TREATMENT OF THE PREGNANT WOMAN WITH A SUBSTANCE USE DISORDER

PREVENTING FETAL ALCOHOL SPECTRUM DISORDER AND NEONATAL SUBSTANCE EXPOSURE

OASAS
Improving Lives.

New York State Office of Alcoholism & Substance Abuse Services

Addiction Services for Prevention, Treatment, Recovery

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TREATMENT OF THE PREGNANT WOMAN MEANS THAT ONE IS CARING FOR TWO PATIENTS, NOT **ONE**

* IT IS SUGGESTED THAT PHYSICIANS ADDRESS THE ISSUE OF ALCOHOL AND DRUG USE DURING PREGNANCY WITH ALL WOMEN OF CHILD BEARING AGE

TERMINOLOGY

USED IN THE LITERATURE

- FETAL ALCOHOL SYNDROME (FAS)
- FETAL ALCOHOL EFFECTS (FAE)
  - NOT FULL BLOWN SYNDROME
- ALCOHOL RELATED BIRTH DEFECTS (ARBD)
  - ISOLATED PHYSICAL ABNORMALITIES
- ALCOHOL RELATED NEURODEVELOPMENTAL DISORDER (ARND)
  - NEURODEVELOPMENTAL ABNORMALITIES
- PRENATAL ALCOHOL EXPOSURE (PAE)
- FETAL ALCOHOL SPECTRUM DISORDERS (FASD)
  - **SAMHSA TERMINOLOGY**
- MATERNAL SUBSTANCE USE
  - USE AND NOT ABUSE - ANY AMOUNT OF EXPOSURE CAN BE SIGNIFICANT

INTRODUCTION

- 1992 DEPARTMENT OF HEALTH AND HUMAN SERVICES SURVEY
  - 4 MILLION WOMEN GAVE BIRTH
    - 221,000 (5%) OF INFANTS EXPOSED IN UTERO TO ILLEGAL DRUGS
    - NUMBER OF INFANTS EXPOSED IN UTERO TO LEGAL DRUGS
      - 820,000 WOMEN SMOKED CIGARETTES
      - 757,000 WOMEN DRANK ALCOHOL
        - 5000 INFANTS BORN EACH YEAR WITH FULL BLOWN FAS*
        - 50,000 CHILDREN HAVE ARBD/ARND* (NATIONAL CLEARINGHOUSE FOR ALCOHOL AND DRUG INFORMATION 2000)

*SEE DEFINITIONS ON NEXT PAGE

LIFETIME COST OF ONE FASD CHILD

(STREISSGUTH ET AL WASHINGTON STATE UNIVERSITY 1996)

- 5 MILLION DOLLARS TOTAL
  - $1,496,000 FOR MEDICAL COSTS
  - $1,376,000 FOR RESIDENTIAL PLACEMENT
  - $ 530,000 FOR PSYCHIATRIC COSTS
  - $ 354,000 FOR FOSTER CARE
  - $ 12,000 FOR ORTHODONTIA
  - $ 240,000 FOR SPECIAL EDUCATION
  - $ 624,000 FOR SUPPORTED EMPLOYMENT
  - $ 360,000 FOR SSI

100% PREVENTABLE

DETOXIFICATION AND WITHDRAWAL

GENERAL RULES

DETOX AND WITHDRAWAL

BEFORE GIVING ANY MEDICATIONS TO A PREGNANT WOMAN, ALWAYS DISCUSS AND MAKE SURE THEY UNDERSTAND THE RISKS AND BENEFITS OF THE MEDICATION.

DETOX AND WITHDRAWAL

A PREGNANT WOMAN SHOULD RECEIVE COMPREHENSIVE MEDICAL/OB-GYN CARE WHEN ADMITTED TO A DETOX UNIT, ESPECIALLY IF THIS IS THE FIRST TIME SHE HAS SOUGHT CARE

TIME TO ONSET OF MATERNAL WITHDRAWAL SIGNS

DRUG	TIME
ALCOHOL	6 to 60 HOURS
BARBITUATE	4 to 10 DAYS
DIAZEPAM	1 to 12 DAYS
OPIOID	12 to 72 HOURS

*MATERNAL WITHDRAWAL DEPENDS ON THE DRUG, FREQUENCY OF USE, AND DURATION OF USE. TIMES CAN VARY SIGNIFICANTLY.

TIME TO ONSET OF NEONATAL WITHDRAWAL SIGNS

DRUG	TIME
ALCOHOL	3 to 12 HOURS
BARBITUATE	4 to 7 DAYS
DIAZEPAM	1 to 12 DAYS
OPIOID	48 to 72 HOURS

USUALLY THE ONLY WITHDRAWAL SYNDROME THAT REQUIRES TREATMENT IS OPIOID WITHDRAWAL

ALCOHOL WITHDRAWAL

MATERNAL WITHDRAWAL

- THE RATE OF ALCOHOL METABOLISM MAY BE FASTER DURING PREGNANCY, SO BE AWARE THAT WITHDRAWAL CAN START SOONER THAN EXPECTED.

MINOR WITHDRAWAL IN THE MOTHER

TIME

- 6 to 60 HOURS

SYMPTOMS

- TREMORS
- INSOMNIA
- NAUSEA
- ANOREXIA
- ANXIETY
- WEAKNESS

MINOR WITHDRAWAL IN THE MOTHER

SIGNS

- ACTION TREMOR
- INATTENTION
- EASY STARTLE
- PLETHORA
- CONJUNCTIVAL INJECTION
- INCREASED REFLEXES

MINOR WITHDRAWAL IN THE MOTHER

- TREATMENT
  - PHARMACOLOGIC SUBSTITUTE
    - BENZO TAPER IS CURRENT PRACTICE OF CHOICE
      - NOT A TERATOGEN (A SUBSTANCE THAT MIGHT INTERFERE WITH THE NORMAL DEVELOPMENT OF THE FETUS) AS OTHER ANTICONVULSANTS IF GIVEN FOR A SHORT PERIOD OF TIME
      - SHORT - ACTING BENZO CAN BE USED IN 1ST TRIMESTER (ROBERT ET AL 2001)
        - LONG - ACTING BENZO SHOULD BE AVOIDED AND THEIR USE DURING THE 3RD TRIMESTER OR NEAR DELIVERY CAN RESULT IN A WITHDRAWAL SYNDROME IN THE BABY (GARBIS & McELHATTON 2001)

