

## Teratogens, NOWS, and FAS

### *Nursing 201: Nursing Care of Special Populations*

- Teratogens:  
**Defined as any drugs, viruses, infections, or other exposures that can cause embryonic/fetal development abnormality**
  
- Degree of defect varies based on:
  - 
  - 
  -
  
- <8 weeks gestation
  - 
  
  -
  
- >13 weeks gestation

#### Types of Teratogens: Drugs and Chemicals

Drug/ Chemical	Risk For:
Alcohol	R/F FAS, low birth weight, microcephaly, mental retardation, midfacial hypoplasia, cardiac defects
ACE Inhibitors	IUGR, renal tubular dysplasia → ARF, fetal or neonatal death
Tegretrol	Neural tube defects, cleft lip/palate, IUGR
Cocaine	Heart, limb, face, GI, & GU defects, cerebral infarctions, placental abnormalities
Coumadin	Spontaneous abortion, fetal demise, hemorrhage, CNS abnormalities

Types of Teratogens: Infections and Viruses

Infection/ Virus	Risk For:
Cytomegalovirus	hydrocephaly, microcephaly, cerebral calcification, mental retardation, hearing loss
Herpes Varicella (Chicken Pox)	Hypoplasia of hands and feet, blindness, cataracts, MR
Rubella	Heart defects, deafness, blindness, MR, fetal demise
Syphilis	Skin, bone, and teeth defects, fetal demise
Toxoplasmosis	-Parasite found in cat feces and uncooked or rare beef and lamb -Avoid emptying liter boxes when pregnant -Fetal demise, blindness MR

FDA Medication Classification System

Category A	Human studies fail to show risk
Category B	Animal studies fail to show risk
Category C	Animal studies show adverse effects
Category D	Evidence of human fetal risk
Category X	Studies show fetal abnormalities

Types of Teratogens: Substances

- Caffeine\_
  - o -
- Smoking
  - o -
  - o -
- Etoh
- Illicit Drugs
  - o Cocaine, marijuana, narcotics, methamphetamines
    - -
    - 
    - -
- Methadone, Subutex (\$\$\$), & Buprenorphine works as opiate substitute
  - o -
  - o -
  - o

Pregnant women who use illicit drugs, etoh, and tobacco are at higher risk for:

- o No or inadequate prenatal care
- o Inadequate prenatal weight gain
- o STI's
- o OB complications
  - 
  -
- o Severe mood swings

With Delivery, Anticipate:

Neonatal Opioid Withdrawal Syndrome (NOWS)- formally NAS

- Withdrawal!
- Results of intrauterine exposure to various substances
  - o I.E.
  
- Extent of withdrawal depends on:
  - o
  - o
  - o
  
- Estimated Withdrawal Times:
  - o Alcohol: 3-12 hours
  - o Narcotics: 12-72 hours
  - o Barbiturates: 1-14 days
  
- Signs and Symptoms of Withdrawal:
  - o Apnea
  - o Behavior irregularities
  - o Diarrhea
  - o Difficulty swallowing
  - o Excessive crying
  - o Excessive sucking
  - o Hyperreflexia
  - o Hypertonia
  - o Irritability/ restlessness
  - o Lacrimation
  - o Nasal congestion
  - o Excoriated skin
  - o Fever
  - o High-pitched cry
  - o Yawning Tremors
  - o Vomiting
  - o Weight loss/ failure to gain
  - o Poor feeding
  - o Seizures
  - o Skin mottling
  - o Sweating
  - o Tachypnea

- **Assessment:**
  - The Neonatal Abstinence Scoring System (Finnegan)
  - Eat, Sleep, Console Model
    - Focuses on whether the baby is eating normally, can sleep, and can be consoled within 10 minutes of crying
    - Supports rooming in and skin-to-skin
  - Treatment with opioid (morphine) followed by phenobarbital or clonidine
  
- **NOWS and Narcan**
  - Cautious with Narcan for NB respiratory depression! Can precipitate immediate withdrawal and lead to convulsions
  - Beebe's policy reports no Narcan use in resuscitation

***See Beebe's Policy: Neonatal Abstinence Syndrome- Care of the Substance Exposed Infant***  
**Beebe Policy Recommendations:**

- Finnegan Neonatal Abstinence Screening Tool (FNAST) used
  - Only effective tool for opioid withdrawal
- Scoring:
  - Initiated at 2 hours of life
  - Q 4hours throughout hospital stay
  - Adjusted to accommodate sleep/wake cycles
    - Scoring best accomplished when the infant is calm, quiet, ideally after feeding but before sleeping
    - Reflective of infant's activity for entire 4 hour period
- Length of Stay
  - Minimum for opioid-exposed (short-acting) 72 hours, (long-acting, i.e. Methadone) 5 days
  - Not discharged if:
    - scores escalating
    - Not completely weaned from oral morphine treatment
- Environmental
  - Lights dimmed
  - Gradual transition
- Minimize Stimulation
  - Limit visitors
  - Standard care is rooming in with mother
- Infant Comfort
  - Skin to skin with mother
  - Swaddle in sleep sack
  - Contain extremities when unwrapping infant
  - Pacifier

- Changed daily
- Mechanical swing with direct observation from RN
- Breastfeeding will be encouraged unless known contraindications
- Evaluated by Lactation Consultant
- Contraindications:
  - Positive urine tox on admission
  - Substance abuse in 30 days prior to delivery
  - No prenatal care
  - Refusal to engage in substance abuse treatment
  - Behaviors indicative of active drug use
  - Supplement with formula as needed
- High Risk for skin excoriation and diaper dermatitis
  - Barrier ointment
  - Transparent dressing on bony prominences if needed
  - Change diaper frequently
  - Zinc barrier to open areas
  - Topical antifungal to yeast rash with order

### **EBP Updates:**

- \* Substance Use Disorder instead of addiction
- \* Screening (4 P's): Parents, Partner, Past, Present
- \* Aiden's Law: Report substance exposure of infant to DFS → Risk Assessment
- \* Nubain blocks Methadone
- \* Zofran potentiates action of Methadone (increases high)
- \* Medication Assisted Treatment:
  - \* North Carolina
  - \* Admission with supervision of withdrawal
  - \* Not a lot of data
- \* Narcotic withdrawal is not as unsafe compared to etoh
  - \* No real research on adverse fetus affects
- \* Increased risk for PP Depression
- \* Encourage "rooming in"
  - \* Decrease neglect abuse, increase bonding
- \* Initial NOWS tx for infant: tactile stimulation, PPV

### **Fetal Alcohol Syndrome (FAS):**

- BAC Level: alcohol quickly passes through placenta and fetus is much slower to process the alcohol

Signs of FAS:

- Distinctive facial characteristics
  - 
  - 
  -
- Heart defects
- Joint, limb, finger abnormalities
- Delayed physical growth (in utero and post-birth)
- Vision problems
- Hearing problems
- MR
- Behavior disturbances (short attention span, hyperactivity, poor impulse control)

#### Medical Management

- Review maternal hx
- Infant toxicology screen (urine or meconium)
- NAS assessment tool initiated within 2 hours and assessed Q 4 hours
  - Determines need for treatment with medication:
  - Opioids=
  - Alcohol=
- Frequent, small, high caloric feedings
- Breastfeeding:

- Assess weight, I and O's
- Comfort Measures:

- Care for Mother:

- Pregnant Nurses:

- COVID-19: