

# Perinatal Substance Use Disorders: Increasing Awareness & Screening to Reduce Impact on the Maternal/Child Dyad



Mountain Plains ATTC (HHS Region 8)

**ATTC**

Addiction Technology Transfer Center Network  
Funded by Substance Abuse and Mental Health Services Administration

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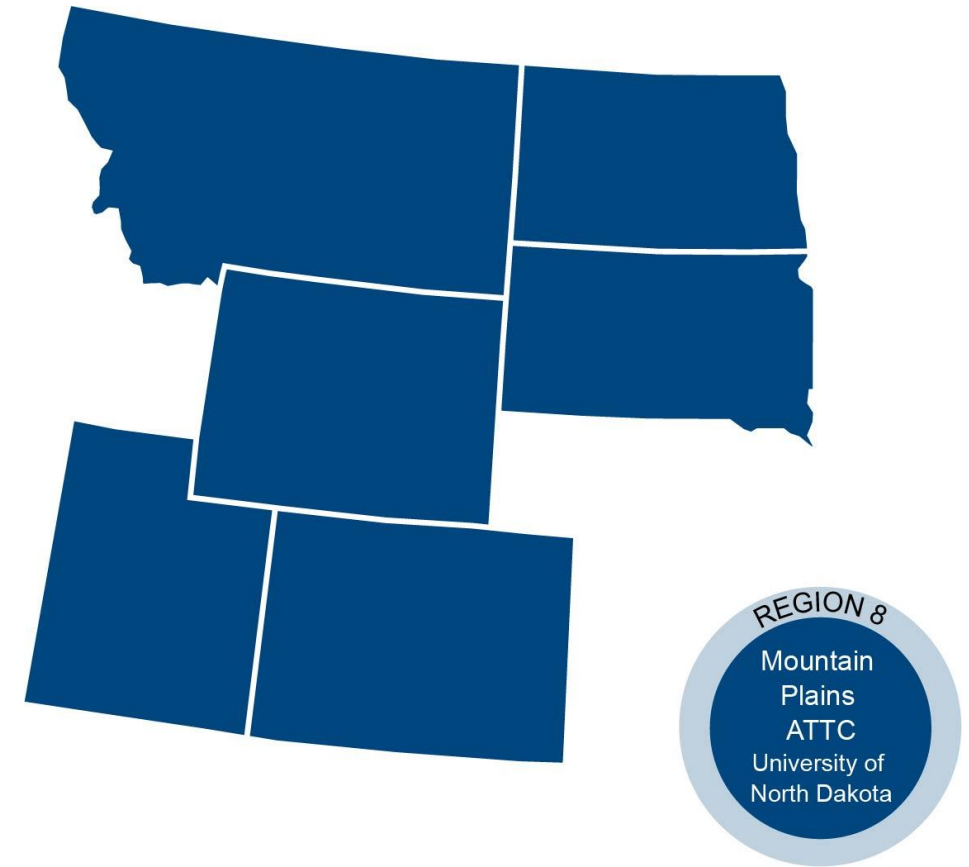
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# The Mountain Plains Addiction Technology Transfer Center

The Mountain Plains Addiction Technology Transfer Center (Mountain Plains ATTC) supports and enhances substance use disorder treatment and recovery services for individuals and family members throughout Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming).

We belong to the Technology Transfer Center (TTC) Network, a national network of training and technical assistance centers serving the needs of mental health, substance use and prevention providers. The work of the TTC Network is under a cooperative agreement by the Substance Abuse and Mental Health Service Administration (SAMHSA).



# Evaluation Information

The ATTC is funded through SAMHSA to provide this training. As part of receiving this funding we are required to submit data related to the quality of this event.

At the end of today's training, you will be directed to a website to complete a complete a **brief** survey about today's training.

The use of affirming language inspires hope and advances recovery.

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LANGUAGE MATTERS.

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**Words have power.**

**PEOPLE FIRST.**

The ATTC Network uses affirming language to promote the promises of recovery by advancing evidence-based and culturally informed practices.



**ATTC**


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# Objectives

- Identify the impact different substances like alcohol and opioids have on the maternal/child dyad during pregnancy and while breastfeeding
- Consider opportunities to use the SBIRT technique to increase awareness of and screening for substance use disorders during the perinatal period
- Describe neonatal withdrawal syndromes

# Improving Care for Pregnant People with SUDs

- **Pregnancy** may provide a “**WINDOW of OPPORTUNITY**” to engage pregnant people in **treatment and recovery** (ACOG, 2017; Terplan, McNamara, Chisolm, 2012; Terplan & Minkoff, 2017)
  - Prenatal care + social services+ SUD treatment= Harm Reduction, Mitigation of Complications, and Comprehensive Care
- **Education Brings Awareness**
  - Increase training for health care professionals (Merrill & Monti, 2015)
  - Develop understanding of impact of substance use on maternal/infant dyad during pregnancy and while breastfeeding
  - Educate pregnant people about the impact of SUDs
- **Screening and the SBIRT Technique Bring Earlier Intervention and Options for Recovery**
  - Universal screening (self-report) using validated screening tools
  - Brief intervention to start the conversation
  - Referral for further evaluation or treatment when needed

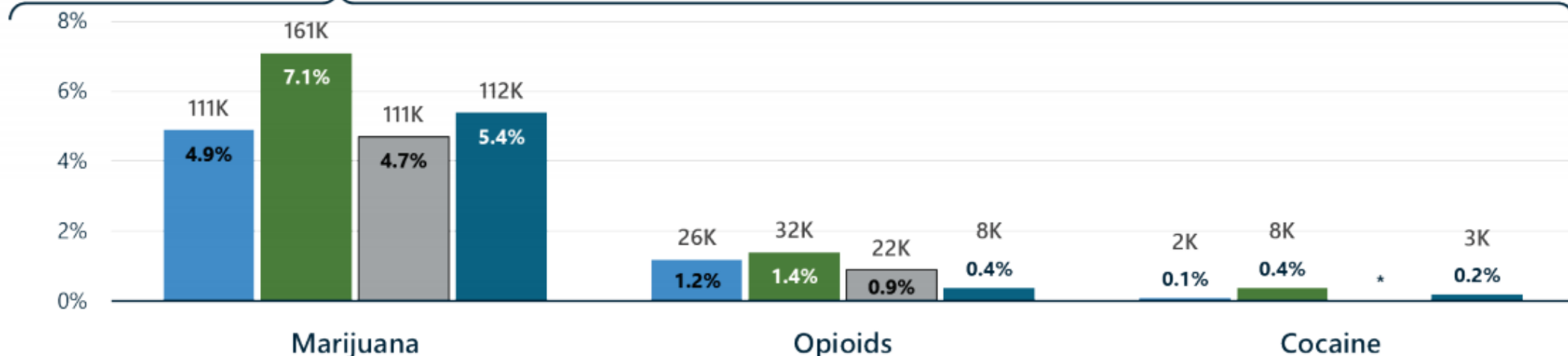
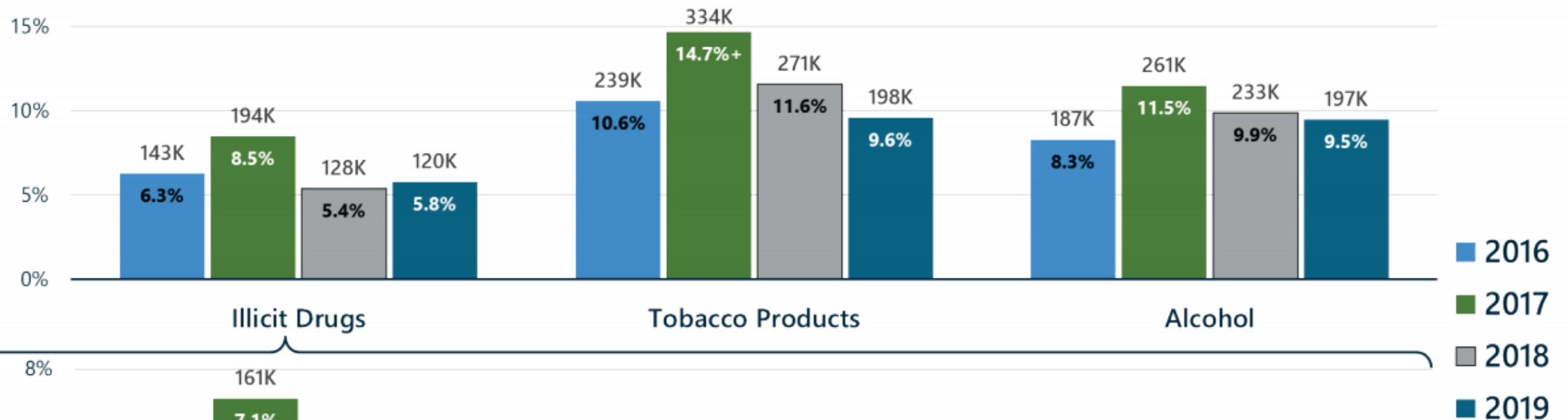


# The Impact of Substance Use on the Maternal/Fetal Dyad



# Past Month Substance Use among Pregnant Women

PAST MONTH, 2016-2019 NSDUH, Women 15-44



\* Estimate not shown due to low precision.

