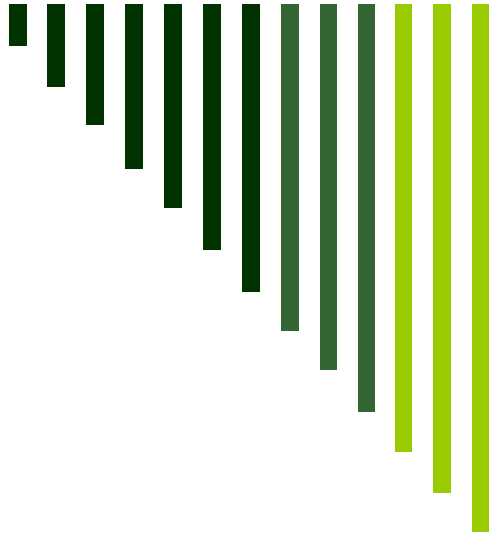


# Neonatal **A**bstinence **S**yndrome

## Drugs and Pregnancy

Deborah L. Acosta RN

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# Objectives

- **Identify effects of commonly abused drugs during pregnancy**
  - **Identify laboratory methodologies to substantiate *in utero* substance exposure**
  - **Differentiate between addiction, tolerance and dependence**
-

# What is substance abuse?

- Self-administration of various drugs that deviate from medically or socially accepted use, which if prolonged, can lead to the development of physical and psychological dependence



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# Substance abuse represents a **PREVENTABLE** cause of pregnancy complications

- Preterm Birth
- Birth Defects





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# Definitions

- **Addiction:** A pattern of compulsive drug use characterized by a continued craving for the drug and the need to use it for effects other than pain.
  - **Tolerance:** A process characterized by decreasing effects of a drug at its previous dose or the need for a higher dose of drug to maintain an effect.
  - **Dependence:** A physiologic state characterized by the development of withdrawal symptoms following abrupt discontinuation of patients treated with opiates for 4-5 days
-

# Understanding Addiction

- Key factors
  - Genetic
  - Psychosocial
  - Environmental
- Incidence
  - All cultures
  - All ethnicity
  - All socioeconomic backgrounds
  - Also use nicotine and alcohol (polydrug use)





# DRUG TYPES AND THEIR EFFECTS

CATEGORY NAME	SPECIFIC DRUGS
Stimulants	Cocaine, amphetamines, dextroamphetamines, methamphetamines (Ecstasy, crystal meth), LSD, PCP
Hallucinogens	Marijuana, peyote/mescaline
Sedatives/ Hypnotics	Barbiturates, benzodiazepines (Rohypnol, Valium, Xanax)
Inhalants	Glue, nail polish remover, gasoline
Narcotics and Opioids	Heroin, methadone, morphine, opium, oxycodone, hydromorphone
Depressants	Alcohol



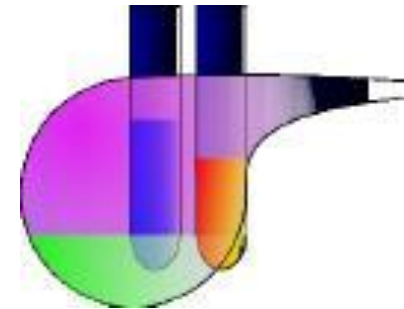
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# Drug Effects on the Body

- **Stimulants:** Increase the activity of the heart and provide a temporary sense of well-being.
  - **Hallucinogens:** Excite the brain with resulting mood changes and even short-term insanity.
  - **Sedatives/ Hypnotics:** Act on the central nervous system to produce both euphoria and drowsiness.
  - **Inhalants:** Alter the mind to give a brief feeling of euphoria
  - **Narcotics and Opiates:** Reduces the sensation of pain and gives a feeling of well-being.
-



# Screening Tools



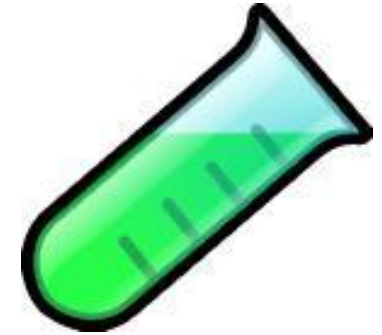
## □ Urine

- Most widely used
  - Inexpensive, rapid, readily available
  - Detects: ethanol, cannabis, cocaine, amphetamines, barbiturates, opiates, PCP
  - Detects only “recent” use
  - 30-60% false negatives
  - Poor sensitivity to detect low quantities
  - Cannot measure quantity or frequency
-