NOTE: PHENOBARBITAL WAS ASSOCIATED WITH NEONATAL WITHDRAWAL

EARLY WITHDRAWAL IN THE MOTHER

ILLUSIONS AND HALLUCINATIONS

- ILLUSIONS ARE MISINTERPRETATIONS
  - MOST COMMON (25% OF PATIENTS)
- VISUAL AND AUDITORY HALLUCINATIONS
  - TACTILE AND OLFACTORY HALLUCINATIONS ARE LESS COMMON
- SENSORIUM IS RELATIVELY CLEAR

EARLY WITHDRAWAL IN THE MOTHER

TREATMENT

- WATCH FOR DT'S
- EVALUATE FOR OTHER ILLNESSES AND INJURIES
- LIGHT SEDATION WITH BENZODIAZEPINES
- THIAMINE
- ELECTROLYTE BALANCE
- PATIENTS MUST UNDERSTAND THAT THEY NEED FURTHER TREATMENT

LATE WITHDRAWAL IN THE MOTHER

DELIRIUM TREMENS

- HIGH RISK FOR DT'S IF BLOOD ALCOHOL LEVEL GREATER THAN 300 mg% OR WITHDRAWAL SEIZURES
- PROFOUND CONFUSION AND MISPERCEPTIONS
- DISORIENTATION
- HALLUCINATIONS
- PARANOID DELUSIONS
- MOTOR HYPERACTIVITY
  - TREMOR, RESTLESS, AGITATED, INCREASED REFLEXES
- AUTONOMIC HYPERACTIVITY
  - INCREASED HEART RATE, PROFUSE SWEATING, DILATED PUPILS
- MORTALITY OF THE MOTHER IS 10 to 15% IF UNTREATED, 1 to 2% IF TREATED

ANCILLARY MEDS

- ANTABUSE IS CONTRAINDICATED AS IT CAN CAUSE CLUB FOOT
- LITTLE IS KNOWN ABOUT NALTREXONE DURING PREGNANCY
- UNCLEAR IMPACT OF BETA BLOCKERS (McELHATTON 2001)
- PROZAC DID NOT INCREASE MALFORMATIONS BUT NEONATAL WITHDRAWAL WAS SEEN (GARBIS & McELHATTON 2001)
- VALPROIC ACID CAUSED SIGNIFICANT MALFORMATIONS

MATERNAL EFFECTS OF ALCOHOL

- USUAL ALCOHOL RELATED CONSEQUENCES
- NUTRITIONAL DEFICIENCES
- PRECIPITATION OF LABOR
- DEFICIENT MILK EJECTION

FASD

- NOT A NEW DISORDER
  - “BEHOLD, THOU SHALT CONCEIVE AND BEAR A SON…AND NOR DRINK, NOR WINE NOR STRONG DRINK” (JUDGES 13:7)

FASD

- 100% PREVENTABLE
- LEADING KNOWN CAUSE OF PREVENTABLE MENTAL RETARDATION
  - 2 TIMES MORE COMMON THAN DOWN'S SYNDROME
  - MAJORITY OF INDIVIDUALS WITH FASD DO NOT HAVE MENTAL RETARDATION
    - STREISSGUTH ET AL 1996 SHOWED THAT I.Q. RANGE WAS 42 to 142 WITH 90 BEING THE MEAN; 9% HAD I.Q. OF 70 OR BELOW

FASD

- CAUSED BY DIRECT EFFECT OF ALCOHOL ON THE DEVELOPING FETUS
- ALCOHOL IS A TERATOGEN (A SUBSTANCE THAT MIGHT INTERFERE WITH THE NORMAL DEVELOPMENT OF THE FETUS)

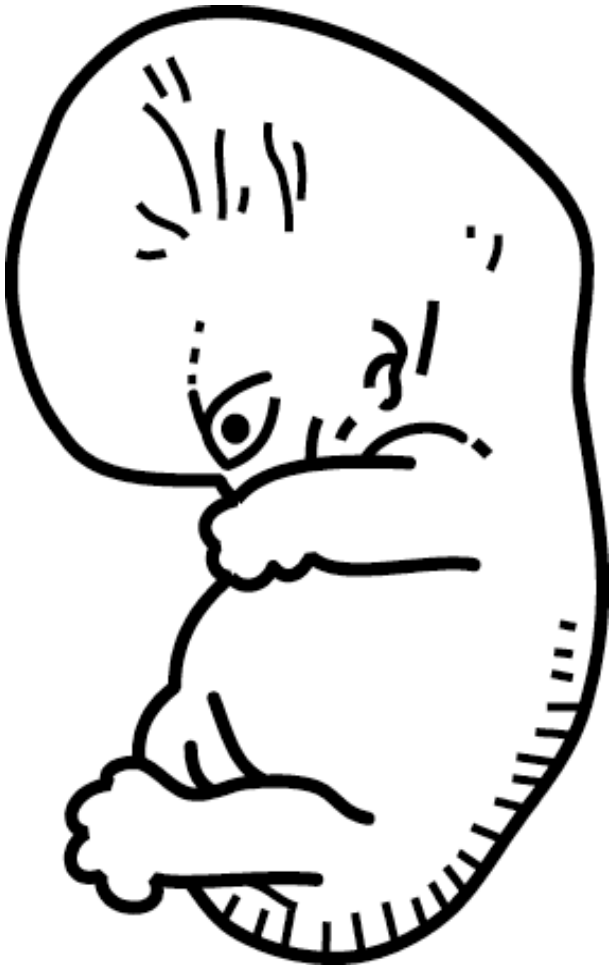
FASD

- ALCOHOL'S EFFECT ON THE BRAIN IS THROUGHOUT THE ENTIRE PREGNANCY
  - ALCOHOL HAS EFFECTS ON MIDBRAIN DOPAMINE SYSTEM – MAY BE RELATED TO ATTENTION AND HYPERACTIVITY PROBLEMS IN THE NEWBORN (SHEN ET AL RESEARCH IN BRIEF - RIA 2001)

