yawning
    - Vomiting
    - Sneezing
    - Poor feeding
    - Seizure


So what should
we do?. . .

Screening

- Recommended by Institute of Medicine, but not by US Preventive Services Task Force
- Rates of current screening & follow up of positive screens are low
  - Alcohol 61%
  - Illicit drug use 7%
- Challenge to providers, patients, and system
  - Stigma, training, resource access


Consumption
Heavy
None
Use Disorder
Consequences
Severe
None
Harmful &
high-risk use
Low-risk use
Abstinence

T-ACE

- (T) Tolerance: How many drinks before you feel high? (≥ 3 is positive)
- (A) Annoyed: Have you been annoyed by people criticizing your drinking?
- (C) Cut down: Have you felt you need to cut down on your drinking?
- (E) Eye opener: Have you had a drink in AM to calm nerves?
  - 2+ = positive

TWEAK

- (T) Tolerance (2)
- (W) Worry: Have others worried about your drinking? (2)
- (E) Eye opener
- (A) Amnesia: Have you blacked out when drinking?
- (K) “Kut” down
  - 2+ = positive

Screens for Other Drugs

- Not particularly sensitive
- CAGE-AID
  - Cut down
  - Annoyed
  - Guilty
  - Eye opener
- DAST-10
- 4 P's Plus (parents, partner, past, pregnancy--# cigarettes, how many drinks in month prior to pregnancy)

Assessment

- Clinical interview
  - Substances
  - History
  - Consequences
  - Co-morbidity
  - Readiness to change
  - Environment