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# Screening Tools



## □ Meconium

- Higher sensitivity (detects 3 times more users than urine)
  - Limited availability; Expensive
  - Detects: cocaine, opiates, cannabis, PCP, amphetamines, cocaethylene
  - Detects opiates after the 1<sup>st</sup> trimester
  - Must be collected in first 2 days of life
-

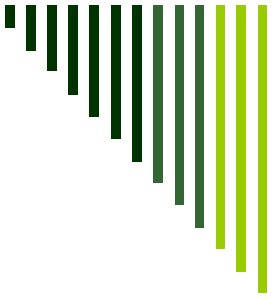


# Screening Tools



## □ Hair and Nail Analysis

- Detects long-term drug use
  - Can stay positive for up to 3 months after birth
  - 3 times more sensitive than urine screen
  - Detects: cocaine, cannabis, opioids
  - Curly black hair has higher affinity for binding drug metabolites than brown hair
-



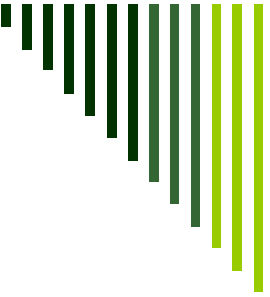
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# Management of Drug Exposed Infants

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Neonates are born  
*dependent* or  
*physically tolerant*,  
not addicted



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# Neonatal Abstinence Syndrome

- NAS refers to a constellation of typical signs and symptoms of withdrawal that occurs in infants that have been exposed to and have developed dependence to certain illicit drugs or prescription medications during fetal life.
  - Characteristic symptoms include CNS irritability, GI dysfunction, and autonomic abnormalities.
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# Effects of Other Drug Exposure

- Exposure to cocaine, antidepressants, and/or amphetamines may result in symptoms that resemble NAS
  - These symptoms appear to be the result of toxic effects to the CNS rather than symptoms of withdrawal
  - Management should be symptomatic and individualized
  - Supportive non-pharmacologic treatment should be the rule
-

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# Common Symptoms of Drug Exposure

- There are characteristics and symptoms that most drug exposed babies will have in common.



# Common Symptoms of Drug Exposure

- The frequency and timing of symptoms, however, will depend on a number of factors:
  - the drug to which the baby was exposed
  - how each individual baby metabolizes the drug
  - the baby's own temperament and tolerance



# Common Symptoms of Drug Exposure

- It needs to be stated that no two babies will react exactly alike
- It should be the responsibility of the caregiver to carefully monitor and “read” their infant and his or her “signs”





# Hypersensitivity to Stimuli

- Hypersensitivity is one of the most common traits
  - Infants often have little tolerance for stimuli
    - Light, bright colors, touch, or loud noises
  - Even swallowing or the closeness of another person can make a baby frantic
  - These babies need protection from overstimulation that can increase their distress
  - Should not, however, be left untouched in a dark room.
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# Gastrointestinal Problems

- Watery stools, explosive diarrhea, excoriated buttocks, gas or constipation need proper handling to prevent more serious health concerns.
  - Distress or over-stimulation can increase GI distress, which can then increase the baby's distress, leading to a cycle, which can severely impact the health of the baby.
  - Severe diarrhea can result in serious dehydration, electrolyte disturbances and tearing of the fragile lining of the intestine
  - Reducing stimuli can stop this cycle.
-

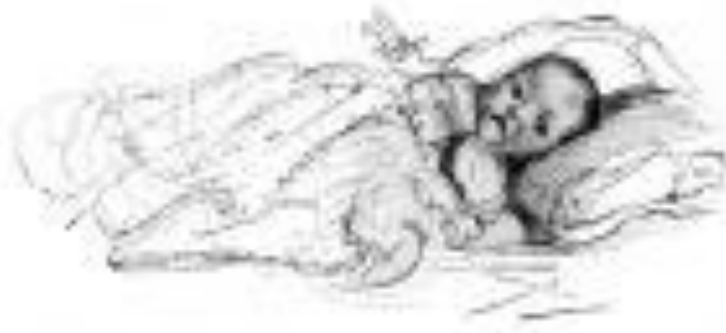
# Changes in Muscle Tone



- ❑ Muscle tone is the degree of stiffness in the baby's muscles.
- ❑ Drug exposed infants can be either unusually limp or unusually stiff, particularly in the neck and limbs.
- ❑ These infants may also experience mixed tone, with stiffness coming and going.
- ❑ Tremors, jerking are not uncommon

# Finnegan Scoring System

- Diagnostic tool – opiate withdrawal
- Divided into 3 systems with 21 total items
  - CNS disturbances
  - Metabolic, vasomotor, and respiratory
  - Gastrointestinal
- Infants 35 weeks gestation or greater







