WELCOME
to the
Strategies To Optimize Rural Perinatal Healthcare ECHO

Funding Statement

This resource is supported by funding through the Rural Maternal Obstetric Management Strategies (RMOMS) grant from the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS), part of a 4-year award totaling $991,467 annually with 0% financed with non-governmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government. For more information, please visit HRSA.gov

North Country Maternity Network partners

- **North Country Health Consortium**
  - Rural health network to enhance collaboration among regional health and human service providers
- **Critical access/community hospitals providing birthing services**
  - Androscoggin Valley/North Country Healthcare
  - Littleton Regional Hospital
  - Northeastern VT Regional Hospital (VT)
- **Critical access hospitals that don't provide birthing services**
  - Weeks Medical Center
  - Upper Connecticut Valley Hospital
- **Federally Qualified Health Centers**
  - Coos County Family Health Services
  - Little Rivers Health Center (VT)
- **Family Resource Center**
  - Community-based family support program
- **Women of the Mountains Birth Initiative**
  - Community-based educational and perinatal support program
- **Dartmouth Health**
  - Academic Medical Center

NCMN Partners

Series Learning Objectives

After participating in this activity, learners will be able to:

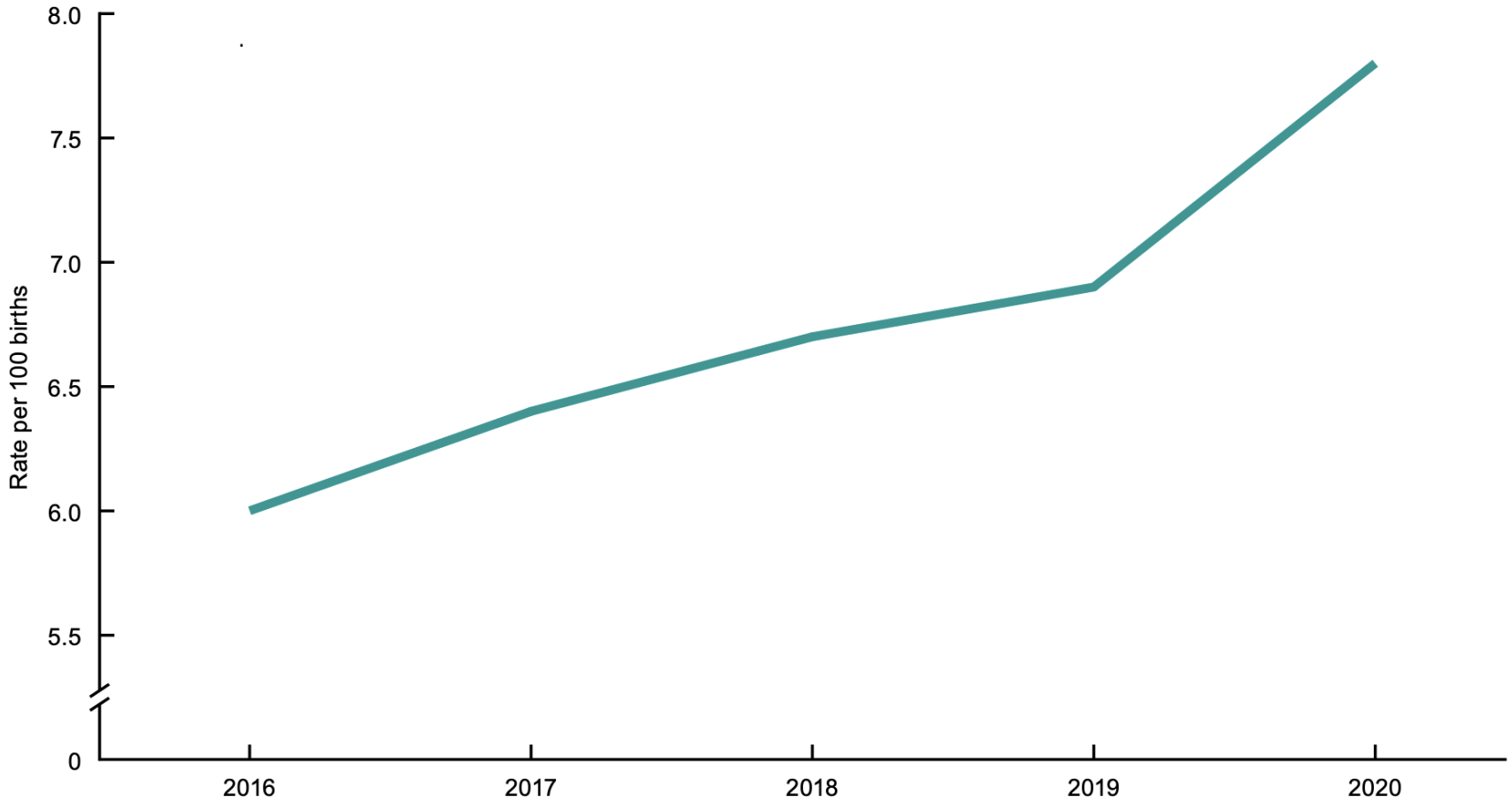
- Discuss maternal health conditions, including labor induction and prenatal/postpartum emergencies to improve management of obstetrical complications
- Develop a collaborative network of healthcare providers to support high quality, consistent care of pregnant people
- Utilize evidence-based practice resources and support