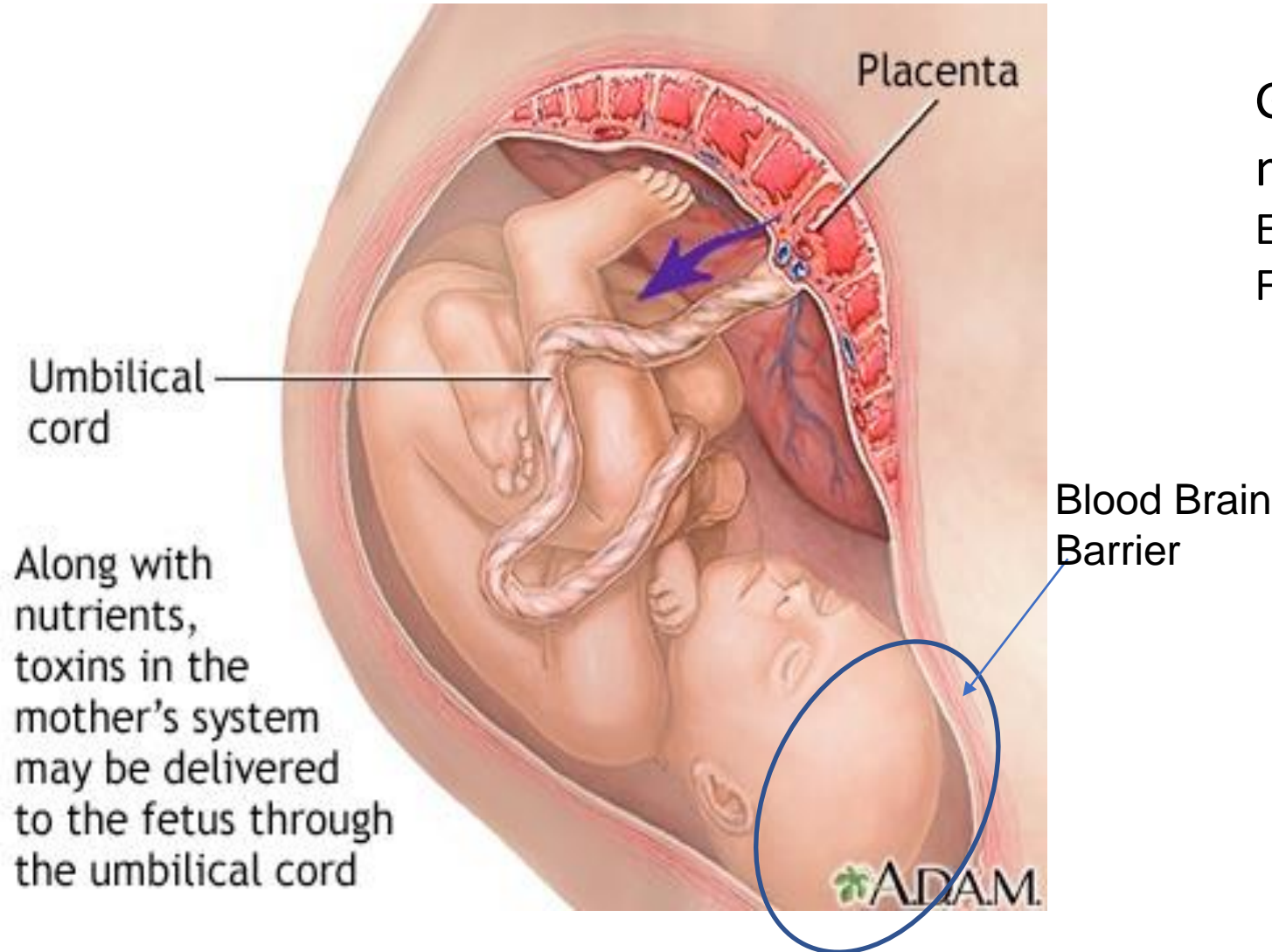
Tobacco products are defined as cigarettes, smokeless tobacco, cigars, and pipe tobacco.

+ Difference between this estimate and the 2019 estimate is statistically significant at the .05 level.

# Substance Use in Pregnancy

- Substance use in pregnancy indirectly linked to
  - Lack of nutrition
  - Perinatal intimate partner violence
  - Increased risk of mental illness/infection...All of which can impact the maternal/fetal dyad
- Any substance has potential to cross over to the fetus, directly linked to
  - Growth
  - Alterations in brain organization
  - Placental insufficiency
- How does this happen?

# Transfer of Licit and Illicit Drugs to Fetus

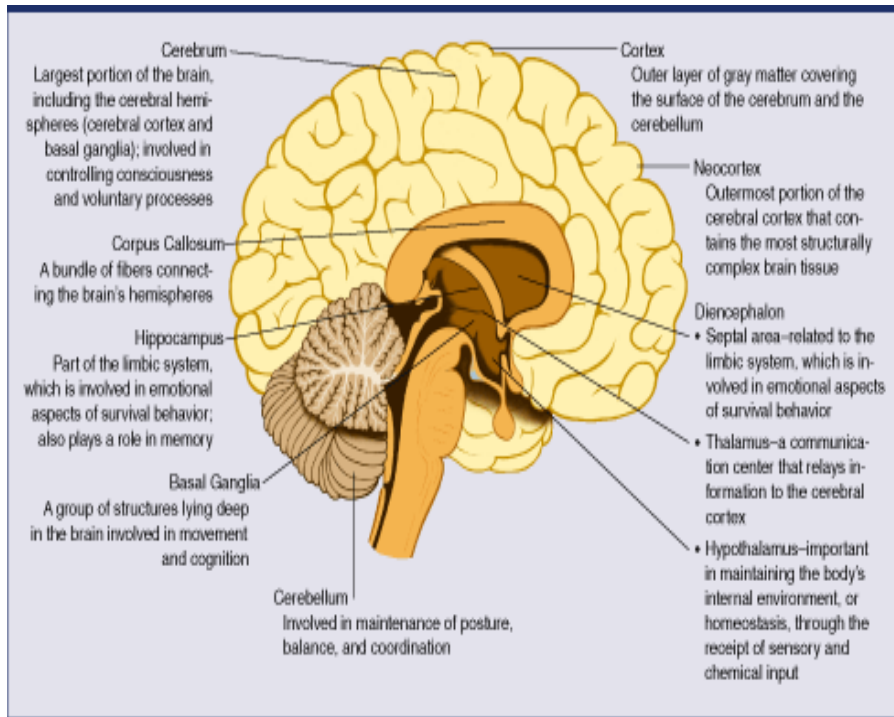


Generally, substances are most teratogenic in:  
Embryonic Stage and/or  
Fetal Period

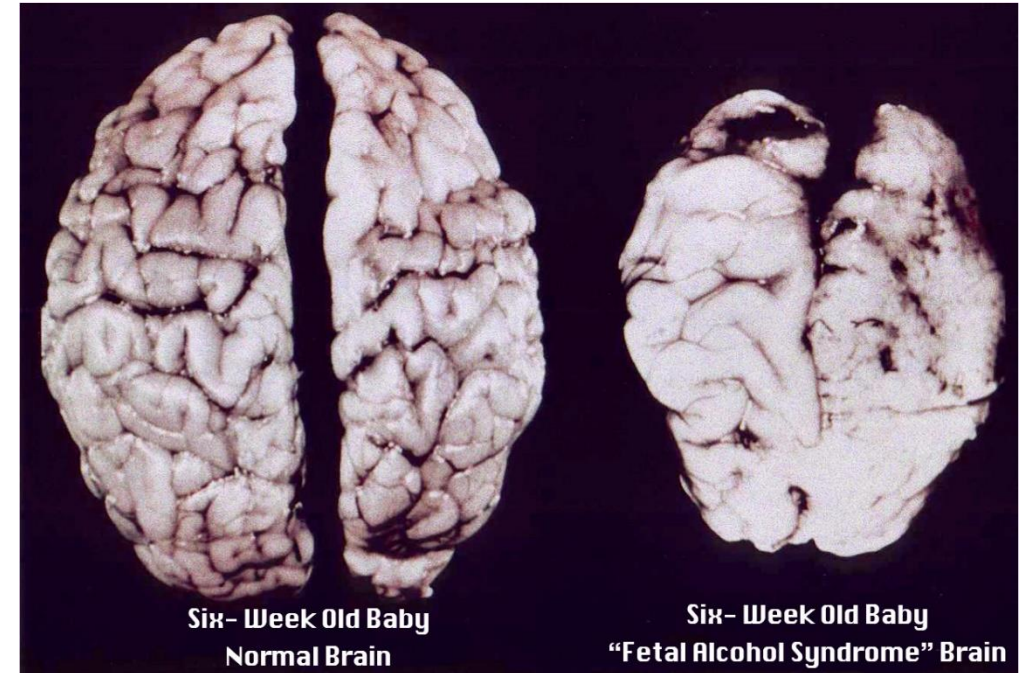
Along with nutrients, toxins in the mother's system may be delivered to the fetus through the umbilical cord

# Alcohol: We often forget about this one!

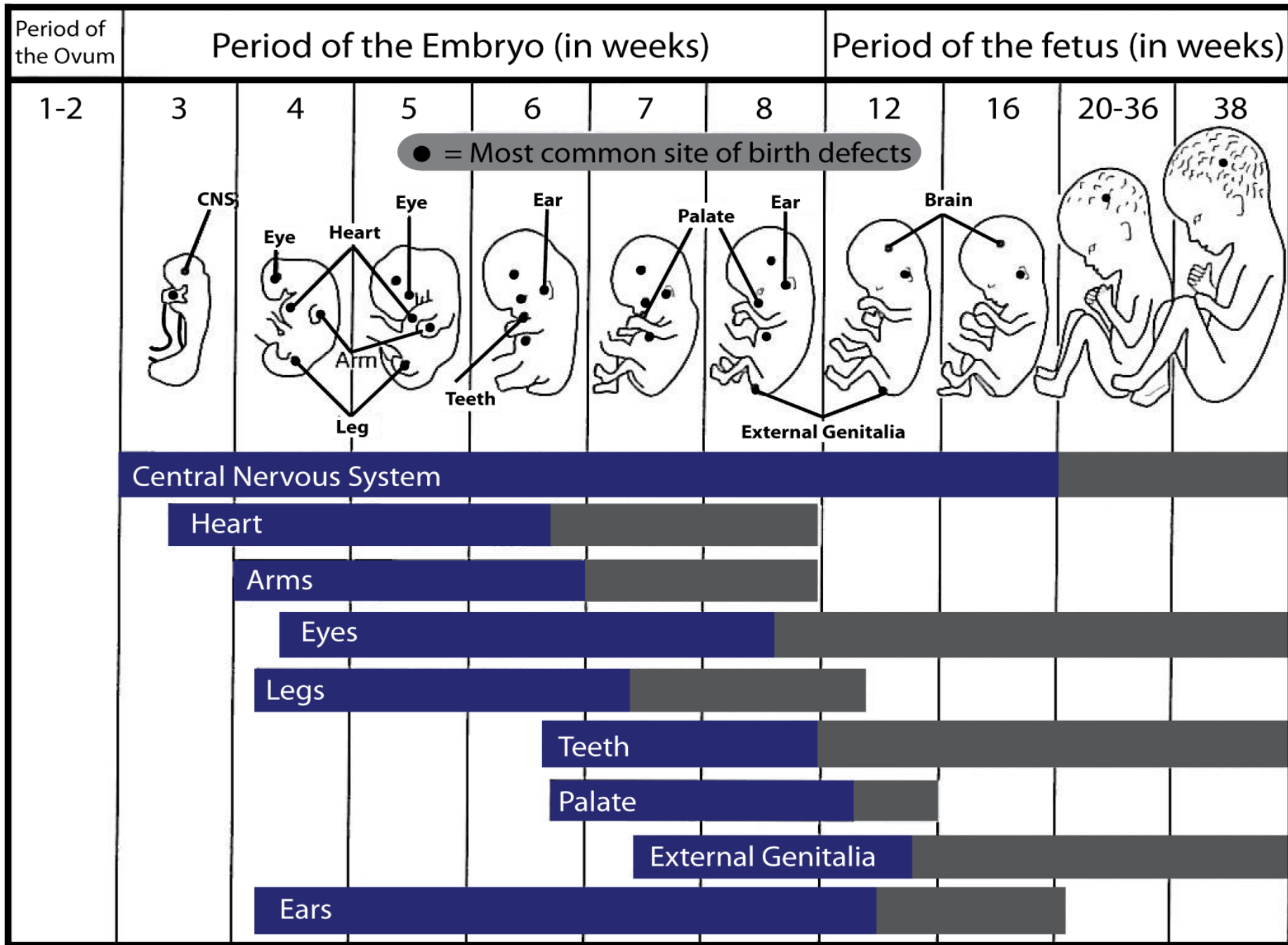
- Alcohol readily passes into fetal blood
  - Alcohol reaches fetal concentrations similar to mom
  - Fetus has limited ability to metabolize alcohol
    - Liver is immature and lacks enzymes to do so; alcohol passed back to mom for metabolism
    - This takes time! Alcohol levels may remain higher for longer periods of time; increases risk of exposure/harm
- No area of the fetal brain is resistant to the effects of alcohol exposure
  - Alcohol can lead to deficits in attention, intellectual function, reading, learning, verbal memory, and executive and psychosocial functioning
  - Preterm delivery
  - Craniofacial abnormalities
  - Impaired motor development
  - Growth deficiencies



Mattson, S.N. et al. 1994;  
Brimacombe, 2009



Brimacombe, 2009



National Organization on Fetal Alcohol Syndrome (NOFAS). (2004; adapted from Moore, 1993).

# Cigarette Smoking

- Fetus is exposed to over 4000 compounds through cigarette smoking
  - Nicotine
    - Believed to decrease the amount of oxygen that is available to the fetus (hypoxia)
      - Low Birth Weight / Growth deficiencies
      - Prematurity, PPRROM
    - Increased risk of Sudden Infant Death Syndrome
    - Potential for placenta abruption/previa
    - Association with oral facial clefts
    - 1.8-2.8x greater risk of stillbirth
      - Even passive exposure linked to a 2.1x greater risk of stillbirth (NIDA, 2020)
    - Childhood problems: developmental delay, asthma, behavioral problems, childhood obesity
  - E-cigarettes (ENDS: electronic nicotine delivery systems)
    - ~4% ave (up to 15%) of pregnant women (~ 9.6% use cigarettes [2019])
      - Many switch to e-cigs once become pregnant because they think is safer; however, up to 50% of women ADD ENDS to current cigarette use
      - 1/3 of these report concurrent depression symptoms

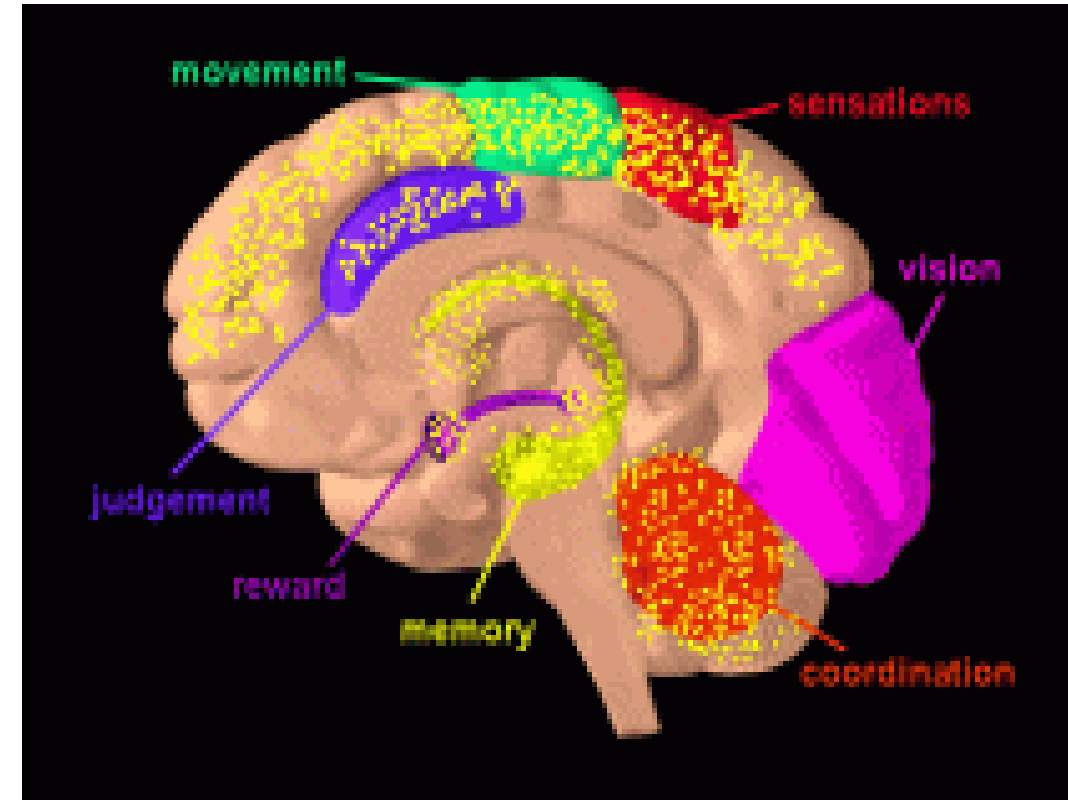
# Marijuana

- No amount of marijuana use considered safe in pregnancy
- Impacts many areas of the brain
- Contains ~500 chemicals, including THC
  - Produces 5x amount of carbon monoxide when smoked
  - Chronic exposure vs episodic exposure may be different as well as potency of the product

