ECHO IDAHO:
Maternal Health and Immunization

Tools for Prenatal Risk Assessments

1/22/25

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Disclosures

- Nothing to disclose

Learning Objectives

- Determine the risks surrounding pregnancy
- Complete an evaluation based on those risks
- Utilize the information obtained to provide comprehensive support for the patient throughout pregnancy and beyond including location of care

Case

- 36 yo G3P2 presents to your office for a NOB visit.
- PMH significant for Obesity, BMI 32.
- POBHx notable for CS with the second child due to failure to progress
- Social history: lives at a shelter currently as she is awaiting housing.

Determining Risk (overarching theme)

- Risk to birthing person
- Risk to fetus
- Risk to clinician
  - Is this a patient that I can safely manage at my location of care?

Patient History

Feelings about the pregnancy

- Not all pregnancies are desired

PMH

- HTN, DM, Cardiac, Thyroid, Mental Health, etc.

POBHx

- Complications, outcomes, miscarriages

Family history

- Screening for potential genetic risks

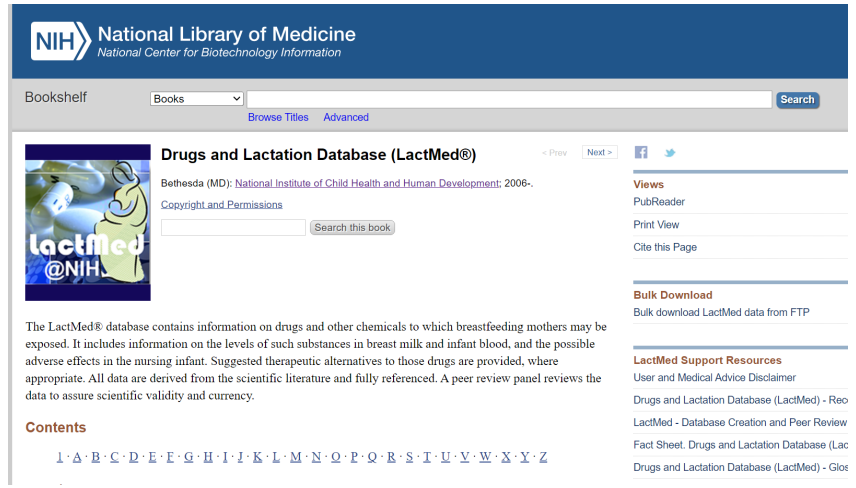
PSxH

Medications and allergies

- LactMed @NIH
- Infant Risk Center

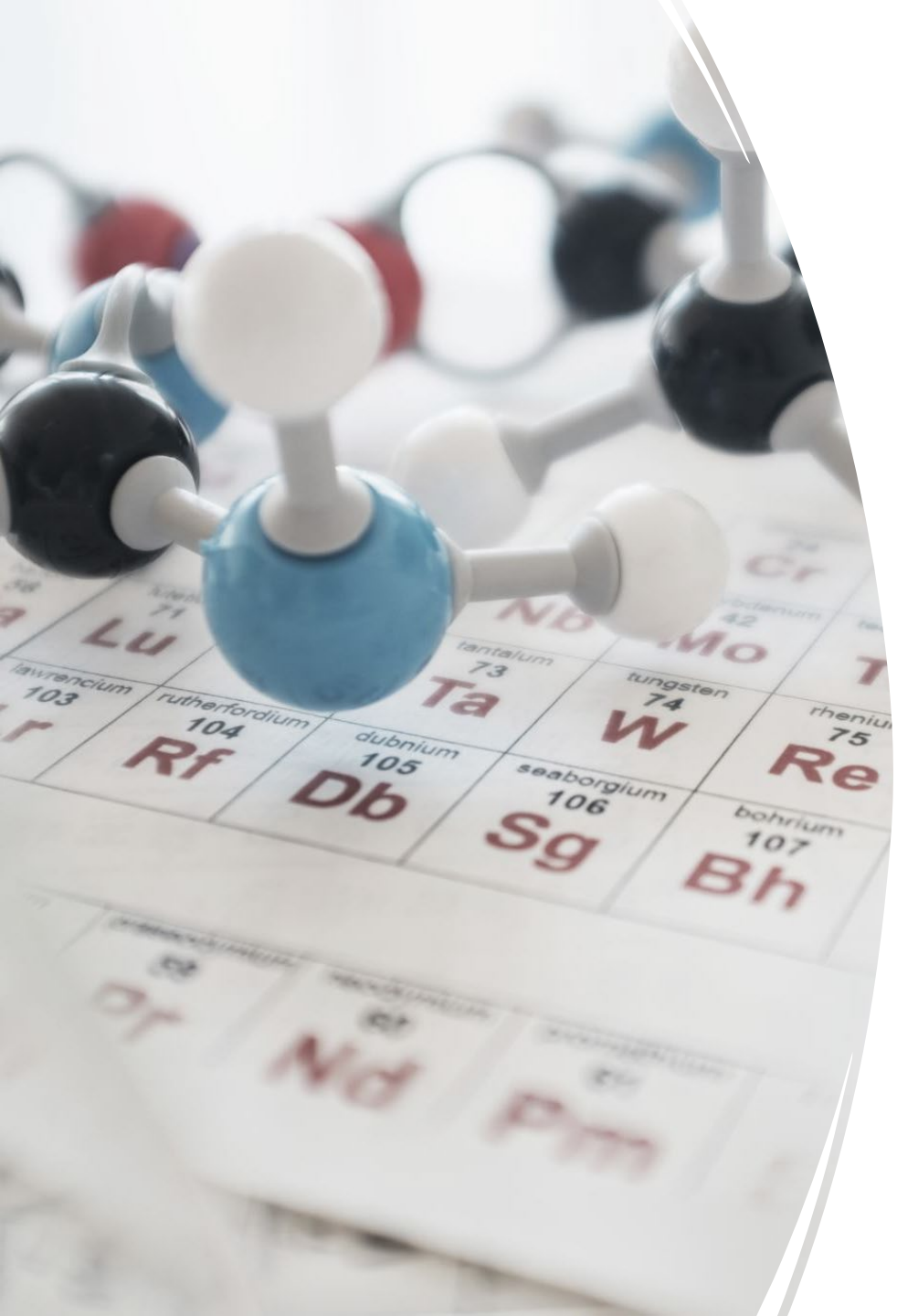
Occupation

Social history



Physical Assessment

- Age of the patient
- Blood Pressure
- Height and weight to determine BMI
- Dental health
- Pelvic Exam
- Clinical Breast Exam



Parental Age

≥ 35 years (maternal and paternal)

- Aneuploidy
- Birth defects
- GDM
- HTN
- IUFR
- Miscarriage
- Stillbirth

Genetic screening

- Serum testing
- US (anatomic survey)

Increased antenatal surveillance

Vitals

- Blood pressure
  - ≥ 140/90
  - Preexisting HTN
  - Medications

- BMI
  - >25
    - Preterm delivery
    - GDM
    - GHTN
    - preeclampsia
  - 30+
    - Miscarriage
    - Stillbirth
    - OSA
  - Determines weight gain goals, nutritional counseling, antenatal surveillance

Prepregnancy Weight Category	Body Mass Index*	Recommended Range of Total Weight Gain (lb)	Recommended Rates of Weight Gain† in the Second and Third Trimesters (lb) (Mean Range [lb/wk])
Underweight	Less than 18.5	28–40	1 (1–1.3)
Normal weight	18.5–24.9	25–35	1 (0.8–1)
Overweight	25–29.9	15–25	0.6 (0.5–0.7)
Obese (includes all classes)	30 and greater	11–20	0.5 (0.4–0.6)

*Body mass index is calculated as weight in kilograms divided by height in meters squared or as weight in pounds multiplied by 703 divided by height in inches

†Calculations assumed a 1.1-4.4 lb weight gain in the first trimester

Modified from Institute of Medicine (US). Weight gain during pregnancy: reexamining the guidelines. Washington DC. National Academies Press; 2009. Copyright 2009 National Academy of Sciences.

Recommendations for Total and Rate of Weight Gain during Pregnancy by Pregnancy Body Mass Index

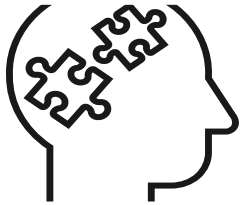
BMI

- Weight loss is no longer recommended
  - Increased risk of SGA
- Nutrition referral

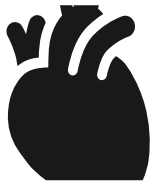
Obesity (aka BMI ≥ 30)

- First prenatal visit
  - Early 1 hr GTT
  - TSH if BMI 40+
  - Screen for OSA
    - Refer for sleep study and/or sleep medicine physician
    - Increased risk for:

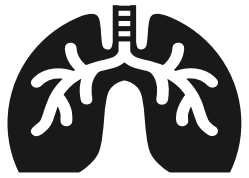
Preeclampsia



Eclampsia



Cardiomyopathy



PE

In-hospital mortality

Dental Health

Identify early

- Decreases adverse pregnancy outcomes

Treatment can occur most safely in 2nd trimester

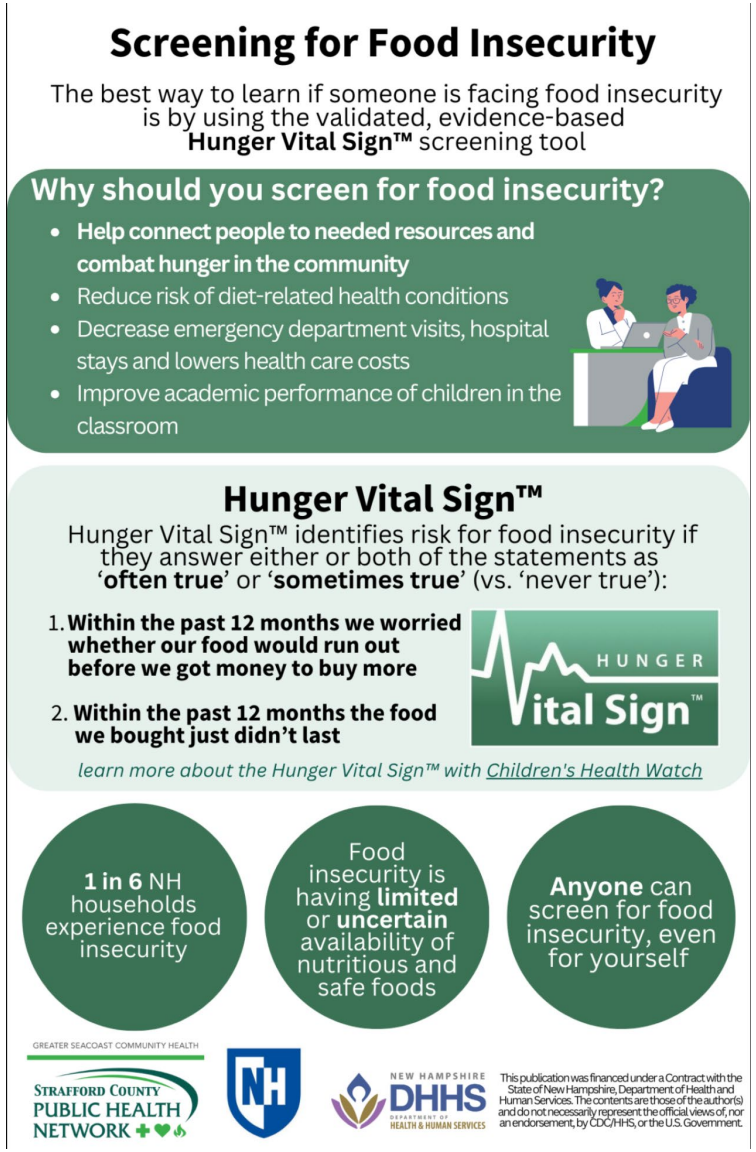
- Emergent treatment in any trimester

Physical exam

- Pelvic Exam
  - Poor predictive value for pelvimetry
  - Could be helpful to determine discrepancy between size and dates
- Clinical breast exam
  - Helpful to address questions regarding breastfeeding concerns or barriers
  - Helpful in symptomatic patient
  - Not beneficial to decrease mortality or as a screening exam

Ultrasound Assessment

- Accurate determination of gestational age is vital to quality care
  - Allows for more accurate timing of interventions, screening tests, and delivery
- ACOG recommendation (Committee Opinion No 700):
  - Ultrasound measurement of the embryo or fetus in the first trimester (up to and including 13 6/7 weeks of gestation) is the most accurate method to establish or confirm gestational age