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# Finnegan Scoring System

- 48-94% of exposed infants will have clinical signs of withdrawal
  - Begin after newborn transition
  - Score after feedings, every 3-4 hours
  - NAS can result in seizures, poor feeding, diarrhea, vomiting, excessive weight loss, dehydration, and fever
-

# Plan of Care Based on Scores

- Score of 0 is optimal
- Scores 1-7: manage with non-pharmacological measures
- Scores 8-10: require pharmacologic intervention
- Scores greater than 10: increased scores require increased dosing



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# Plan of Care: Non-pharmacologic

- ❑ Swaddling, hold firmly and close to body, and slow rocking
- ❑ Modify environmental stimulation such as light and noise
- ❑ Soothing music
- ❑ Minimal handling
- ❑ Non-nutritive sucking
- ❑ Frequent diaper changes
- ❑ Demand feedings (may need high calorie)
- ❑ Position of comfort/frequent position change
- ❑ Soft sheets/sheep skin
- ❑ Hand protection to prevent scratching



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# Plan of Care: Pharmacologic

## □ Opiate Withdrawal

### ■ Morphine



- NOT given on a sliding scale or PRN basis
  - Do NOT hold or skip any dose
  - Give scheduled dose even if infant is asleep
  - Titrated to achieve acceptable scores
  - Requires cardiopulmonary monitoring
-

# Plan of Care: Pharmacologic

## □ Opiate Withdrawal

### ■ Morphine

- Average NAS score  $<8$  for 48 to 72 hours, may begin to wean by 10% of the ORIGINAL dose
- Wean every 24-48 hours as tolerated for NAS scores averaging  $<8$
- Weaning is not recommended if average scores  $\geq 8$





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# Plan of Care: Pharmacologic Morphine

## □ Advantages

- Drug of choice for opioid exposure
- Reduces GI symptoms
- Bioavailability
- Facilitates feeding
- Facilitates interaction
- Short half-life

## □ Disadvantages

- Respiratory depression
  - Hypotension
  - Delayed gastric emptying
  - Ileus
  - Urinary retention
  - Contraindicated for non-opioid withdrawal
-

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# The 8 Principles of Therapeutic Handling

1. Swaddling
2. The C-Position
3. Head-to-Toe Movement
4. Vertical Rocking
5. Clapping
6. Feeding
7. Controlling the Environment
8. Introducing Stimuli



# Managing Infants During Withdrawal

## Multidisciplinary Team

- Physician/ARNP
- Nursing
- Physical Therapy
- Neurology
- Social Work
- Family/ Caregivers
- Occupational Therapy
- Speech Therapy
- Early Intervention
- Healthy Start





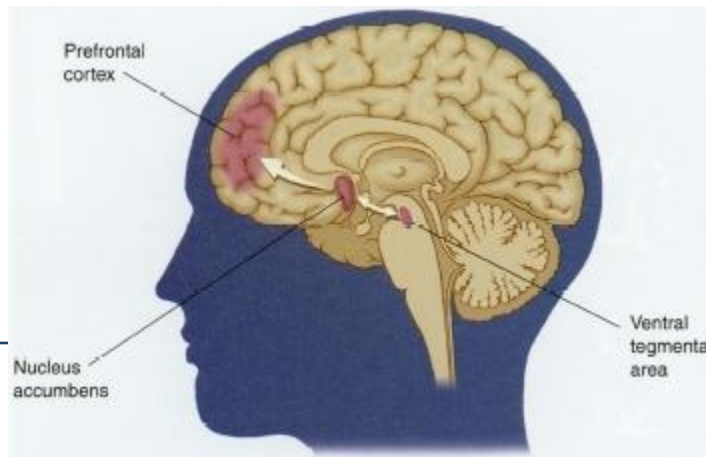
# The Disease of Addiction

- The disease model of addiction describes it as a lifelong disease involving biologic, psychologic, sociologic and environmental sources or origin.
- The research indicates that pathways in the brain are different for the addicted person and that a genetic predisposition is indicated as well.



# The Disease of Addiction

- Drug addiction is a chronic disease characterized by changes in the brain which result in a compulsive desire to use the drug.
- The new science of addiction considers all of these factors, from biology to family, making this disease one of the most complex and complicated.



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# The Disease of Addiction

- Further research indicates that drugs have an intense and immediate effect on the brain's physiology.
- Over time these changes contribute to profound alterations or “hard-wiring” within the brain because the brain reacts to the presence of the drug and tries to adapt to it.