- Concentrations of THC have risen over past several years (4% in 1995-16% 2018)

NIDA, 2019

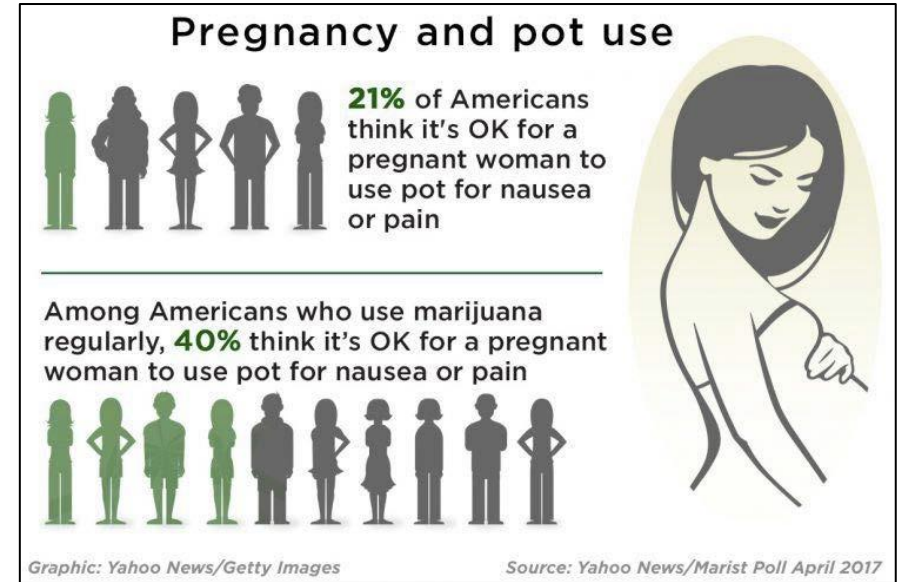
- Expectant mothers might use for
  - Nausea and vomiting of pregnancy
  - Weight gain (increase appetite)
  - Depression/Stress/Anxiety
  - General discomforts of pregnancy
  - Fun
  - Insomnia





# Marijuana

- Use in pregnancy associated with
  - Fetal growth restriction and LBW
  - Increased risk of stillbirth
  - Preterm birth
  - Increased risk of dysfunctional labor
    - Labor that progresses very rapidly
  - Meconium-stained amniotic fluid
- Long term effects
  - Brain development issues affecting memory, learning, behavior (hyperactivity, poor cognitive function, impulsivity)
- Does pass through breast milk
  - THC is stored in fat and slowly released over time, potential exposure even after stopping use



# Stimulants (Cocaine, methamphetamines, ecstasy, prescription stimulants)

- Cocaine:
  - Maternal: HTN, MI, renal failure, CVA, death
  - Rapidly crosses placenta/BBB
  - Causes constriction of vessels and decreases blood flow to the fetus
    - Utero-placental insufficiency
    - Preterm delivery
    - Growth deficiencies
    - Placental abruption, uterine rupture
  - Affects areas of brain that regulate attention, executive functioning:
    - Arousal
    - Memory
    - Impulsivity
  - Possible genitourinary defects, limb reduction, intestinal atresia
  - Found in breastmilk

# Stimulants

- Methamphetamine (Speed, crank, crystal meth)
- The only illegal drug that can be easily made from legally obtained ingredients
  - Smoked, snorted, injected, oral or anal use
    - Smoking/injecting=few minute rush
    - Snorting (in 3-5 mins) or oral (15-20 mins)=euphoria
    - All methods lead to increased wakefulness and energy, decreased appetite
  - Potential maternal complications:
    - Heart arrhythmias/MI
    - HTN
    - Seizures/CVA
    - Hyperthermia
    - Increased sexual activity

# Methamphetamine use in Pregnancy

- In addition to typical poor maternal nutrition, increased blood pressure can lead to restriction of nutrients/oxygen to fetus
  - Growth deficiencies/LBW
  - Preterm labor and delivery
  - Placental abruption
  - Some connection to cleft palate
  - Fetal death
- Infants typically do not exhibit withdrawal symptoms that require pharmacological intervention
  - May see a disorganized state, poor movement, stress, jitteriness, drowsiness
    - Typically resolved in 1 month of birth
- Abnormal behavioral and poorer cognitive function changes observed in children up to 7.5 years of age
  - Increased anxiety, emotional problems, aggressive behaviors, inhibitory control / ADHD symptoms
  - Exposure early to mid-pregnancy: long-lasting effects on brain development
- Found in breastmilk

# Stimulants

- Prescription stimulants (Adderall, Ritalin)
  - When taken as prescribed less noted risk
  - Some increased risk of Pre-E, Preterm birth, placental abruption
  - Found in breastmilk
    - Illicit use contraindicated
    - Prescribed use-mixed
- Ecstasy
  - Limited information
  - Possible increased risk of musculoskeletal malformations (clubbed foot), cardiovascular effects
  - Observed developmental delays for at least 24 months

# The Impact of Opioids

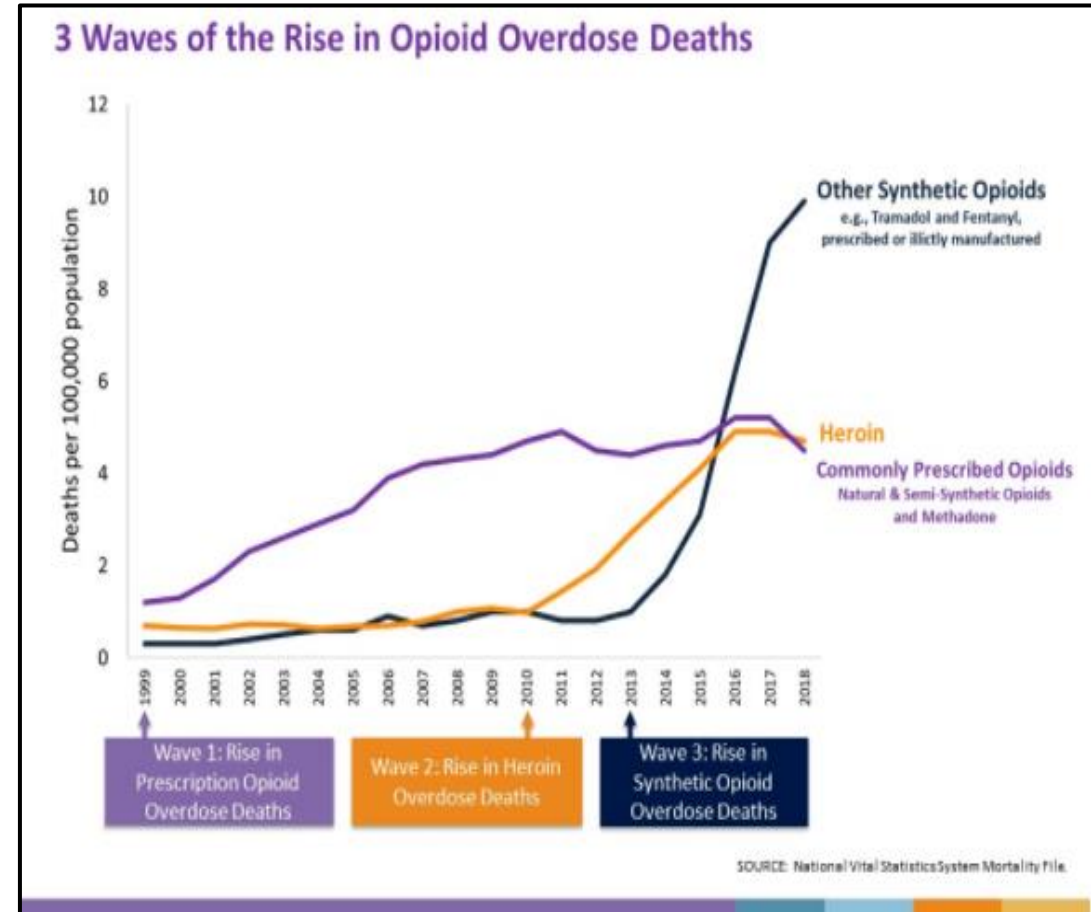
- Opioids are a class of drugs used to reduce the intensity of pain
  - They work in the nervous system of the body or in specific receptors in the brain
- **Natural opioids** (including morphine and codeine) and **semi-synthetic opioids** (drugs like oxycodone, hydrocodone, hydromorphone, and oxymorphone)
- **Methadone**, a synthetic opioid
- **Synthetic opioids** other than methadone (drugs like tramadol and fentanyl)
- **Heroin**, an illicit (illegally made) opioid synthesized from morphine that can be a white or brown powder, or a black sticky substance