FASD

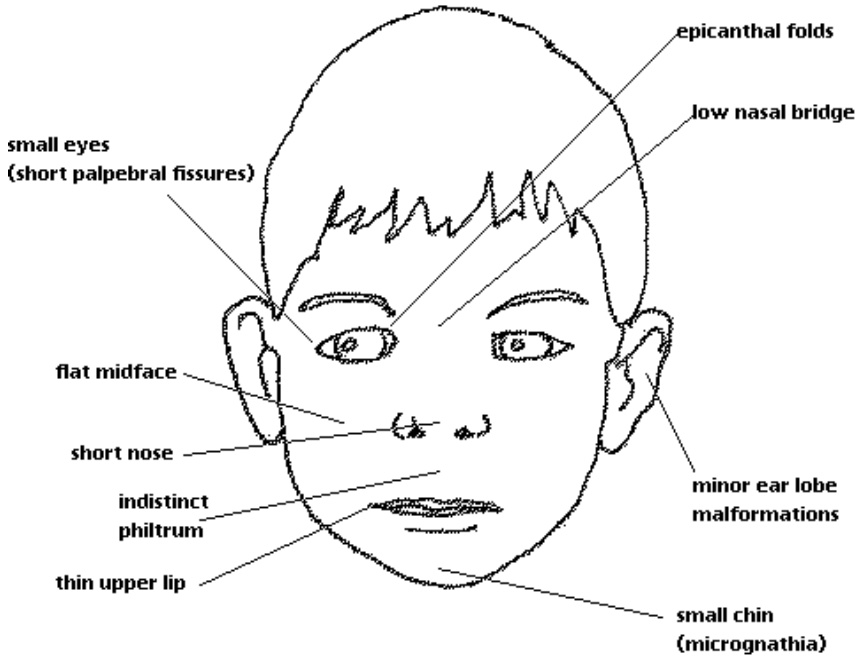
- BINGE DRINKING (5 OR MORE DRINKS ON ONE OCCASION) IS ESPECIALLY DETRIMENTAL TO THE FETUS
- **THERE IS NO PROVEN "SAFE" AMOUNT OF ALCOHOL TO USE DURING PREGNANCY**
  - ALCOHOL HAS BEEN FOUND IN BREAST MILK

FETAL EFFECTS OF ALCOHOL



- ALCOHOL RELATED BIRTH DEFECT (ARBD), ALCOHOL RELATED NEURODEVELOPMENTAL DISORDER (ARND)
  - POSSIBLE TO HAVE BOTH ARBD AND ARND
  - ARND CHILDREN MAY LOOK “NORMAL”
  - ONE CAN SEE:
    - CARDIAC ABNORMALITIES
    - NEONATAL IRRITABILITY
    - NEONATAL HYPOTONIA
    - HYPERACTIVITY
    - GUM ABNORMALITIES
    - SKELETAL ABNORMALITIES
    - OCULAR PROBLEMS
    - HEMANGIOMAS

FETAL EFFECTS OF ALCOHOL



- FAS (5000 BIRTHS/YR)
  - PRENATAL AND POSTNATAL GROWTH RETARDATION
  - CNS DEFICITS
  - FACIAL FEATURE ANOMALIES
    - SHORT PALPEBRAL FISSURE
    - ELONGATED MIDFACE
    - THIN UPPER LIP
    - FLATTENED MAXILLA

FASD

- FASD CHILDREN ARE FREQUENTLY MISDIAGNOSED AS HAVING A PSYCHIATRIC DISORDER
  - LIKELY MISDIAGNOSIS:
    - ATTENTION DEFICIT HYPERACTIVITY DISORDER
    - OPPOSITIONAL DEFIANT DISORDER
    - CONDUCT DISORDER
    - INTERMITTENT EXPLOSIVE DISORDER
    - BIPOLAR DISORDER
    - PSYCHOTIC DISORDER
    - OBSESSIVE COMPULSIVE DISORDER
    - AUTISM
    - ANTISOCIAL PERSONALITY DISORDER
    - BORDERLINE PERSONALITY DISORDER

FASD

- FASD CHILDREN
  - MAY NOT COMPLETE TASKS
    - CANNOT RECALL INFORMATION
    - MAY NOT TAKE IN THE INFORMATION
  - MAY HIT OTHERS
    - CAN MISINTERPRET INTENTIONS
  - MAY TAKE UNNECESSARY RISKS
    - DO NOT PERCEIVE DANGER

SEDATIVE/HYPNOTICS

SEDATIVE/HYPNOTICS

- BENZODIAZEPINE WITHDRAWAL
  - NO DIFFERENCE BETWEEN PREGNANT AND NON-PREGNANT WOMAN, ALTHOUGH SEVERE WITHDRAWAL CAN PRODUCE STATUS EPILEPTICUS AND FETAL RESPIRATORY ARREST
  - CAN LAST 3 TO 5 WEEKS
  - VERY MUCH LIKE ACUTE ALCOHOL WITHDRAWAL
  - TIME COURSE AND SEVERITY DEPEND ON
    - DOSE OF DRUG
    - DURATION OF USE (DOES NOT WORSEN AFTER ONE YEAR OF USE)
    - DURATION OF DRUG ACTION

SEDATIVE/HYPNOTICS

BENZODIAZEPINE AND BARBITURATE WITHDRAWAL IS LIKELY

- IF THERAPEUTIC DOSE IS GIVEN QD FOR 4 TO 6 MONTHS
- IF 2 TO 3 TIMES THE THERAPEUTIC DOSE IS GIVEN QD FOR 2 TO 3 MONTHS
- IN BARBITURATE USE, 50% HAVE SEVERE WITHDRAWAL IF 600MG OF PHENOBARBITAL OR EQUIVALENT IS USED QD* FOR 50 OR MORE DAYS
- IN BARBITURATE USE, 100% HAVE SEVERE WITHDRAWAL IF 900 TO 1200MG OF PHENOBARBITAL OR EQUIVALENT IS USED QD FOR 50 OR MORE DAYS

* ONCE A DAY

SEDATIVE/HYPNOTICS

BENZODIAZEPINE & BARBITURATE WITHDRAWAL

- MORE LIKELY TO BE SEVERE IF
  - RAPIDLY ELIMINATED DRUG IS USED
  - HIGHLY POTENT DRUG (ATIVAN, XANAX)
  - ABRUPT DISCONTINUATION
  - HIGH DOSES USED
  - PRN SCHEDULE OF USE AND NOT FIXED
  - HISTORY OF DEPENDENCY
  - HISTORY OF CONCURRENT ALCOHOL USE
  - HISTORY OF PANIC ATTACKS

SEDATIVE/HYPNOTICS

BENZODIAZEPINE WITHDRAWAL IN THE MOTHER

- MOOD CHANGES
  - NEGATIVE
  - DYSPHORIA
  - RUMINATIVE
- SLEEP CHANGES
  - INSOMNIA
  - ALTERATIONS OF SLEEP - WAKE CYCLE
- PERCEPTION CHANGES
  - ILLUSIONS
  - HALLUCINATIONS
  - DEPERSONALIZATION
  - SENSORY HYPERACTIVITY (LIGHTS BRIGHTER, NOISE LOUDER, ETC.)

SEDATIVE/HYPNOTICS

BENZODIAZEPINE WITHDRAWAL IN THE MOTHER

- PHYSICAL CHANGES
  - INCREASE IN PULSE RATE AND IN BLOOD PRESSURE
  - INCREASE REFLEXES
  - TREMORS
  - RESTLESS
  - NAUSEA
  - ATAXIA (UNSTEADY GAIT)
  - SEIZURES
  - POSTURAL HYPOTENSION(DECREASE BLOOD PRESSURE WHEN STANDING)
  - PUPILS ARE DILATED
  - EXAGGERATED BLINK REFLEX (ESPECIALLY BARBITUATES)
  - METALLIC TASTE

SEDATIVE/HYPNOTICS

- PROTRACTED WITHDRAWAL IN THE MOTHER
  - CAN LAST FOR MONTHS
    - NO PATHOGNOMONIC SIGNS OR SYMPTOMS
    - WAXING AND WANING OF SYMPTOMS
    - DEPRESSION
    - ANXIETY
    - PANIC
    - TINNITUS
    - HEADACHES
    - DIZZINESS

*INCREASED RISK IF FAMILY HISTORY OF ALCOHOLISM, DAILY USE OF ALCOHOL OR OTHER SEDATIVES

SIMILARITIES AND DIFFERENCES BETWEEN SEDATIVE – HYPNOTIC WITHDRAWAL AND PREGNANCY

- SIGNS AND SYMPTOMS COMMON TO WITHDRAWAL AND PREGNANCY
  - RESTLESSNESS
  - INSOMNIA
  - NAUSEA AND VOMITING
  - HYPERTENSION
  - INCREASED PULSE
  - INCREASED RESPIRATORY RATE
  - SEIZURES
- SIGNS & SYMPTOMS NOT SEEN IN PREGNANCY BUT IN WITHDRAWAL
  - IMPAIRED MEMORY
  - DISTRACTIBILITY
  - AGITATION
  - TREMOR
  - FEVER
  - DIAPHORESIS (SWEATING)
  - HALLUCINATIONS

SEDATIVE/HYPNOTICS MATERNAL WITHDDRAWAL

- ALWAYS TAPER THE MEDS SLOWLY
  - 5 TO 10 % /DAY
- SAFEST DURING THE 2ND TRIMESTER SO AS TO AVOID SPONTANEOUS ABORTION OR PREMATURE LABOR
- EASIER TO USE THE DRUG OF USE

FETAL EFFECTS FROM BARBITURATES

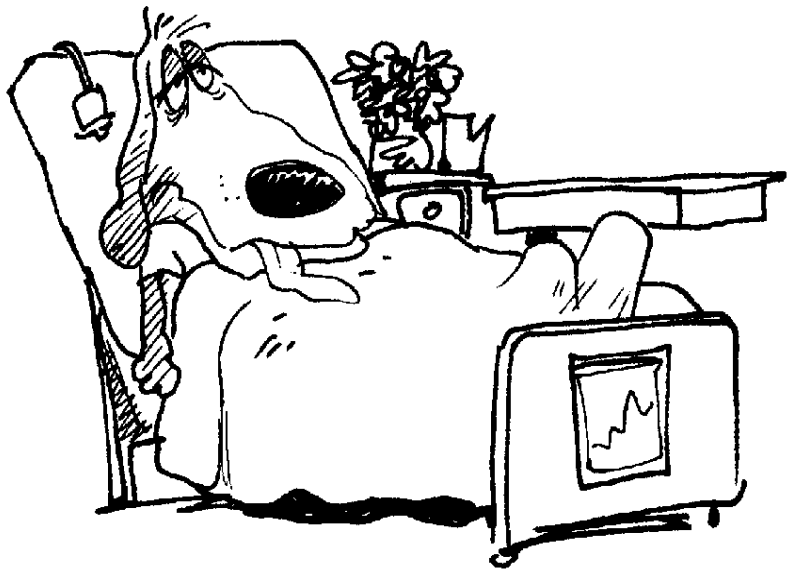
- CLEFT PALATE
- HYPOSPADIAS (PENILE ORIFICE IS TOO LOW)
- MICROCEPHALY (SMALL HEAD SIZE)
- SHORT NOSE

FETAL EFFECTS FROM BENZODIAZEPINES

- ????CLEFT LIP AND PALATE

OPIATES

HEROIN WITHDRAWAL IN THE MOTHER - EARLY



- LACRIMATION (EYES WATERING)
- YAWNING
- RHINORRHEA (RUNNY NOSE)
- SWEATING

HEROIN WITHDRAWAL IN THE MOTHER – MIDDLE PHASE

- RESTLESS SLEEP
- DILATED PUPILS
- ANOREXIA
- GOOSEFLESH
- IRRITABILITY
- TREMOR

HEROIN WITHDRAWAL IN THE MOTHER - LATE PHASE

- INCREASE IN ALL PREVIOUS SIGNS AND SYMPTOMS
- INCREASE IN HEART RATE
- INCREASE IN BLOOD PRESSURE
- NAUSEA AND VOMITING
- DIARRHEA
- ABDOMINAL CRAMPS
- LABILE MOOD
- DEPRESSION
- MUSCLE SPASM
- WEAKNESS
- BONE PAIN

HEROIN WITHDRAWAL IN THE MOTHER - TIME FRAME

- 1/2 LIFE IS 2 TO 3 HOURS
- ONSET AFTER LAST DOSE IS 8 TO 12 HOURS
- PEAK IS 48 HOURS
- DURATION IS 5 TO 10 DAYS

OPIATE WITHDRAWAL

- IT IS NOT RECOMMENDED TO TAPER PREGNANT WOMEN OFF OF METHADONE, BUT THE SAFEST TIME IS THE 2ND TRIMESTER (TIPS2)
  - BEFORE 14 WEEKS AND AFTER 32 WEEKS THERE IS AN INCREASED INCIDENCE OF SPONTANEOUS ABORTION AND PREMATURE LABOR

OPIATE WITHDRAWAL

- IT IS POSSIBLE TO DETOX OPIATE DEPENDENT PREGNANT WOMEN OFF OF HEROIN
  - METHADONE TAPER
  - CONSIDER SUGGESTING METHADONE MAINTENANCE
    - SOME PROGRAMS SUGGEST LOW DOSE (LESS THAN 60 MG
    - NIDA SUGGESTS THAT THIS IS NOT EFFECTIVE TREATMENT AND MAINTENANCE SHOULD BE HIGHER DOSE BLOCKADE (UP TO 150MG)