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# The Disease of Addiction

- Addiction is any habitual activity that increasingly undermines the ability to lead a healthy life.
- Addiction can be destructive to every aspect of a person's life.



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# Addiction and Women

- Many if not most women who use drugs have faced serious challenges to their well being during their lives.
- The research indicates that up to 70% of drug abusing women report histories of physical and sexual abuse prior to their 16<sup>th</sup> birthday.



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# Addiction and Women



- Women are more likely than men to report parental history of alcohol and drug abuse.
  - Minority women face additional cultural and language barriers that hinder both treatment and recovery.
-

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# Addiction and Women

- Fear prevents women from getting help!
  - Fear of losing their children
  - Fear of reprisals from boyfriends and spouses
  - Fear of punishment from authorities
  
- Research indicates that women become more quickly addicted than men to certain drugs even after casual or experimental use.



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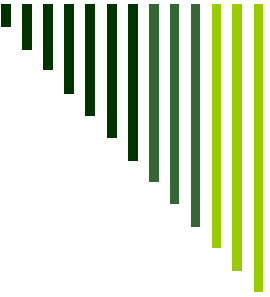


# Why did they start using in the first place?

- Family of origin use – at least one parent
- Environmental influence
- Low self–esteem
- Little self–confidence
- Powerlessness in their world
- Cultural implications



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# Why did they start using in the first place?

- A need to belong and wanting to please
- Fear of rejection from males who use
- Avoidance of painful feelings sometimes attached to certain beliefs
- The innocent victims





# The Pregnant Addict

- Obstacles in her healthcare
  - Feelings of embarrassment
    - Lack of respect
  - Impatience
    - Overbooked appointments
    - Clinics are run hastily
    - Not compatible with schedules
    - Lack of transportation
    - Lack of child care
  - Apprehension
    - Fear of having their children removed from their custody



# Treatment for the Pregnant Addict

- Current treatment programs are a complex mix of medical, psychosocial, and rehabilitation services.
- Addicts acknowledge that they have “hit rock bottom” before they consider seeking help
- The half-life of Methadone is longer than opiates.
- Tolerance results in the need for an increased dose in order to achieve the same effect.



# Treatment for the Pregnant Addict

- The goal is to encourage good prenatal care for mom and baby.
- Polydrug use should be expected
- Many women contract one or more STD's
- Methadone maintenance is the standard of care for the pregnant opioid addict.



# Methadone and the Effect on the Infant

## □ Primary effects

- IUGR
- Neurobehavioral dysfunction
- NAS

- Withdrawal symptoms seldom occur before 24-48 hours of age and can occur as late as 7-10 days of life.
- Methadone is excreted for 10-14 days of life.



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# Methadone and the Effect on the Infant

- Subacute Withdrawal Syndrome- may last 3-6 months after birth.
  - Restlessness
  - Agitation
  - Tremors
  - Sleep disturbances



# Methadone and Pregnancy

- The goals for the pregnant opioid addicted mom:
  - Receive good prenatal care
  - Reduces the consequence of the use of street drugs
  - Prevents the cycling of drug levels for the fetus
  - Monitor the dose carefully and adjust the dose as necessary to provide the best outcome
- The only medication being used for treatment of pregnant opioid addicts.
- Drug addiction has been identified as the most common disease entity in the maternal-fetal population.



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# Family and Staff Interaction

- Develop a therapeutic relationship with the parent by establishing trust.
- Provide clear information and specific guidelines for expected behaviors from the parent.
- Nonjudgmental



# Family and Staff Interaction

- Encourage parent visitation
  - Identify infant's cues
  - Explain infant's behaviors to the parent
  - Teach parent therapeutic handling techniques
  - Encourage comforting techniques
  - Promote effective care giving strategies
- Provide positive reinforcement



# Documentation



Be clear, accurate, and include:

- Calls
- Visits
- Education
- Participation
- Interaction with staff and infant
- NAS scoring
- Non-pharmacologic comfort measures
- Pharmacologic measures
- Effectiveness of action taken

Document ALL parent interactions

# How do I meet the challenge?

- Develop a sensitivity to this population
- Learn more about the nature of addiction
- Determine within yourself what you can control and what you can not!
- Determine within yourself what you can change
- Learn to separate the behavior from the person



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# How do I meet the challenge?

- Imagine how you can be transformed by the “work” you do with these moms
- Develop the ability to “hear” –reflection
- Develop the self-talk of “acceptance” not agreement
- Imagine finding ways to teach about addiction



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# How do I meet the challenge?

- Imagine offering possibilities for change without expectations for difference



- Imagine suspending your struggle and caring for the person aside from their actions

- Imagine being an advocate for this population
-



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