# Opioid Use Disorder (OUD)

- Basic definition: Pattern of opioid use characterized by tolerance, craving, inability to control use and continued use despite adverse consequences
  - Chronic
  - Treatable
    - Medications, behavioral therapy, recovery support
- Opioid Use Disorder is currently preferred over other terms with similar definitions, “**opioid abuse or dependence**” or “**opioid addiction**”

# Opioid Use and Overdoses

- Three Waves of Opioid Overdose Deaths in United States
  - 1999-2018: Nearly 450,000 people died from overdoses involving ANY opioid, including prescription and illicit opioids
    - Current: 128 people die every day from opioid overdose
  - 1990's: Increased prescribing of opioids
  - 2010: Rapid increase in heroin overdoses
  - 2013: Synthetic opioids



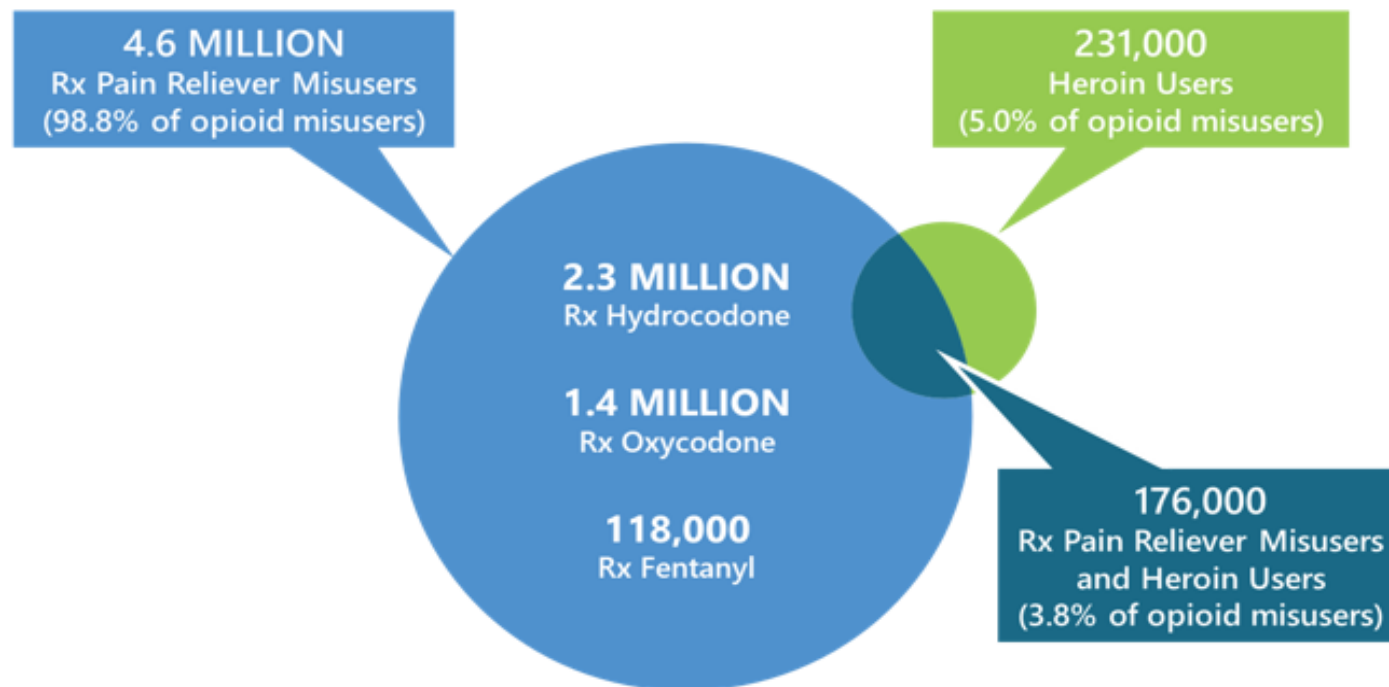


# Women and Opioid Use

## Progress on the Opioid Epidemic: Prescription Pain Reliever Misuse among Women

PAST YEAR, 2019 NSDUH, Women 12+

4.6 MILLION WOMEN WITH OPIOID MISUSE (3.3% OF TOTAL POPULATION)



Rx = prescription.  
Opioid misuse is defined as heroin use or prescription pain reliever misuse.

# Pregnancy and OUD

- 4x higher maternal mortality for women with OUD
  - Particularly affects women of reproductive age in rural communities
    - Often connected to socioeconomic disparities, limited access to healthcare
  - Co-occurring behavioral health disorders also common in women with OUD
    - Especially depression (30%)
      - Heightens risk of Post Partum Depression (40%) in first year postpartum
- 6x higher risk for OB complications (often associated with a lack of prenatal care)
  - 3<sup>rd</sup> trimester bleeding
  - Placental abruption
  - Preterm labor and/or birth
  - Early passage of meconium

# Pregnancy and OUD

- Fetal/Newborn Impact
  - Vasoconstriction reduces blood flow and oxygen
    - Overall growth defects
    - Low birth weight
    - Some connection to hearing loss
  - Decreases brain growth
    - Linked to cognitive impairment and academic underachievement (verbal, arithmetic, reading abilities)
  - Fetal distress
  - No clear visible (external), physical anomalies
  - Complications are primarily related to withdrawal after birth

## Potential Effects of Substance Use Disorders in Pregnancy (Shogren, MPATTC, 2021)

Drug	Concerning Causative Impact	Physical Impact	Neurological Impact	Other Impact	Effects Noted at Birth
<b>Alcohol</b>	Alters growth and development, Changes brain structure, left and right brain halves do not connect properly	Fetal Alcohol Syndrome: Facial abnormalities like the vertical groove between the nose and lip is smooth, thin upper lip, small palpebral fissure (opening between eyelids)	Attention problems, cognitive delays, reading, learning deficits, poor memory, and executive functioning	Preterm labor, Low birth weight, increased risk for miscarriage, stillbirth	Sleep problems, poor sucking patterns, irritability, tremors, may be more difficult to console
<b>Cigarettes</b>	Blood vessels constrict, reduces blood and oxygen flow to baby	Possible link to oral / facial clefts, increased risk childhood respiratory illnesses	Possible impulsivity, attention problems	Preterm labor, low birth weight, smaller size, increased risk for stillbirth, SIDS	Poorer self-regulation, may be more difficult to console
<b>Marijuana</b>	Exposure to carbon monoxide, reduces blood and oxygen flow to baby	Low birth weight, fetal growth restriction 2-3x increased risk of stillbirth	Possible impulsivity, attention problems, cognition delays, memory changes	Preterm or very rapid labor, meconium present in amniotic fluid	Increased startles, tremors, poor feeding, poor muscle tone, sleep problems
<b>Cocaine</b>	Reduces blood and oxygen flow to baby	May change brain structure, possible limb reduction, genitourinary defects, intestinal atresia	Subtle attention deficits, memory problems, impulsivity, learning problems	Preterm labor, small size, placental abruption, miscarriage	Tremors, high-pitched cry, irritability, excessive sucking
<b>Meth-amphetamines</b>	Reduces blood and oxygen flow to baby	Possible decreased head circumference and length, heart and brain abnormalities, association with cleft palate	Increased anxiety, emotional problems, aggressive behaviors, inhibitory control, ADHD-like symptoms up to 7.5 years of age	Preterm labor, low birth weight and small size, placenta detaches before birth, fetal death	Disorganized state, NAS may present, less often needs pharmacologic intervention
<b>Opioids</b>	Reduces blood and oxygen flow to baby	Overall growth deficits, low birth weight, hearing loss, decreased brain growth	Cognitive impairment, academic under-achievement in verbal, arithmetic, reading ability	Preterm labor, placental abruption, low birth weight, meconium in amniotic fluid, LBW	NOWS often needing pharmacologic management



# Screening for SUDs During the Perinatal Period

# What is SBIRT?

(Osborne & Benner, 2012; SAMHSA, 2012)

- Screening
  - Universal, quick assessment
  - Occurs in a variety of settings (e.g., public health, primary care settings, community social services)
- Brief Intervention
  - Brief motivation and awareness-raising
  - Short conversations
- Referral to Treatment
  - Further evaluation for specialty care

# SBIRT During the Perinatal Period

- Associated outcomes of SBIRT:
  - Decreases number of infants exposed to maternal illicit drug use
  - Decreases alcohol use during pregnancy
  - Decreased preterm labor rates
  - Decreased neonatal intensive care admissions
- The SBIRT technique can also be used with Perinatal Mood and Anxiety Disorder screening!