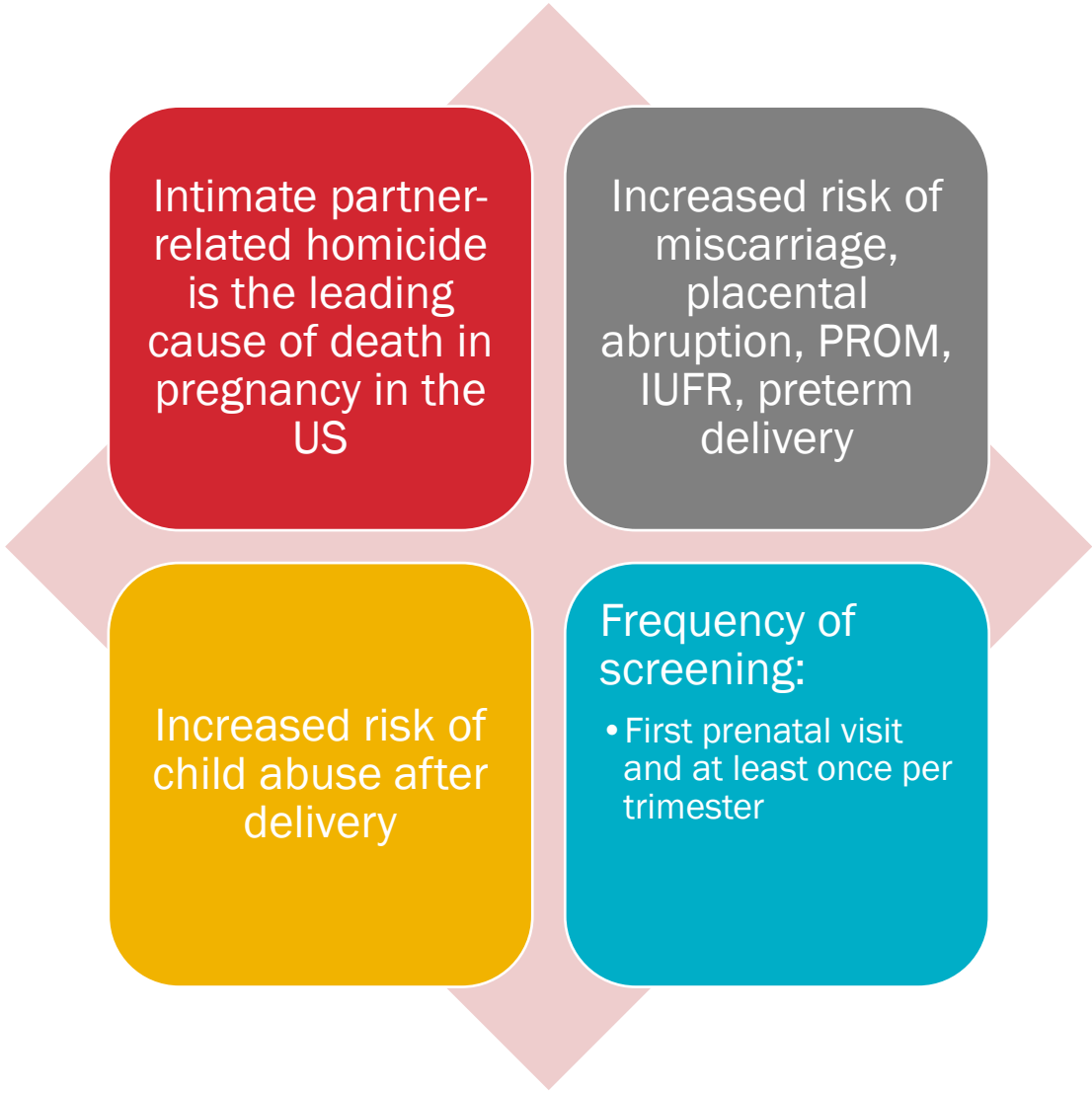


Psychosocial Assessment

Social Determinants of Health

- Increase risk of depression, anxiety, IPC, substance use, food insecurity
- Food insecurity
  - Increased risk of poor outcomes
  - Hunger Vital Sign screening tool
- Housing
- Transportation

Intimate Partner Violence



Validated Screening tools for IPV

HITS

HURT, INSULT, THREATEN, and SCREAM (HITS) Tool for Intimate Partner Violence Screening

How often does your partner?	NEVER (1)	RARELY (2)	SOMETIMES (3)	FAIRLY OFTEN (4)	FREQUENTLY (5)
1. Physically hurt you?					
2. Insult or talk down to you?					
3. Threaten you with harm?					
4. Scream or curse at you?					
5. (+) Force you to do sexual acts that you are not comfortable with?					
TOTAL SCORE:					

- (+) Added question to capture sexual violence

Each item is scored from 1-5. Score can range between 5-25. A score greater than 10 signify that you are at risk of domestic violence abuse, and should seek counseling or help from a domestic violence resource center such as the following:

ACTS

Has partner or ex-partner…

Done something that made you feel afraid?

Controlled your day-to-day activities or put you down?

Threatened to hurt you in any way?

Hit, slapped, kicked, or otherwise physically hurt you?