METHADONE DOSING STRATEGIES IN THE PREGNANT WOMAN

- INITIAL 10 TO 40 MG
- EXTRA 5 TO 10 MG IN 3 TO 4 HOURS IF SIGNS AND SYMPTOMS OF WITHDRAWAL
- REPEAT 5 TO 10 MG Q 3 TO 4 H PRN
- STABILIZE AT THIS DOSE FOR SEVERAL DAYS
- DECREASE BY 2 .5 MG Q 7 TO 10 DAYS AND MONITOR OB STATUS

METHADONE MAINTENANCE

- REDUCES ILLEGAL OPIOID USE
- REMOVES PATIENT FROM DRUG - SEEKING ENVIRONMENT
- PREVENTS FLUCTUATION OF MATERNAL OPIOID LEVEL
- IMPROVES NUTRITIONAL STATUS
- IMPROVES THE PATIENT'S ABILITY TO PARTICIPATE IN PRENATAL CARE
- REDUCTION IN OBSTETRICAL COMPLICATIONS

METHADONE

- DURING PREGNANCY, DUE TO AN INCREASE METABOLISM, THERE CAN BE SEEN A REDUCTION IN THERAPEUTIC EFFECT OF METHADONE AND THE METHADONE DOSE MAY HAVE TO BE INCREASED, ESPECIALLY DURING THE 3RD TRIMESTER
  - OTHER FACTORS INCLUDE ↑PLASMA VOLUME AND ↑ RENAL BLOOD FLOW
  - MAY NEED BID DOSING

METHADONE USE IN THE MOTHER

- CRITERIA FOR EFFECTIVE DOSING
  - PREVENTS WITHDRAWAL
  - REDUCES OR ELIMINATES DRUG CRAVING
  - BLOCKS EUPHORIC EFFECT OF NARCOTICS

*SIMILAR CRITERIA TO NON-PREGNANT WOMEN OR MEN.

METHADONE USE IN THE MOTHER
(CONTINUED)

- BERGHELLA ET AL IN THE AM J OBSTET GYNECOL AUGUST 2003
  - STUDIED THE MATERNAL METHADONE DOSE AND NEONATAL WITHDRAWAL
    - CONCLUSION: NO RELATIONSHIP BETWEEN SEVERITY OF NEONATAL ABSTINENCE AND MATERNAL DOSE, EVEN IN DOSES > 80MG/DAY

OTHER WITHDRAWAL AGENTS

- CLONIDINE
  - NO TERATOGENIC EFFECTS
  - LONG TERM USE NOT RECOMMENDED
- BUPRENORPHINE
  - APPEARS SAFE WITH NO TERATOGENIC EFFECTS, BUT NOT APPROVED FOR USE YET (JONES AND JOHNSON 2001)
- NEVER USE NARCAN UNLESS AS A LAST RESORT
  - SPONTANEOUS ABORTION
  - PREMATURE LABOR
  - STILLBIRTH

MATERNAL EFFECTS OF OPIOIDS*

- TOXEMIA
- MISCARRIAGE
- PREMATURE RUPTURE OF MEMBRANES
- INFECTIONS
- BREECH PRESENTATION
- PRETERM LABOR

*MAY BE DUE TO LIFESTYLE FACTORS AND NOT DIRECT DRUG TOXICITY

FETAL EFFECTS OF OPIOIDS

- LOW BIRTH WEIGHT
- FETAL DISTRESS
- PREMATURITY
- NEONATAL ABSTINENCE SYNDROME
- STILLBIRTH
- SUDDEN INFANT DEATH SYNDROME
- MECONIUM ASPIRATION

NEONATAL ABSTINENCE SYNDROME

- 60-80% OF HEROIN EXPOSED INFANTS
  - 72 HOURS AFTER BIRTH
    - CNS EFFECTS
      - IRRITABILITY
      - HYPERTONIA (INCREASED MUSCLE TONE)
      - HYPERREFLEXIA
      - ABNORMAL SUCK
      - POOR FEEDING
      - SEIZURES (1 TO 3%)
    - GI EFFECTS
      - DIARRHEA
      - VOMITING

NEONATAL ABSTINENCE SYNDROME

- 60 TO 80% OF HEROIN EXPOSED INFANTS
  - 72 HOURS AFTER BIRTH
    - RESPIRATORY EFFECTS
      - TACHYPNEA (INCREASED RESPIRATORY RATE)
      - RESPIRATORY ALKALOSIS (BLOOD IS NOT ACIDIC ENOUGH DUE TO A DECREASE IN CARBON DIOXIDE AS A RESULT OF THE INCREASED RESPIRATORY RATE)
    - AUTONOMIC EFFECTS
      - SNEEZING
      - LACRIMATION
      - YAWNING
      - SWEATING
      - HYPERPYREXIA (INCREASED TEMPERATURE)
  - DELAYED EFFECTS SEEN FOR 4 TO 6 MONTHS
    - SIDS

NEONATAL ABSTINENCE SYNDROME

- METHADONE EXPOSED INFANTS
  - STARTS LATER AND LASTS LONGER THAN WITH OTHER OPIATE USE BY THE MOTHER
  - EEG ABNORMALITIES IN 50% OF INFANTS
  - MYOCLONIC SEIZURES IN 7% (BETWEEN DAY 7 AND 14)

NEONATAL ABSTINENCE SYNDROME

MEDICATION	DOSING			
	INDUCTION	**TITRATION**	**STABILIZATION**	**TAPERING**
TINCTURE OF OPIUM	0.1 ML/KG (2 DROPS/KG) Q 4 H WITH FEEDINGS	INCREASE BY 0.1 ML/KG Q4H AS NEEDED	Q 4 H WITH FEEDINGS FOR 3 TO 5 DAYS	TAPER GRADUALLY BY REDUCING DOSE NOT FREQUENCY
PAREGORIC (0.4 MG/ML)	0.1 ML/KG (2 DROPS/KG) Q 4H WITH FEEDINGS	INCREASE BY 0.1 ML/KG Q 4H PRN	Q4H WITH FEEDINGS FOR 3 TO 5 DAYS	TAPER GRADUALLY BY REDUCING DOSE NOT FREQUENCY
METHADONE	0.05 TO 0.1 MG/KG Q 6H	INCREASE BY 0.05 MG/KG Q 6 H PRN	WHEN STABLE, GIVE TOTAL DAILY DOSE ONCE DAILY OR ½ BID	TAPER GRADUALLY TO 0.05 MG/KG, THEN D/C MED