# Perinatal Screening

- American Academy of Pediatrics, American College of Obstetricians/Gynecologists, and American Society for Addiction Medicine: Recommend screening all pregnant women for substance use by using:
  - Validated screening questionnaire
    - 4P's, TACE, T-WEAK, AUDIT-C, AUDIT
  - Intervention technique to counsel abstinence and
  - Refer to treatment if needed and desired
- Routine lab testing of biologic samples is not required (ACOG)
  - Validated screening questionnaires are linked with education and intervention strategies, and are superior to urine drug screening (UDS) to detect use
  - UDS requires informed consent; should be ordered as a preliminary test with a reflex confirmatory test
  - UDSs to triage breastfeeding has limitations and potential to stigmatize and drive women away from medical care
  - Substances stay in maternal urine and breastmilk for different lengths of time, assays vary, medications can cross-react, use of reflex confirmatory tests may be inconsistent, false-positives and -negatives can occur
  - A negative UDS test does not preclude use, nor does a positive test guarantee that the breastmilk contains harmful levels of a drug. (Bartholomew & Lee, 2019)



# Screening Reminders

- What constitutes a Standard Drink?
- What is Moderate vs At-risk alcohol use? Binge drinking?
- Include screening for illicit drug use & misuse of prescribed drugs
- Don't forget tobacco screening!



# Brief Intervention

- Brief, awareness raising conversation
  - May only need 5-10 minutes!
- How to start the conversation
  - Go with the **FLO!**
    - The FLO (Feedback, Listen, Options) mnemonic was developed to encompass the three major elements of a brief motivational intervention

**OR**

- It's OK to **CUS!**
  - Concern
  - Uncomfortable
  - Safety

# FLO: Feedback

- Ask Permission to give **FEEDBACK**:
  - “Is it ok if we talk about your answers?”
- Give Information:
  - “Because substance use can be harmful to both mothers and babies, we screen ALL women for substance use during pregnancy and postpartum. It is important to be aware of the negative impact of (alcohol, marijuana, etc.) on you and your baby”
  - “Based on your answers, it seems that you have been (drinking alcohol daily or using opioids in a different way than prescribed)”
  - “We know that opioid use during pregnancy increases your risk for complications like having a baby that is very small”
- Elicit Reaction:
  - “What are your thoughts about that?”

# FLO: Listen and Provide Options

- **LISTEN**

- Answer follow up questions
- Assist with decision making

- **OPTIONS** (monitor, counseling, medications)

- “What are some options/steps that will work for you to cut down your use?”
- “What do you think you can do to stay healthy and safe?”
- “Would you like to discuss treatment options?”
- “Tell me about a time when you overcame challenges in the past.”

# It's OK to CUS!

- I am **Concerned** about..... “ the number of drinks you are having each day” or “the number of hydrocodone pills you are taking each day”
- I am **Uncomfortable** with..... “continued use of heroin during pregnancy because...”
- I believe (whose) **Safety** is at risk .....“if your current symptoms are not acknowledged or treated” or “if you continue to use marijuana during your pregnancy” or “for withdrawal symptoms at the time of birth”

# Assess Readiness to Change



The Readiness Ruler is a helpful tool to support the use of Motivational Interviewing

# Referral to Treatment (or for Further Evaluation)

- May be referred to obstetric provider or primary care provider
- May be referred for additional evaluation with a behavioral health provider
- “Meets the Clients Where They Are”
  - This is hard but pregnant people have a choice in their care
  - Create non-biased awareness of perinatal SUDs and its impact on mothers, infants, and families
  - Explain that providers can help determine next steps: monitor, start counseling, start medications, maybe all three!
- Remember...it is not your role to “fix her”



# Perinatal Treatment for OUD



# OUD Treatment

- Medication Assisted treatment (MAT): Use of medications, in combination with counseling and behavioral therapies, to provide the whole-patient approach to the treatment of SUDs
  - Counseling can encourage and motivate women to continue with treatment, enhance coping skills and reduce risk of relapse
  - Connection with peer support specialists
- Medications to Treat Opioid Use disorder (MOUD) are the gold standard of care for treatment: **This should NOT be altered by pregnancy!**
  - MOUD can be started any time during pregnancy, postpartum
  - Offered by waivered providers
    - May be obstetric provider or primary care provider
  - MOUD is NOT associated with an increased risk of birth defects, structural abnormalities (SAMHSA, 2018)

# Medications to Treat Opioid Use Disorder (MOUD)

- **Methadone: Opioid Full Agonist**
- **Buprenorphine (Subutex): Opioid Partial Agonist**
- **Buprenorphine and Naloxone (Suboxone): Opioid Partial Agonist and Opiate Antagonist**

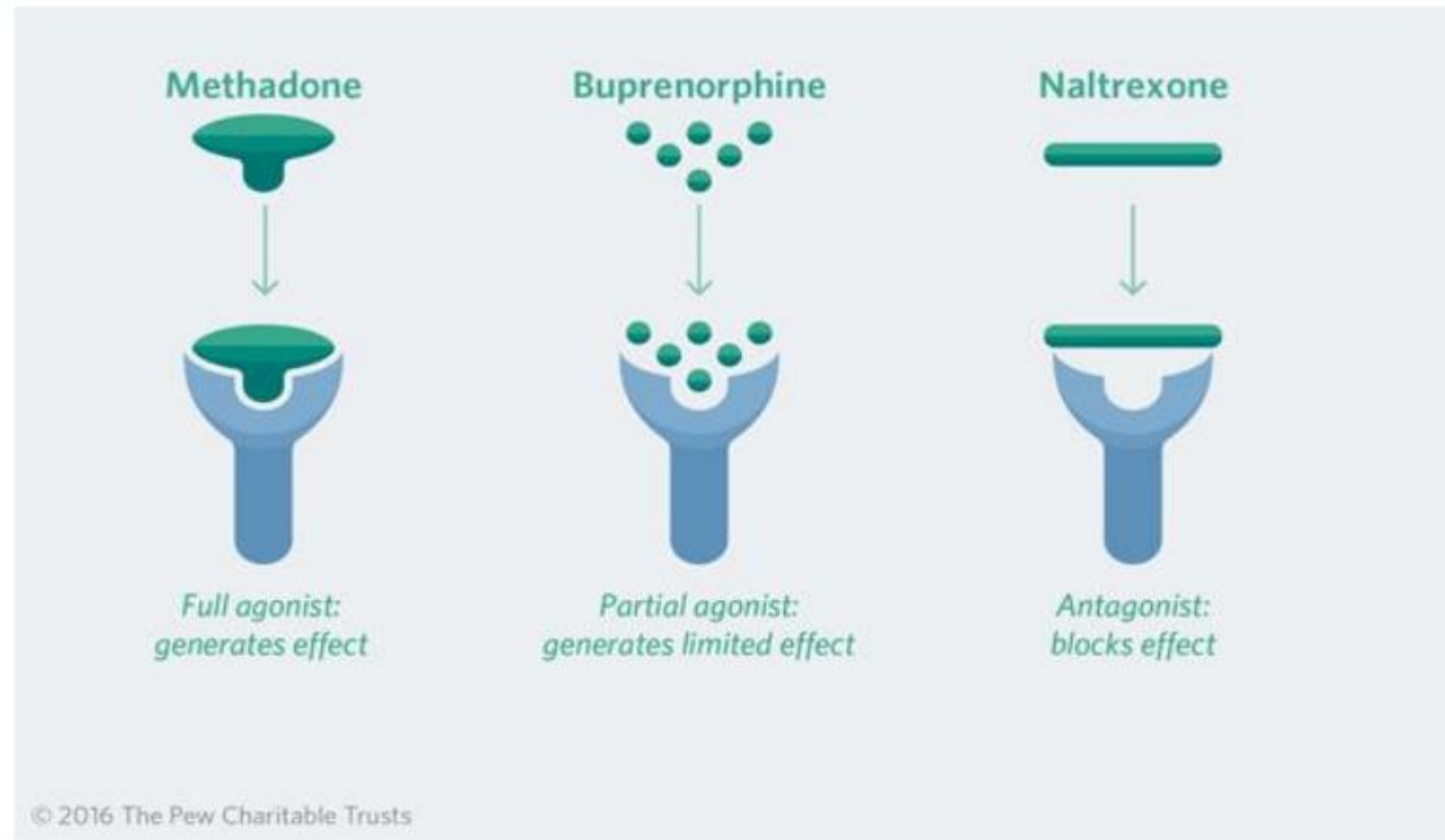
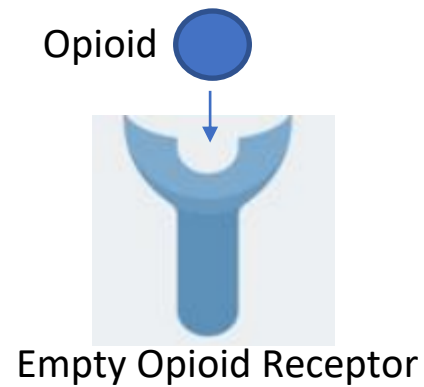


What is an Agonist?

What is a Partial Agonist?

What is an Antagonist?

# How medications for OUD work



# MOUD

- Methadone

- Dispensed in single, daily doses through registered opioid treatment programs
  - May be an access barrier, especially in rural communities
- Tablet or liquid
- Sedation is possible

- Buprenorphine

- Approved for treatment in an office-based setting
- Linked to fewer drug interactions with other medications
- Tablet or film
  - Under tongue, inside of cheek
- Suboxone (buprenorphine and naloxone): reduces diversion as naloxone causes severe withdrawal when injected; not orally active
- Sedation is possible

# OUD Treatment & Harm Reduction

- **Goals:**

- Manage / prevent withdrawal symptoms
  - Reduce cravings
- Prevent overdose
- Reduce relapse risk
- Provide opioid blockade (prevent euphoria from illicit use)
- Increase adherence to prenatal care
- Lower risk of OB complications
  - Improve maternal nutrition
  - Improve infant birth weight (SAMHSA, 2018)

- **Impact:**

- Improves survival
- Increases retention in treatment
- Decreases illicit opiate use
- Decreases hepatitis and HIV rates
- Decreases criminal activities
- Increases employment
- Improves birth outcomes

# OUD Treatment

- Financial barriers do exist
  - i.e. postpartum coverage of services through Medicaid typically ends by 8 weeks postpartum
- Only 23% of facilities offer specialized programs for pregnant and postpartum women (Proulx, 2020)
  - Estimated that only 37% of pregnant women with SUD receive treatment and 25% receive OUD specific treatment
- **Pregnant persons with OUD should NOT be encouraged to withdraw from MOUD during pregnancy or shortly after delivery!**
  - Withdrawal associated with high rates of recurrence of use (59-90%) and poorer outcomes, including accidental overdose (loss of tolerance)

# One Last Thing...Naloxone (Trade names: Narcan or Evzio)



- Medication designed to rapidly reverse opioid overdose
  - Opioid antagonist—binds to opioid receptors and can reverse and block the effects of other opioids
  - Can very quickly restore normal respiration to a person whose breathing has slowed or stopped as a result of overdosing with heroin or prescription opioid pain medications
  - Injectable, Auto-injector or Nasal Spray
- North Dakota: Pharmacists and health care providers can prescribe
  - Most private health insurance, Medicare, Medicaid cover
  - North Dakota law allows anyone at risk for having or witnessing an opioid overdose to obtain a prescription (North Dakota Century code 23-01-42)
  - According to North Dakota law, any individual (family, friends, or community member) is protected from civil or criminal liability for giving naloxone for a suspected opioid overdose (North Dakota Century Code 23-01-42)
  - Individual state guidelines may vary

# MOUD During Labor and Delivery

- Women will experience pain and discomfort during labor and delivery
  - Additional pain management may still be needed!
    - Vaginal deliveries and C-sections
  - History of long-term opioid use increases risk for hyperalgesia
    - May require higher doses of opioid agonist medications to obtain relief
      - Some studies note even 47% more
  - Some pain medication will be contraindicated for concurrent use with MOUD as they may precipitate acute opioid withdrawal
  - Epidural may be a good option
  - Encourage a discussion about pain management with OB provider BEFORE delivery
    - Daily MOUD doses should be maintained during labor and postpartum hospital stay
    - May need multiple forms of analgesia to provide effective pain relief
    - Consider Doula support!



# MOUD During the Postpartum Period

- Every effort should be made to avoid discontinuation of MOUD immediately postpartum
  - MOUD dosage may need adjusting postpartum
  - The year after delivery is an especially vulnerable time for women with OUD
    - Highest risk for return to use is 7-12 months postpartum
  - If there is a desire to breastfeed this is often possible!

# Breastfeeding and Substance Use Disorders

- Rates of breastfeeding are lower in women with SUDs
- Women with SUDs may have
  - Fewer role models
  - Lower self-esteem
  - Assume that successful breastfeeding is not achievable
  - Breastfeeding may trigger flashbacks (hx of abuse)
  - BF may feel overwhelming in addition to SUD treatment
- Recommendation to breastfeed should be based on evaluation of the person's desire for SUD treatment and be free of provider bias

# Breastfeeding and Substance Use Disorders

- All substances have potential to pass into breastmilk
  - Breastfeeding is not contraindicated with only mild/moderate alcohol use or with smoking (tobacco/nicotine)
    - Alcohol: Interferes with milk ejection reflex, may reduce production, should wait 2 hours/drink; not advised with frequent use
    - Tobacco: Half-life of nicotine ~ 2-4 hours; avoid smoke exposure to infant
  - Breastfeeding IS NOT ADVISED while using marijuana, cocaine, methamphetamines, misuse of opioids
- Breastfeeding may be encouraged **IF**
  - Mom is stable on MOUD
  - Is **NOT** using illicit drugs
    - Methamphetamine half-life can be up to 100 hours!
  - Has no other contraindications
  - Is **NOT** HIV+
- Must stop breastfeeding if there is return to illicit use/misuse

# MOUD while Breastfeeding

- Breastfeeding on MOUD may
  - Decrease severity of withdrawal syndrome (NOWS/NAS) symptoms
  - Lessen need for pharmacotherapy for infant
    - 89% less morphine needed to treat NAS
    - 43% shorter hospital stay
    - 58% shorter duration of NOWS treatment (Saia et al, 2016; SAMHSA, 2018)
  - **Enhances maternal confidence and encourages active maternal participation in the management of the infant**
    - May help reinforce absence of use and healthier lifestyle choices

# MOUD While Breastfeeding

- Transfer of MOUD into breastmilk is minimal and poses little risk to infants (SAMHSA, 2018)
  - Buprenorphine
    - Compared to mother's weight-adjusted dose, relative infant dose (RID) is about 1.4%
    - Infant should be monitored for signs of
      - Increased sleepiness
      - Difficulty breastfeeding
      - Breathing difficulties
      - Limpness
      - Observe for withdrawal signs if breastfeeding is stopped abruptly (LactMed, 2019)
  - Buprenorphine/Naloxone
    - Similar to buprenorphine alone, naloxone seems even less likely to transfer via breast milk

# MOUD While Breastfeeding

- Methadone
  - Compared to mother's weight-adjusted dose, relative infant dose (RID) is about 1-6%
  - Infant should be monitored for signs of
    - Increased sleepiness
    - Difficulty breastfeeding
    - Breathing difficulties, respiratory depression
    - Limpness
    - Observe for withdrawal signs if breastfeeding is stopped abruptly (LactMed, 2019)