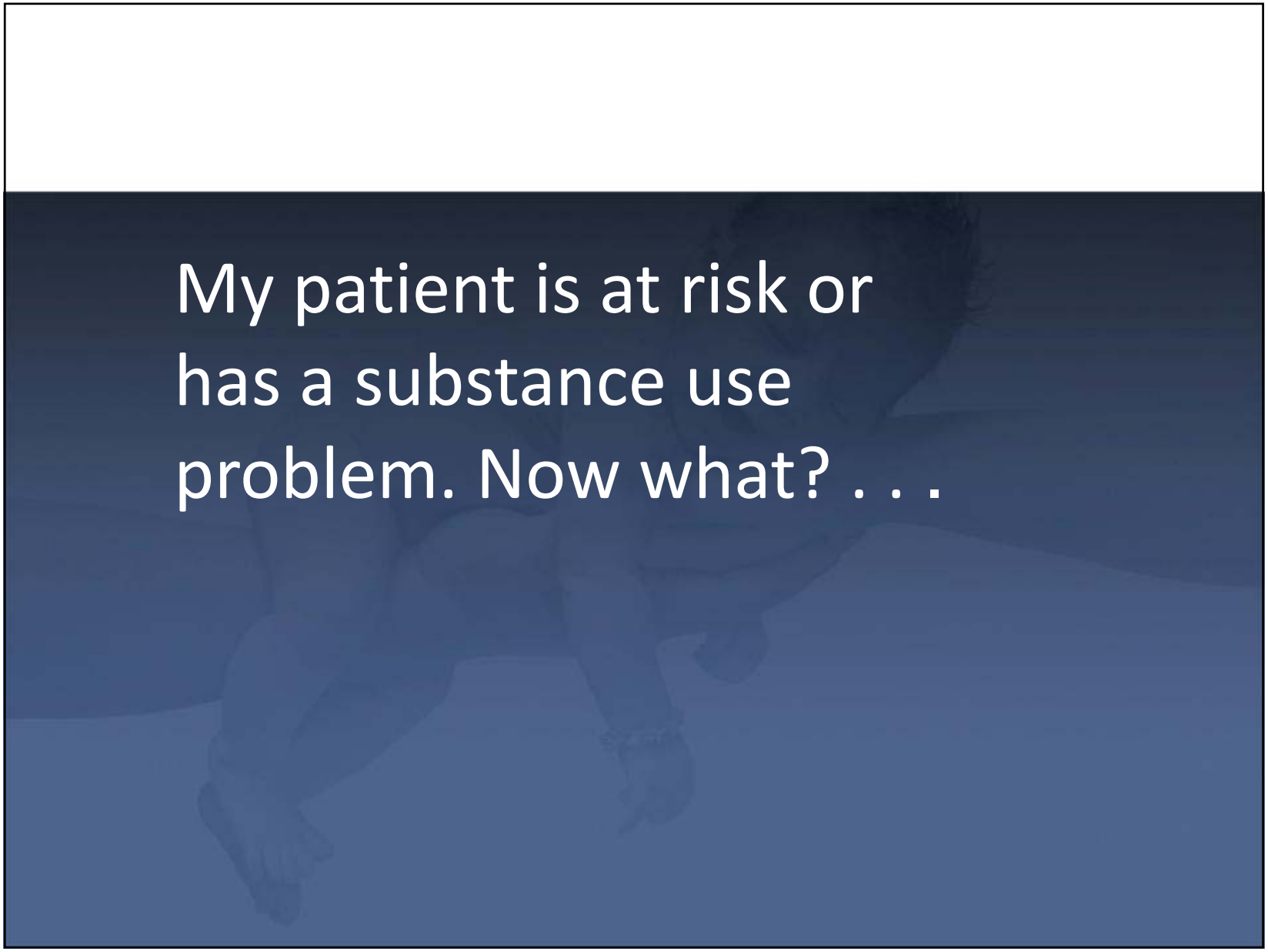
DSM-5 Substance Use Disorder

- Tolerance
- Withdrawal

} Physical Dependence ≠ Use Disorder

- Larger amts/longer periods than intended
- Persistent desire/failed attempts to quit/control use
- Much time obtaining/using/recovering
- Important activities sacrificed
- Continued use despite known adverse effects
- Failure to fulfill major obligations
- Recurrent hazardous use
- Craving
- Ongoing use despite interpersonal problems

2-3 = mild
4-5 = moderate
≥ 6 = severe


My patient is at risk or has a substance use problem. Now what? . . .

The Good News. . .

- In women with preconception risky or problem use, many are able to abstain during pregnancy
  - Alcohol 96%
  - Cannabis 78%
  - Cocaine 73%
  - Tobacco 32%
- High rates of relapse post-partum

Forray et al 2015. Drug Alc Depend

Treatment: Tobacco

- Behavioral
  - Tobacco quit line
  - Plan formulation
- Pharmacotherapy
  - Nicotine replacement therapy (NRT) (D??)
  - Bupropion (C)
  - Varenicline (C)
- Quitting at any time reduces complication risk

At-Risk Use: Brief Interventions

- Willing to commit to change
  - Help set goals
  - Agree on plan
  - Provide educational materials
- Not willing to commit
  - Restate concern
  - Encourage reflection
  - Address barriers
  - Reaffirm willingness to help
- Maintain engagement in prenatal care!!!

Treatment: Use Disorders

- Alcohol
  - Behavioral
  - Pharmacotherapy
    - Withdrawal/detox
    - Anti-craving/cessation
      - Acamprosate (C)
      - Naltrexone (C)
      - Disulfiram (C)