STIMULANTS

STIMULANTS

WITHDRAWAL IN THE MOTHER

- DYSPHORIA
- FATIGUE
- UNPLEASANT DREAMS
- INSOMNIA
- HYPERSOMNIA (INCREASED SLEEP)
- INCREASED APPETITE
- PSYCHOMOTOR RETARDATION
- AGITATION

STIMULANTS

- OTHER THAN NICOTINE DEPENDENT PATIENTS, THERE IS NO CURRENT PHARMACOTHERAPY SUGGESTED.
- ANXIETY TREATMENT
  - LOW DOSE VALIUM (25MG QID* X'S 6 DOSES) PRN**
- ANTIDEPRESSANT TREATMENT
  - DOXEPIN 25MG BID*** DAY 1 TO 5

*QID = 4 TIMES A DAY
**PRN = AS NEEDED
***BID = TWICE A DAY

COCAINE USE BY THE MOTHER

- ASSOCIATED WITH
  - HIGHER ALCOHOL USE
  - CIGARETTE SMOKING DURING PREGNANCY
  - HIGHER MARIJUANA USE

* WORK OF EIDEN ET AL (RIA – RESEARCH IN BRIEF JUNE 2002)

MATERNAL EFFECTS OF COCAINE

- ABRUPTIO PLACENTAE
- PREMATURE LABOR
- SPONTANEOUS ABORTION
- DECREASE DURATION OF DELIVERY
- GREATER NUMBER OF OBSTETRICAL COMPLICATIONS

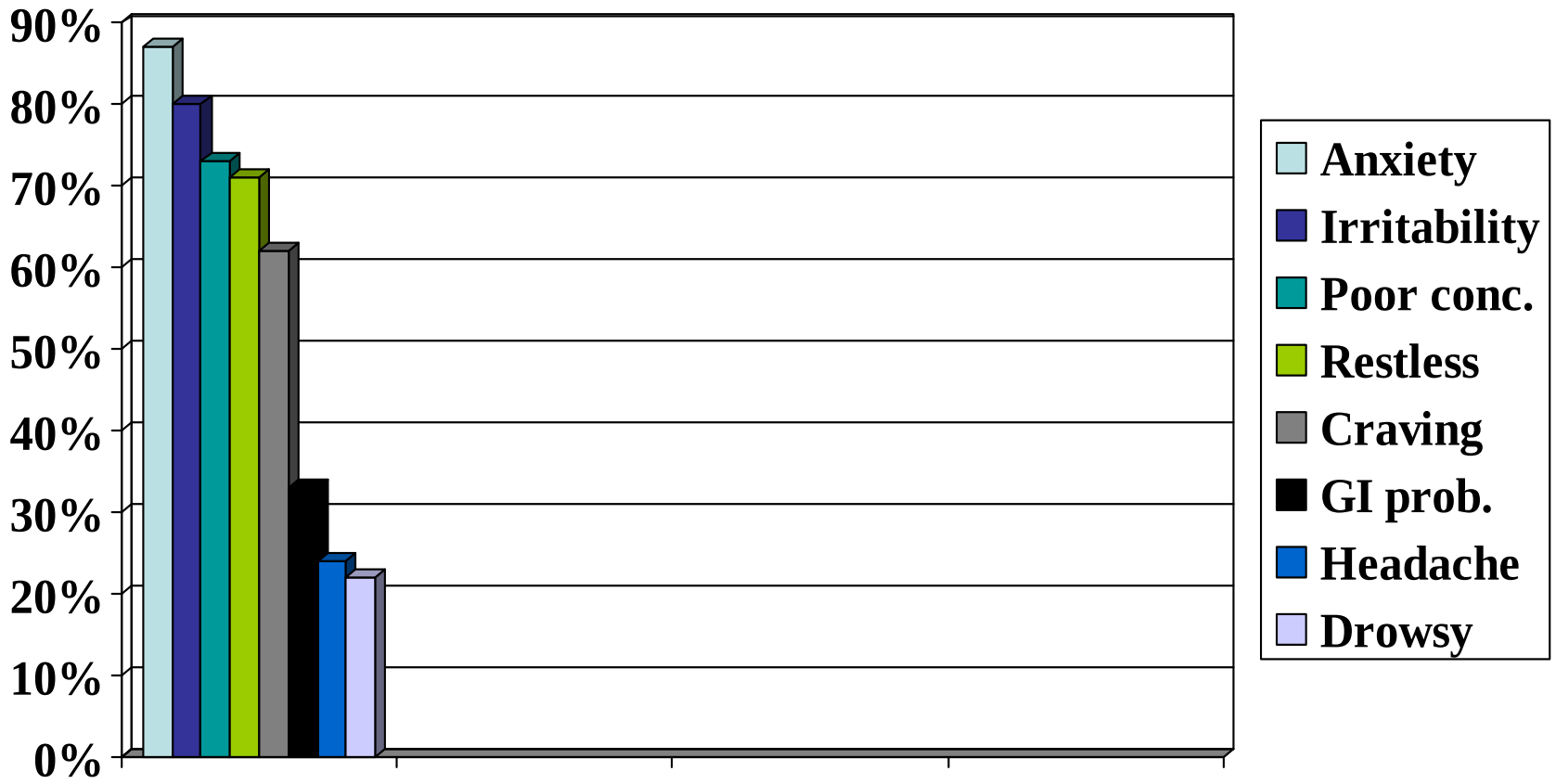
FETAL EFFECTS OF COCAINE

- INCREASE IN CONGENITAL ANOMALIES
- MILD NEURODYSFUNCTION
- TRANSIENT EEG ABNORMALITIES (50%)
- CEREBRAL INFARCTION
- SEIZURES
- SMALL HEAD CIRCUMFERENCE
- DECREASED BIRTH WEIGHT
- VASCULAR DISRUPTION SYNDROME
- ADHD SEEN LATER IN LIFE
- NO ABSTINENCE SYNDROME

FETAL EFFECTS OF COCAINE

- SIDS
- LOWER AROUSAL AT 2 MONTHS
- LESS COORDINATED MOVEMENTS AT 2 MONTHS

NICOTINE WITHDRAWAL SYMPTOMS IN THE MOTHER



NICOTINE AND TOBACCO

- OVERWHELMING DOCUMENTATION THAT SMOKING DURING PREGNANCY CAUSES NUMEROUS ADVERSE FETAL CONSEQUENCES (SCHAEFER 2001)
  - SPONTANEOUS ABORTION
  - ABRUPTIO PLACENTAE
  - PLACENTA PREVIA
  - UTERINE BLEEDING
  - SIDS (4.4 X'S INCREASE IF MOTHER IS A SMOKER DURING PREGNANCY)