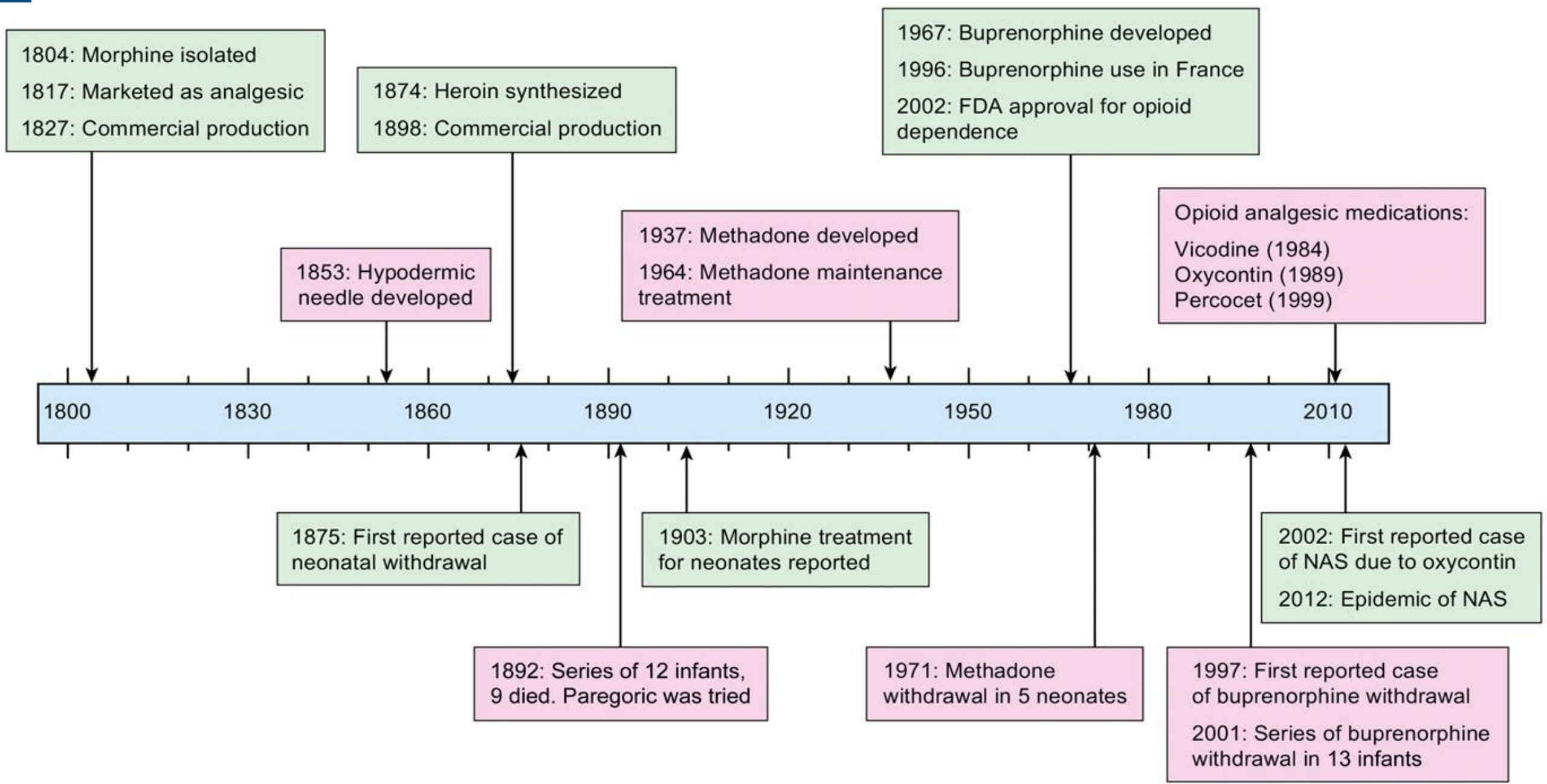
# Neonatal Withdrawal Syndromes

- **Neonatal Abstinence Syndrome (NAS)** (Klaman et al, 2017)
  - Broad non-specific term assigned to withdrawal presentation in newborn
    - Expected and treatable condition that affects about 45-94% of infants exposed in utero (ACOG, 2017;Forray, 2016)
    - Rarely fatal (Kocherlakota, 2014)
  - One infant affected by NAS is born every 15 minutes in US in 2014 (Ko, 2016; CDC, 2019)
  - NAS is NOT limited to opioids
    - Infants are typically exposed to multiple substances (Klaman, 2017)
    - NAS may be secondary to morphine, heroin, methadone, buprenorphine, prescription opioids, antidepressants, anxiolytics (Kocherlakota, 2014)
  - No demonstrated predictable correlation between duration, timing and total cumulative dose of prescription opioids on incidence or severity of NAS (Kramlich, et al., 2020)

# Neonatal Withdrawal Syndromes

- **Neonatal Opioid Withdrawal Syndrome (NOWS)**
  - Term used since 2016
  - Specific to opioids
  - Expected and treatable condition seen in 30-80% of infants born to women taking MOUD
    - When related to MOUD as compared to illicit opioid use, typically milder and more readily managed
- A notable and sustained increase of NAS/NOWS exists among rural residents
  - Lack of local treatment options and resources
  - Stigma
  - Often included the added financial burden of a costly transfer of rural infants to another hospital following delivery; which separates mothers and infants potentially interferes with bonding and attachment
- We have definitely become more aware of Neonatal Withdrawal Syndromes in recent years, BUT they are not new!





Time line of NAS. FDA, Food and Drug Administration (Kocherlakota, 2014).

# Newborn Withdrawal Symptoms

- Identifiable signs and symptoms typically occur 48-72 hours post-birth

**TABLE 1** Onset, Duration, and Frequency of NAS Caused by Various Substances

Drug	Onset, h	Frequency, %	Duration, d
<b>Opioids</b>			
Heroin	24–48	40–80 <sup>27</sup>	8–10
Methadone	48–72	13–94 <sup>37</sup>	Up to 30 or more
Buprenorphine	36–60	22–67 <sup>46,48</sup>	Up to 28 or more
Prescription opioid medications	36–72	5–20 <sup>56,60</sup>	10–30
<b>Nonopioids</b>			
SSRIs	24–48	20–30 <sup>64</sup>	2–6
TCAs	24–48	20–50 <sup>64</sup>	2–6
Methamphetamines	24	2–49 <sup>101</sup>	7–10
Inhalants	24–48	48 <sup>70</sup>	2–7

NAS symptoms present as combination of neurologic, GI, musculoskeletal disturbances that are highly variable

## NAS SYMPTOMS

Yawning

Sneezing

Irritability

Excessive cry/High-pitched cry

Poor/erratic sleep

Uncoordinated sucking reflexes > poor feeding

Fever

Rapid breathing

Increased heart rate

Seizures

Sweating/Temperature instability

Startle Tremors

Diarrhea

Poor feeding / Slow weight gain

Vomiting

Blotchy skin coloring

# Newborn Assessment of Withdrawal

- Non-pharmacologic approach is **INITIAL** treatment option for NAS
  - Environmental measures
    - Quiet, low lights
    - Avoidance of waking sleeping infants
    - Free from external excitatory stimulus
  - Gentle handling
    - Kangaroo care
    - Careful swaddling
    - Individualized developmental care
    - Non-nutritive suckling
    - Rooming-in if stable
    - Small, frequent feedings with high calorie formula
    - **ACTIVE MATERNAL PARTICIPATION IS THE BEST NONPHARMACOLOGIC CARE!**
- Pharmacologic treatment is required if no improvement or infant develops severe withdrawal

# Mothers Often Feel Unprepared for NAS

- More than 50% of women describe gaps in knowledge and understanding of impact of substance use on their infants (Kramlich, 2020)
  - Many express importance of respect and understanding from health care providers
    - Accurate information needed during preconception, pregnancy, and postpartum
    - Education can help decrease self-stigma or internal stigma
    - “A single interaction with a healthcare professional can be empowering...or one that negatively impacts all subsequent interactions...” (Locke, 2020)
  - Consider the “information impact” on rural families when babies are transferred out of community for NAS care OR if mom needs to be transferred for a high-risk pregnancy/delivery
    - How will parent(s) be included in care of infant from a distance?
    - Are parent(s) worried about bonding?
    - Are social service supports available to assist families?
- Reminder: **Education Empowers Mothers and Families!**

# Resources

- ACOG Committee Opinion 722: Marijuana use during pregnancy and lactation. (2017). <https://www.acog.org/-/media/project/acog/acogorg/clinical/files/committee-opinion/articles/2017/10/marijuana-use-during-pregnancy-and-lactation.pdf>
- American Academy of Pediatrics. (2018). Marijuana use during pregnancy and breastfeeding: Implications for neonatal and childhood outcomes. <https://pediatrics.aappublications.org/content/pediatrics/142/3/e20181889.full.pdf>
- Bartholomew, M., & Lee. (2019). Substance use in the breastfeeding woman, *Contemporary OB/GYN*, 64(9), 22-24

# Resources

- Smid, M., Metz, T., Gordon, A. (2019). Stimulant use in pregnancy: An under-recognized epidemic among pregnant women. *Clinical Obstetrics and Gynecology*, 62(1) 168-184.
- SAMHSA. (2018). Clinical guidance for treating pregnant and parenting women with opioid use disorder and their infants. <https://store.samhsa.gov/product/Clinical-Guidance-for-Treating-Pregnant-and-Parenting-Women-With-Opioid-Use-Disorder-and-Their-Infants/SMA18-5054>
- SAMHSA. (2019). Preventing the use of marijuana: Focus on women and pregnancy. <https://store.samhsa.gov/product/preventing-use-marijuana-focus-women-and-pregnancy>