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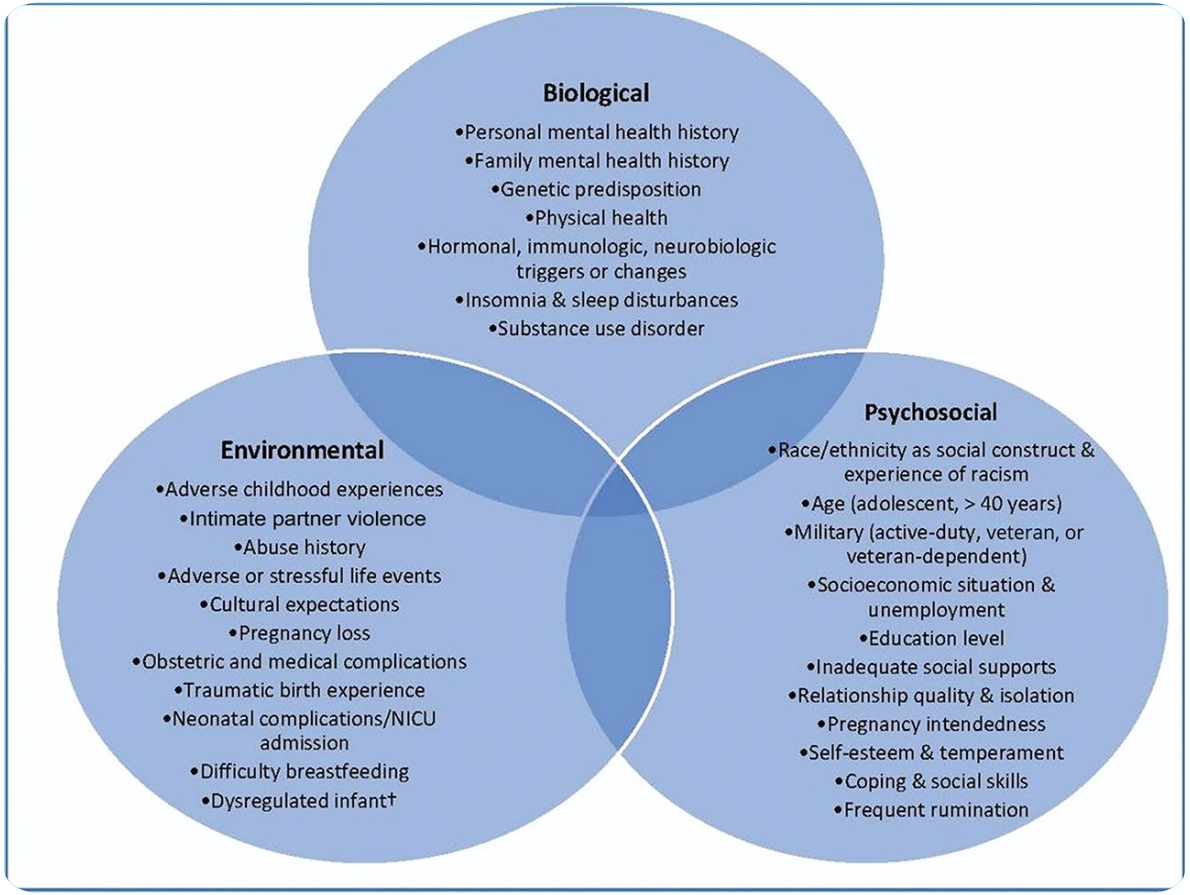
Mental Health



- Screening recommended in the first and third trimesters
- If left untreated:
  - preeclampsia
  - preterm delivery
  - IUGR
  - substance use
  - maternal suicide,
  - infanticide,
  - homicide
  - psychosis

Mental Health

Table 2. Commonly Used Perinatal Mental Health Validated Screening Instruments

PMH Condition	Screening Instrument	No. of Items/Self-Administered (Y/N)	Sensitivity and Specificity	Score for Positive Screen
Depression	EPDS	10/Y	Sensitivity: 55–98% Specificity: 68–97%	≥10
	PHQ-9	9/Y	Sensitivity: 53–77% Specificity: 85–94%	≥10
Anxiety	GAD-7	7/Y	Sensitivity: 73% Specificity: 67%	≥5
	EPDS—anxiety subscale (items 3, 4, 5)	3/Y	Not enough data to estimate; correlates with GAD-7	≥5
	STAI	20/Y	Sensitivity: 81% Specificity: 78%	≥40
Bipolar disorder	MDQ	3 (Q1 with 13 items)/Y	Sensitivity: 44–90% Specificity: 61–92%	≥7 yeses of the 13 items in Q1
	CIDI	2–3 (branching logic)/N	Sensitivity: 69–100% Specificity: 98–99%	Yes to Q3 (Q3 is asked if Q1 or Q2 have yes answers)

Abbreviations: CIDI, Composite International Diagnostic Interview; EPDS, Edinburgh Postnatal Depression Scale; GAD-7, Generalized Anxiety Scale-7; MDQ, Mood Disorder Questionnaire; PMH, perinatal mental health; PHQ-9, Patient Health Questionnaire-9; Q, question; STAI, State-Trait Anxiety Inventory.

Data from Byatt N, Masters GA, Bergman AL, Moore Simas TA. Screening for mental health and substance use disorders in obstetric settings. Curr Psychiatry Rep 2020;22:62 *and* data from Byatt N, Mittal LP, Brenckle L, Logan DG, Masters GA, Bergman A, et al. Lifeline for moms perinatal mental health toolkit. University of Massachusetts Medical School; 2019. Accessed December 7, 2022.