NICOTINE AND TOBACCO

- IF THE PREGNANT WOMAN CANNOT STOP SMOKING USING BEHAVIORAL INTERVENTIONS, THEN NICOTINE REPLACEMENT PRODUCTS CAN BE USED

NICOTINE AND TOBACCO

- AS IN ALL MEDS, WOMAN MUST BE TOLD RISKS AND BENEFITS
  - LESSER OF TWO EVILS
  - GUM OR INTERMITTENT USE FORMULATIONS SUGGESTED OVER CONTINUOUS FORMULATIONS (PATCH)

NICOTINE AND TOBACCO

- BUPROPRION IN PREGNANCY HAS VERY LIMITED STUDIES
  - STUDIES HAVE SHOWN THAT WOMEN MAY DERIVE LESS BENEFIT FROM NICOTINE REPLACEMENT TREATMENTS (NRT'S) THAN MEN AND GREATER BENEFIT FROM NON-NRT TREATMENT

CANNABINOIDS

CANNABINOIDS

WITHDRAWAL IN THE MOTHER

- 10 HOURS AFTER USE
  - TREMOR OF THE TONGUE AND EXTREMITIES
  - INSOMNIA
  - SWEATS
  - LATERAL GAZE NYSTAGMUS
  - EXAGGERATED DEEP TENDON REFLEXES

CANNABINOIDS

- NO APPROVED PHARMACOTHERAPY AND NO CHANGE IN PREGNANT VS. NON – PREGNANT WOMAN

PREGNANT WOMEN AND THE LAW

- 13 STATES HAVE LEGISLATION TO TERMINATE PARENTAL RIGHTS DUE TO MATERNAL DRUG ABUSE
  - FLORIDA, ILLINOIS, INDIANA, OHIO, MARYLAND, MINNESOTA, NEVADA, RHODE IS., S.CAROLINA, S. DAKOTA, TEXAS, VIRGINIA AND WISCONSIN

PREGNANT WOMEN AND THE LAW

- SUPREME COURT DECISION – FERGUSON V.CITY OF CHARLESTON
  - MUST INFORM PATIENT OF DRUG SCREEN
  - AS OF 4/2001 S.CAROLINA WAS ONLY STATE TO CRIMINALIZE PRENATAL DRUG USE

PREGNANT WOMEN AND THE LAW

- 8 STATES REQUIRE REPORTING OF DRUG TESTING
  - ARIZONA
  - ILLINOIS
  - IOWA
  - MASSACHUSETTS
  - MICHIGAN
  - MINNESOTA
  - UTAH
  - VIRGINIA

WOMEN ARE SPECIAL PATIENTS

- MANY WOMEN WHO SEEK TREATMENT FOR THEIR ALCOHOL AND OTHER DRUG PROBLEMS AT PUBLICLY FUNDED PROGRAMS
  - FUNCTION AS SINGLE PARENTS
  - RECEIVE LITTLE OR NO FINANCIAL SUPPORT FROM THE BIRTH FATHER
  - UNEMPLOYED OR UNDEREMPLOYED
  - LIVE IN UNSTABLE OR UNSAFE ENVIRONMENTS
  - LACK TRANSPORTATION

WOMEN ARE SPECIAL PATIENTS

- MANY WOMEN WHO SEEK TREATMENT FOR THEIR ALCOHOL AND OTHER DRUG PROBLEMS AT PUBLICLY FUNDED PROGRAMS
  - LACK CHILD CARE AND BABY – SITTING OPTIONS
  - HAVE SPECIAL THERAPEUTIC NEEDS
    - INCEST
    - ABUSE
  - HAVE SPECIAL MEDICAL AND OB/GYN NEEDS

THE IDEAL TREATMENT PROGRAM

- TREATMENT PROGRAMS SERVING PREGNANT SUBSTANCE USING WOMEN SHOULD HAVE THE FOLLOWING SERVICES OR LINKAGES AVAILABLE
  - COMPREHENSIVE INPATIENT AND OUTPATIENT TREATMENT
  - COMPREHENSIVE MEDICAL SERVICES
  - GENDER SPECIFIC GROUPS
  - TRANSPORTATION SERVICES
    - TAXI VOUCHERS
    - BUS TOKENS
  - CHILD CARE
  - VOCATIONAL SERVICES
  - EDUCATIONAL SERVICES

THE IDEAL TREATMENT PROGRAM

- TREATMENT PROGRAMS SERVING PREGNANT SUBSTANCE USING WOMEN SHOULD HAVE THE FOLLOWING SERVICES OR LINKAGES AVAILABLE
  - DRUG FREE SAFE HOUSING
  - FINANCIAL SUPPORT SERVICES
  - CASE MANAGEMENT SERVICES
  - PEDIATRIC FOLLOW UP
  - SERVICES THAT RECOGNIZE THE UNIQUE NEEDS OF PREGNANT, ADOLESCENT SUBSTANCE USERS

THE IDEAL TREATMENT PROGRAM

- ASSESSMENTS
  - MEDICAL AND OBSTETRICAL
    - HISTORY AND PHYSICAL
      - NORMAL EVALUATION ASKING AND LOOKING FOR STIGMATA OF ALCOHOL AND DRUG USE
      - SCREENING TOOLS – ONLY 2 HAVE BEEN VALIDATED. NO TOOL IS VALIDATED FOR DRUG USE DURING PREGNANCY
        - T-ACE
        - TWEAK

THE IDEAL TREATMENT PROGRAM

T-ACE

TOLERANCE – HOW MANY DRINKS DOES IT TAKE TO MAKE YOU FEEL HIGH?

ANNOYED – HAVE PEOPLE ANNOYED YOU BY CRITICIZING YOUR DRINKING?

CUT DOWN – HAVE YOU FELT YOU OUGHT TO CUT DOWN ON YOUR DRINKING?

EYE OPENER – HAVE YOU EVER HAD A DRINK FIRST THING IN THE MORNING TO STEADY YOUR NERVES OR GET RID OF A HANGOVER?

A POSITIVE ANSWER TO TOLERANCE OR 2 POSITIVES TO THE OTHER 3 QUESTIONS INDICATES AN INCREASED LIKELIHOOD THAT THE WOMAN IS DRINKING AT A LEVEL THAT MAYBE HARMFUL TO THE FETUS.