Treatment

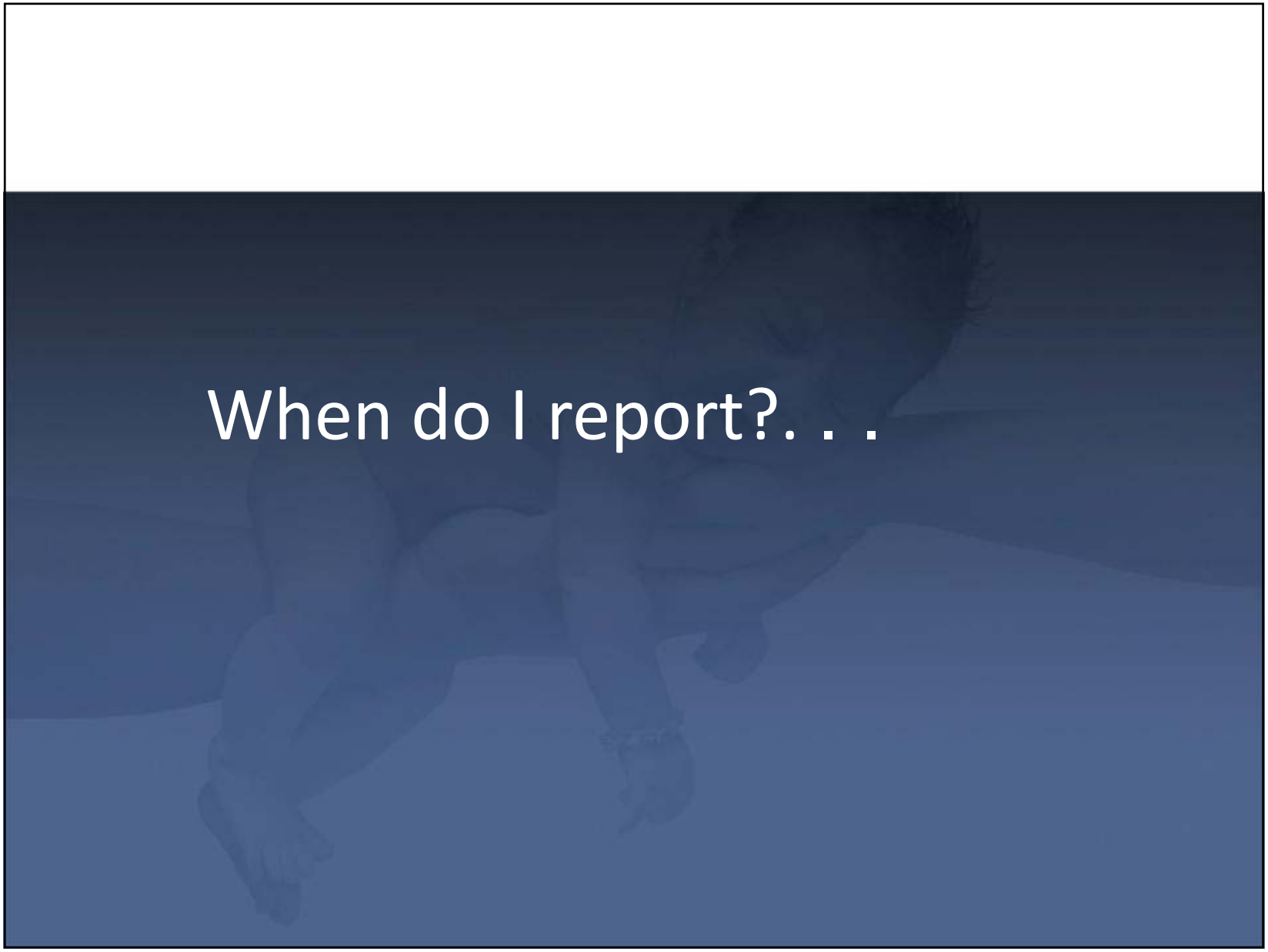
- Opioids
  - Behavioral
  - Opioid agonist therapy (OAT)
    - Methadone (C)
    - Buprenorphine (C)
  - Other medication—naltrexone (C)

Treatment

- Stimulants
  - Behavioral
    - Contingency management
    - Cognitive behavioral therapy
  - Pharmacotherapy. . .

Other Treatment Issues

- Other substance use
- Related medical issues (e.g. HIV)
- Mental health
  - Depression/anxiety
  - Trauma history/PTSD
- Home environment/support network


When do I report?. . .

Legal & Policy Issues

- Legal substances (tobacco, alcohol) may cause more harm than many illegal (cocaine, cannabis)
- Unintended adverse consequences of punitive and mandatory reporting policies (e.g. reluctance to seek prenatal care)

Legal & Policy Issues

- 15 states consider substance use during pregnancy to be child abuse under child welfare (civil, not criminal) statutes
- Incarceration doesn't affect drug use rates
- Reporting requirements in this setting create adversarial relationship b/t pt and MD
  - Deters women from seeking prenatal care

Wisc Statute 48.981: Children's Code

- Substance *use* in pregnancy *not* defined as unborn child abuse in WI
- Reporting of substance *use* is *not* mandatory
- Required reporting (?) when:
  - ". . .*serious physical harm* inflicted on the unborn child, and the *risk of serious physical harm* to the child when born, caused by the *habitual lack of self-control of the expectant mother* . . in the use of alcohol beverages, controlled substances or controlled substance analogs, *exhibited to a severe degree.*"

Conclusions

- Substance use and associated environment has potentially long-term negative impacts
  - Evidence for many substance-attributable harms is unclear
- Legal substances present as much (or more) potential for significant harm to developing fetus
- Engaging patient in process of positive change **and continued prenatal care** is critical