Substance Use

- Increases risk for:
  - IUGR
  - Preterm delivery
  - Stillbirth
  - Fetal malformations
  - Maternal death

Opioid Use

- From 2010-2017 the number of women with opioid-related diagnoses documented at delivery increased 131%
- Over same time, incidence of babies born with withdrawal symptoms increased by 82%
  - Increases seen in all states and demographic groups
  - 1 baby diagnosed with NAS every 19 minutes
- Self-reported data from 2019 indicated that ~7% of women reported using prescription opioid pain relievers during pregnancy
  - 1 in 5 reported misuse

Marijuana

- More common among patients that smoke cigarettes
- High frequency use associated with low birthweight delivery

Alcohol

- Fetal Alcohol Exposure is the leading cause of preventable neurodevelopmental disorders in the US
- 14% of pregnant pts report current drinking
- 5% report binge drinking in past 30 days

Smoking

- Intrauterine exposure increases risk of stillbirth and infant death

Screening

- Who? EVERYONE!
- When?
  - ACOG Committee Opinion Number 711, August 2017:
    - Early *universal* screening
    - Screening for substance use should be part of comprehensive obstetric care
    - Should be done at pregnancy onset
      - Regardless of location: first prenatal visit, ED or urgent care, primary care setting
  - Rescreen if there is ongoing use or any concerns regarding new substance use later in the pregnancy
  - Pregnancy is an ideal and important time to identify and treat women with substance use disorder

Evaluated screening tools in pregnancy

- 4Ps Plus / 5 Ps
- NIDA Quick Screen
- CRAFFT
- Substance Use Risk Profile – Pregnancy
- Wayne Indirect Drug Use Screener
- DAST-10

***Quick Screen* Question:** **<u>In the past year</u>, how often have you used the following?**	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
Alcohol • For men, 5 or more drinks a day • For women, 4 or more drinks a day					
Tobacco Products					
Prescription Drugs for Non-Medical Reasons					
Illegal Drugs					

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Drug Abuse Screening Test (DAST-10)

General Instructions

"Drug use" refers to (1) the use of prescribed or over-the-counter drugs in excess of the directions, and (2) any nonmedical use of drugs.

The various classes of drugs may include cannabis (marijuana, hashish), solvents (e.g., paint thinner), tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin). The questions do not include alcoholic beverages.

Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right.

Segment: _ _

Visit Number: _ _

Date of Assessment: (mm/dd/yyyy) _ _/_ _/_ _ _ _

These questions refer to drug use in the past 12 months. Please answer No or Yes.

1. **Have you used drugs other than those required for medical reasons?** ☐No ☐Yes
2. **Do you use more than one drug at a time?** ☐No ☐Yes
3. **Are you always able to stop using drugs when you want to?** ☐No ☐Yes
4. **Have you had "blackouts" or "flashbacks" as a result of drug use?** ☐No ☐Yes
5. **Do you ever feel bad or guilty about your drug use?** ☐No ☐Yes
6. **Does your spouse (or parents) ever complain about your involvement with drugs?** ☐No ☐Yes

Skinner HA (1982). The Drug Abuse Screening Test. Addictive Behavior. 7(4):363-371.
Yudko E, Lozhkina O, Fouts A (2007). A comprehensive review of the psychometric properties of the Drug Abuse Screening Test. J Subst Abuse Treatment. 32:189-198.

NIDA Clinical Trials Network

Drug Abuse Screening Test (DAST-10)

7. **Have you neglected your family because of your use of drugs?** ☐No ☐Yes
8. **Have you engaged in illegal activities in order to obtain drugs?** ☐No ☐Yes
9. **Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?** ☐No ☐Yes
10. **Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?** ☐No ☐Yes

Comments:

Scoring

Score 1 point for each question answered "Yes," except for question 3 for which a "No" receives 1 point.

DAST Score: _ _

Interpretation of Score:

Score	Degree of Problems Related to Drug Abuse	Suggested Action
0	No problems reported	None at this time
1-2	Low level	Monitor, reassess at a later date
3-5	Moderate level	Further investigation
6-8	Substantial level	Intensive assessment
9-10	Severe level	Intensive assessment

Skinner HA (1982). The Drug Abuse Screening Test. Addictive Behavior. 7(4):363-371.
Yudko E, Lozhkina O, Fouts A (2007). A comprehensive review of the psychometric properties of the Drug Abuse Screening Test. J Subst Abuse Treatment. 32:189-198.

#	Item
1	I am currently married
2	In the past year I have been bothered by pain in my teeth or mouth
3	I have smoked at least 100 cigarettes in my entire life
4	Most of my friends smoke cigarettes
5	There have been times in my life, for at least two weeks straight, where I felt like everything was an effort
6	I get mad easily and feel the need to blow off steam

- 1. Did any of your *Parents* have problems with alcohol or drug use?
- ___ No ___Yes
- 2. Do any of your friends (*Peers*) have problems with alcohol or drug use?
- ___ No ___Yes
- 3. Does your *Partner* have a problem with alcohol or drug use?
- ___ No ___Yes
- 4. Before you were pregnant did you have problems with alcohol or drug use? (*Past*)
- ___ No ___Yes
- 5. In the past month, did you drink beer, wine or liquor, or use other drugs? (*Pregnancy*)
- ___ No ___Yes

- **A single "yes" answer to any question requires further assessment**

The CRAFFT+N Questionnaire

To be completed by patient

Please answer all questions **honestly**; your answers will be kept **confidential**.