THE IDEAL TREATMENT PROGRAM

TWEAK

TOLERANCE – HOW MANY DRINKS DOES IT TAKE TO MAKE YOU FEEL HIGH? **2 OR MORE = 2 POINTS**

WORRY – HAVE CLOSE FRIENDS WORRIED OR COMPLAINED ABOUT YOUR DRINKING IN THE PAST YEAR? **YES = 1 POINT**

EYE – OPENER – HAVE YOU EVER HAD A DRINK FIRST THING IN THE MORNING TO STEADY YOUR NERVES OR GET RID OF A HANGOVER? **YES = 1 POINT**

AMNESIA – HAS ANYONE EVER TOLD YOU ABOUT THINGS THAT YOU SAID OR DID WHILE DRINKING THAT YOU DO NOT REMEMBER? **YES = 1 POINT**

KUT DOWN – HAVE YOU FELT YOU OUGHT TO CUTDOWN ON YOUR DRINKING? **YES = 1 POINT**

3 OR MORE POINTS = LIKELY THAT THE WOMAN IS DRINKING SIGNIFICANTLY

THE IDEAL TREATMENT PROGRAM

- ASSESSMENTS
  - MEDICAL AND OBSTETRICAL
    - LAB WORK – CBC, VDRL, U/A, ETC
    - DISCUSS HIV STATUS
    - BASELINE SONOGRAM
    - REFERRALS AS NECESSARY

MEDICAL

- HIGH RISK SEXUAL BEHAVIORS
- TEST FOR SYPHILIS, GONORRHEA, CHLAMYDIA, HIV, HEPATITIS A,B,C
- THIS GROUP OF PATIENTS ARE MORE LIKELY TO SUFFER FROM POOR DIET AND MALNUTRITION
- INCREASE RISK FOR ANEMIA
- INCREASE RISK FOR PRE-ECLAMPSIA
- INCREASE RISK OF PHYSICAL ABUSE
  - 44 TO 70% OF WOMEN (STEVENS ET AL 1997)

THE IDEAL TREATMENT PROGRAM

- ASSESSMENTS
  - ALCOHOL AND OTHER DRUG USE
    - ADDICTION HISTORY INCLUDING OTC, PRESCRIPTION DRUGS AND CIGARETTES
    - ASSESS MOTIVATION FOR TREATMENT

THE IDEAL TREATMENT PROGRAM

- ASSESSMENTS
  - PSYCHOSOCIAL
    - SUPPORT SYSTEM
    - PATIENT'S PERCEPTION OF PREGNANCY AND OPTIONS
    - EDUCATIONAL LEVEL
    - EMPLOYMENT SKILLS
    - ABUSE AND NEGLECT ISSUES
    - LEGAL ISSUES
    - CURRENT ISSUES OF IMPORT TO PATIENT
    - RELATIONSHIP WITH OTHER CHILDREN

THE IDEAL TREATMENT PROGRAM

- ASSESSMENTS
  - MENTAL HEALTH
    - PREGNANT WOMEN WHO ABUSE ALCOHOL AND ILLICIT DRUGS HAVE A HIGHER LEVEL OF PSYCHOPATHOLOGY (DEPRESSION, SCHIZOPHRENIA, SOCIAL MALADJUSTMENT) THAN PREGNANT WOMEN WHO DO NOT USE ALCOHOL (MILES ET AL 2001)
      - 45% HAVE A NON SUBSTANCE ABUSE AXIS I DX
      - 75% HAD AN AXIS II DX (HALLER ET AL 1993)
      - 19 TO 58% HAD A DX OF PTSD (BROWN ET AL 1995, MOYLAN ET AL 2001)

PREVENTION

- BEGIN AT AN EARLY AGE
  - AVERAGE AGE OF FIRST ALCOHOL USE IS 11.6 YEARS OLD (SAMHSA)
  - ADDRESS MATERNAL SUBSTANCE USE AT ALL ALCOHOL AND DRUG TREATMENT PROGRAMS
  - CONTINUE TO PROVIDE EDUCATION TO THE MOTHER

PREVENTION

- NATIONAL ACADEMY OF SCIENCES – 3 MAJOR PREVENTION STRATEGIES
  - UNIVERSAL PREVENTION OF MATERNAL ALCOHOL ABUSE
    - EDUCATE THE BROAD PUBLIC ABOUT RISKS OF DRINKING WHEN PREGNANT
      - ALCOHOL WARNING LABELS IS AN EXAMPLE
  - SELECTIVE PREVENTION OF MATERNAL ALCOHOL ABUSE
    - TARGET WOMEN OF CHILDBEARING AGE WHO DRINK
      - EDUCATION AND COUNSELING WITH REFERRAL TO TREATMENT IF WARRANTED
  - INDICATED PREVENTION
    - HIGH RISK WOMEN WHO DRANK DURING PREGNANCY IN THE PAST, HAD A FASD CHILD

PREVENTION

- ADD TO MEDICAL SCHOOL EDUCATION
  - REQUIRED NUMBER OF TRAINING HOURS IN RESIDENCY PROGRAMS IS LOW
  - ONLY 17% OF OBSTETRICAL TEXTBOOKS PUBLISHED IN THE LAST 2 DECADES CONTAINED CONSISTENT RECOMMENDATIONS THAT PREGNANT WOMEN SHOULD NOT USE ALCOHOL (LOOP ET AL AM J PREV MED 2002)
  - ONE KEY ELEMENT IS TO SCREEN ALL PREGNANT WOMEN

CONCLUSIONS

- ALCOHOL AND ILLICIT DRUGS THAT ARE USED BY A WOMAN DURING PREGANCY ARE A PUBLIC HEALTH PROBLEM AND SHOULD NOT BE A LEGAL PROBLEM.
- ALL CARE PROVIDERS WHO INTERACT WITH WOMEN NEED TO BE SENSITIVE TO THE FEELINGS AND CULTERAL BACKGROUNDS AND CREATE A SUPPORTIVE ENVIRONMENT

TREATMENT OF THE PREGNANT WOMAN WITH A SUBSTANCE USE DISORDER

- REFERENCES
  - IF NOT ALREADY MENTIONED
    - TREATMENT OF WOMEN WITH SUBSTANCE USE DISORDERS
      - ASAP CONFERENCE 1/25/04 D.DUBOVSKY MSW
    - PRINCIPLES OF ADDICTION MEDICINE 3RD EDITION
      - NUMEROUS EXCELLENT CHAPTERS