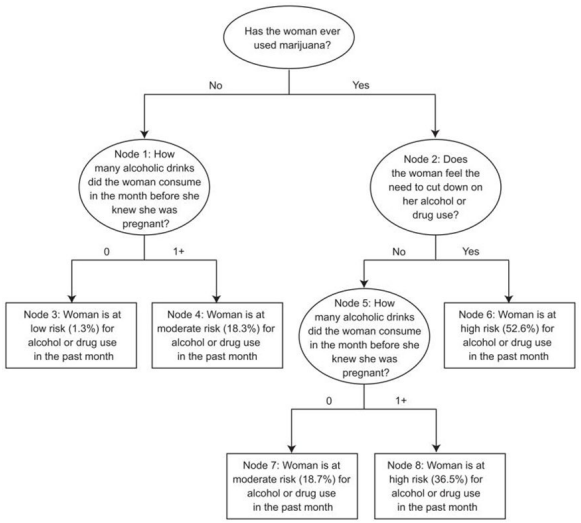
During the PAST 12 MONTHS, on how many days did you:

1. Drink more than a few sips of beer, wine, or any drink containing **alcohol**? Put "0" if none. ☐ # of days
2. Use any **marijuana** (cannabis, weed, oil, wax, or hash by smoking, vaping, dabbing, or in edibles) or "**synthetic marijuana**" (like "K2," "Spice")? Put "0" if none. ☐ # of days
3. Use **anything else to get high** (like other illegal drugs, pills, prescription or over-the-counter medications, and things that you sniff, huff, vape, or inject)? Put "0" if none. ☐ # of days
4. Use a **vaping device* containing nicotine and/or flavors**, or use any **tobacco products†**? Put "0" if none. ☐ # of days

**Such as e-cigs, mods, pod devices like JUUL, disposable vapes like Puff Bar, vape pens, or e-hookahs. †Cigarettes, cigars, cigarillos, hookahs, chewing tobacco, snuff, snus, dissolvables, or nicotine pouches.*

READ THESE INSTRUCTIONS BEFORE CONTINUING:
- **If you put "0" in ALL of the boxes above, ANSWER QUESTION 5 BELOW, THEN STOP.**
- **If you put "1" or more for Questions 1, 2, or 3 above, ANSWER QUESTIONS 5-10 BELOW.**
- **If you put "1" or more for Question 4 above, ANSWER ALL QUESTIONS ON BACK PAGE.**

	Circle one	
5. Have you ever ridden in a CAR driven by someone (including yourself) who was "high" or had been using alcohol or drugs?	No	Yes
6. Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?	No	Yes
7. Do you ever use alcohol or drugs while you are by yourself, or ALONE?	No	Yes
8. Do you ever FORGET things you did while using alcohol or drugs?	No	Yes
9. Do your FAMILY or FRIENDS ever tell you that you should cut down on your drinking or drug use?	No	Yes
10. Have you ever gotten into TROUBLE while you were using alcohol or drugs?	No	Yes



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Which screening tool is the best?

Addiction. 2019 Sep;114(9):1683-1693. doi: 10.1111/add.14651. Epub 2019 Jun 19.

Accuracy of five self-report screening instruments for substance use in pregnancy

Steven J Ondersma [1], Grace Chang [2], Tiffany Blake-Lamb [3], Kathryn Gilstad-Hayden [4], John Orav [5], Jessica R Beatty [1], Gregory L Goyert [6], Kimberly A Yonkers [4 7]

Conclusions: Of five screening instruments for substance use in pregnancy tested (Substance Use Risk Profile-Pregnancy (SURP-P), CRAFFT, 5Ps, Wayne Indirect Drug Use Screener (WIDUS) and the National Institute on Drug Abuse (Quick Screen), none showed both high sensitivity and high specificity, and area under the curve was low for nearly all measures.

"Until screeners are identified that can improve on direct, face-valid questions, the NIDA Quick Screen which briefly asks about self-reported use – appears to be the best approach to take."

ACOG: ACCURACY OF THREE SCREENING TOOLS FOR PRENATAL SUBSTANCE USE

Reference: Coleman-Cowger, Victoria H., PhD; Oga, Emmanuel A., MD, MPH; Peters, Erica N., PhD; Trocin, Kathleen E., MPH; Koszowski, Bartosz, PharmD, PhD; Mark, Katrina, MD. Accuracy of Three Screening Tools for Prenatal Substance Use. *Journal of Obstetrics & Gynecology*, May 2019; 133: 952-961. DOI: 10.1097/AOG.0000000000003230

Conclusion: The SURP-P and 4P's Plus had high sensitivity and negative predictive values, making them more ideal screening tests than the NIDA Quick Screen-ASSIST. A clear recommendation for a clinically useful screening tool for prenatal substance use is crucial to allow for prompt and appropriate follow-up and intervention.

Lab Assessment

ABO blood type and RhD antibodies	
CBC with diff	• USPSTF found insufficient evidence to screen for anemia in pregnancy • ACOG recommends it • Treatment of iron deficiency anemia decreases risk of preterm delivery, IUGR, perinatal depression
Genetic testing	
Neural tube defects	• 2nd trimester anatomy US >> msAFP • Folic acid supplementation for prevention
Thyroid disorders	• Only in certain populations, not universal
1hr GTT	• BMI >25 w/ RF • BMI 30+ universally
CMP, P:C	• Increased risk for preeclampsia
Cervical Cancer	

Infectious Disease

- Asymptomatic bacteriuria
- STI
- Rubella
- Varicella
- Group B Strep

TABLE 5

Testing and Treatment for Sexually Transmitted Infections During Pregnancy

Infection	Testing	Treatment	Complications/risks
Bacterial vaginosis[56]	Screening not indicated; test if symptomatic	Metronidazole (Flagyl)	Preterm delivery, premature rupture of membranes, acquisition of other sexually transmitted infections such as HIV, gonorrhea, and chlamydia
Chlamydia[55]	Universal screening	Azithromycin, erythromycin, amoxicillin, clindamycin	Preterm birth, congenital eye infections, pneumonia
Genital herpes[55]	Screening not indicated Consider culture or polymerase chain reaction testing of lesions	Acyclovir or famciclovir prophylaxis starting at 36 weeks	Vertical transmission Cesarean delivery for patients with active lesions or prodromal symptoms at delivery is indicated
Gonorrhea[55]	Universal screening	Ceftriaxone	Chorioamnionitis, preterm birth, low birth weight, congenital eye infections
Hepatitis B[55]	Universal screening	Active and passive immunization of the infant	Vertical transmission
Hepatitis C[55]	Universal screening	Treatment not approved during pregnancy	Vertical transmission
HIV[55]	Universal screening	Antiretroviral therapy	Vertical transmission
Syphilis[55]	Universal screening with automated treponemal test (i.e., enzyme-linked, chemiluminescence, or multiplex flow immunoassay)	Penicillin G benzathine	Congenital syphilis
Trichomonas[55]	Screening not indicated; test if symptomatic	Metronidazole	Preterm birth, premature rupture of membranes, low birth weight

Information from references 55 and 56.

Immunizations

- TdaP
  - Every pregnancy
  - Both pregnant patient and close contacts
- Influenza
- COVID-19
- MMR
  - Post-partum if non-immune

Location of Care

TABLE 1–1. Ambulatory Prenatal Care Provider Capabilities and Expertise

Level of Care	Capabilities	Health Care Provider Types
Basic	Risk-oriented prenatal care record, physical examination and interpretation of findings, routine laboratory assessment, assessment of gestational age and normal progress of pregnancy, ongoing risk identification, mechanisms for consultation and referral, psychosocial support, childbirth education, care coordination (including referral for ancillary services, such as transportation, food, and housing assistance)	Obstetricians, family physicians, certified nurse–midwives, certified midwives, and other advanced practice registered nurses with experience, training, and demonstrated competence
Specialty	Basic care plus fetal diagnostic testing (eg, biophysical tests, amniotic fluid analysis, basic ultrasonography), expertise in management of medical and obstetric complications	Obstetricians
Subspecialty	Basic and specialty care plus advanced fetal diagnostics (eg, targeted ultrasonography, fetal echocardiography); advanced therapy (eg, intrauterine fetal transfusion and treatment of cardiac arrhythmias); medical, surgical, neonatal, and genetic consultation; and management of severe maternal complications	Maternal–fetal medicine specialists and reproductive geneticists with experience, training, and demonstrated competence

Modified with permission from March of Dimes. Toward improving the outcome of pregnancy: the 90s and beyond. White Plains (NY): March of Dimes Birth Defects Foundation; 1993.

Key Points

- Assess risks for the pregnant patient at the entrance to care and at each prenatal visit
- Screen for psychosocial aspects of patient care as they have significant impact upon the pregnancy
- Mitigating risk reduces both pregnant patient and fetal morbidity and mortality
- Prenatal care provides an ideal time to support the pregnant patient and their family toward better health

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