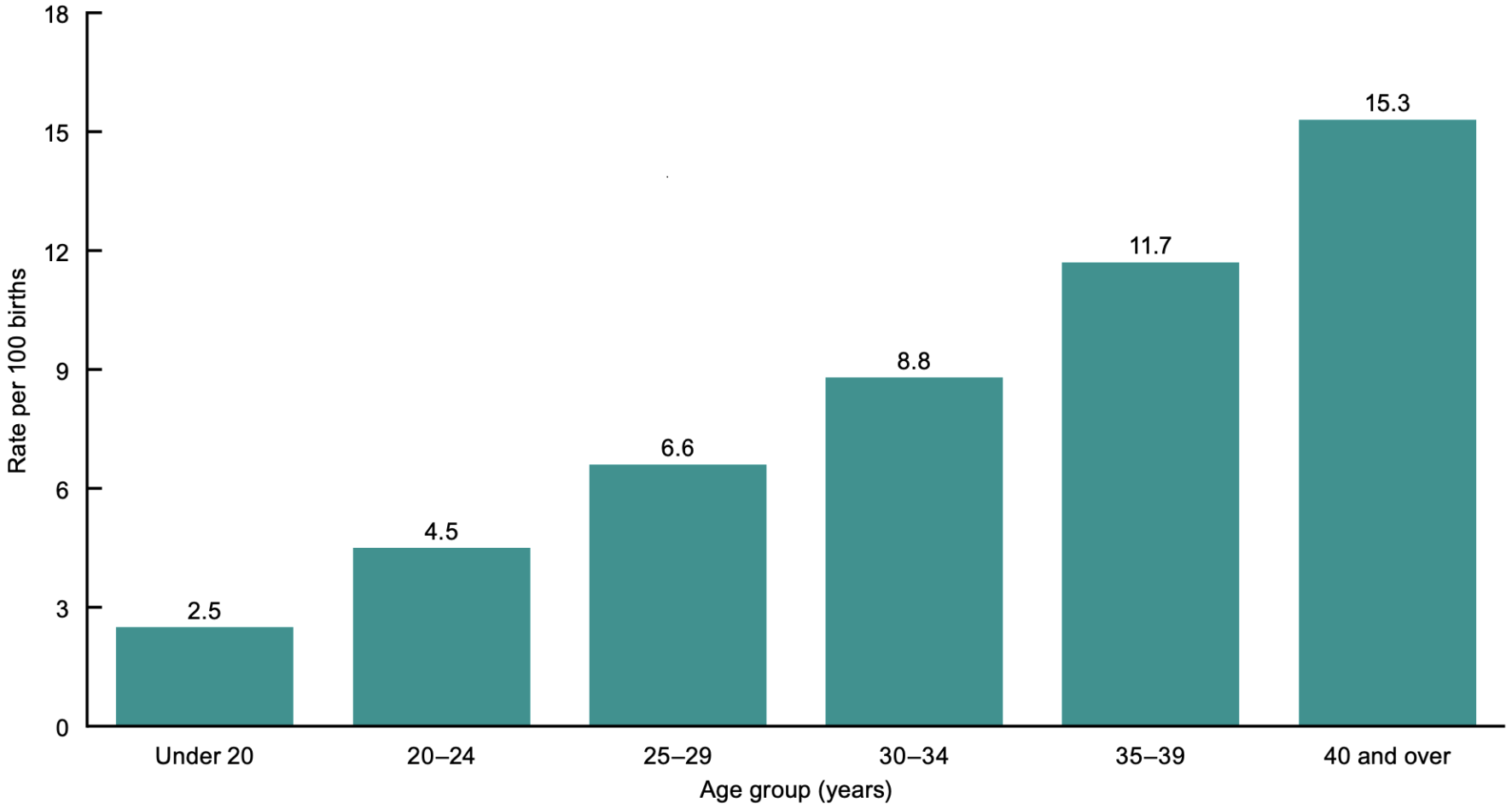
Series Sessions

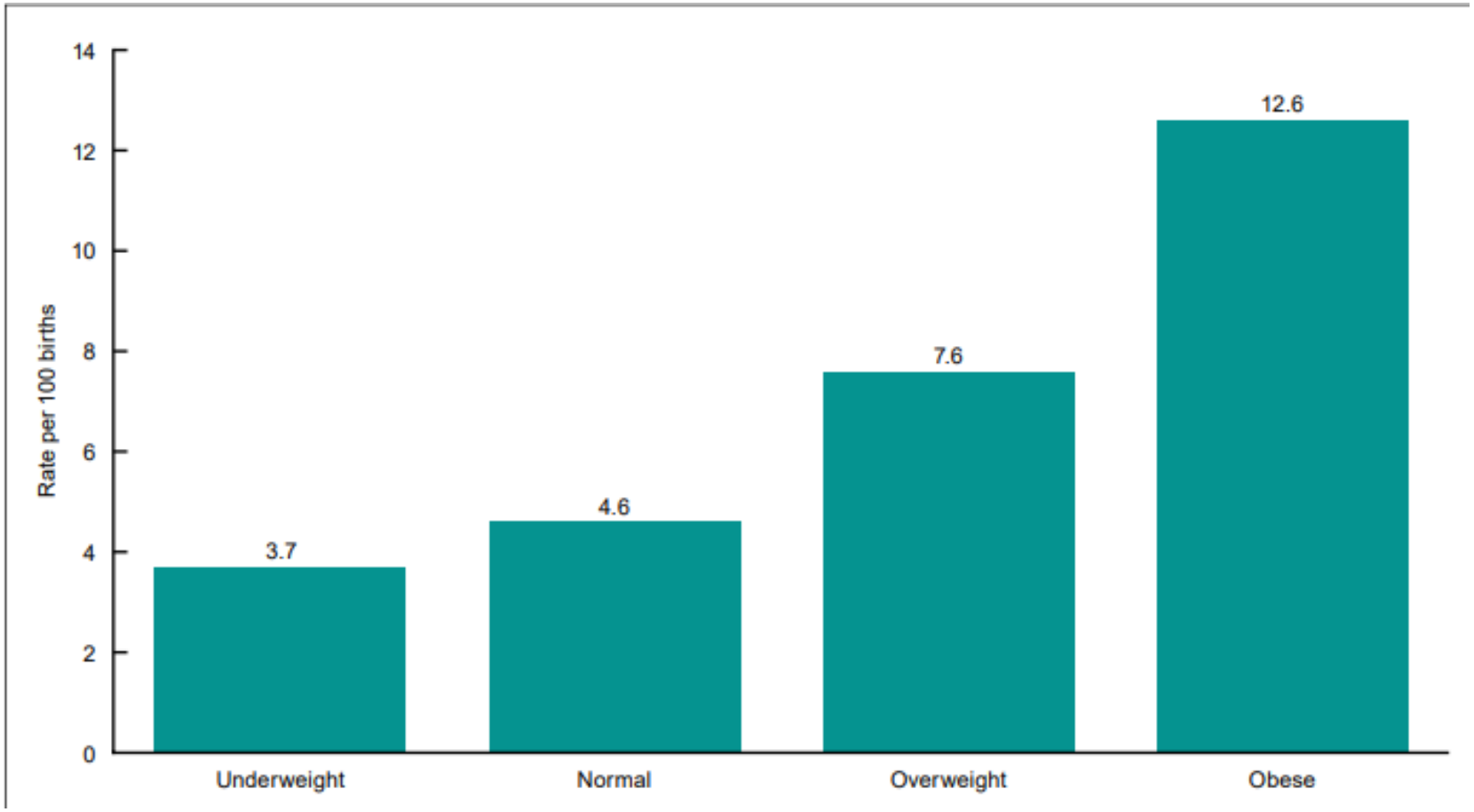
Date	Session Title
January 21	Maternal Care in Rural Areas: focus on Gestational Diabetes
February 18	Hypertension and Pre-eclampsia
March 18	Mood Disorders: Prenatal and Post-partum
April 15	Updates on Syphilis and HIV
May 20	Screening and Management of Hepatitis B and C
June 17	Risk Appropriate Care for Perinatal Substance Use Disorders
July 15	Doulas, Midwives, and Medical Providers
August 19	Advocating Current Standards in Pain Management
September 16	Best Practices in Induction of Labor
October 21	VBACs (vaginal birth after cesarian)
November 18	Decision Making for Third Trimester Obstetric Emergencies and Transport
December 16	TBD

Gestational Diabetes

Emily R. Baker, MD
Maternal Fetal Medicine
Dartmouth Health


8.0
7.5
7.0
6.5
6.0
5.5
0
Rate per 100 births
2016
2017
2018
2019
2020


18
15
12
9
6
3
0
Rate per 100 births
2.5
4.5
6.6
8.8
11.7
15.3
Under 20
20–24
25–29
30–34
35–39
40 and over
Age group (years)


Rate per 100 births
14
12
10
8
6
4
2
0
3.7
4.6
7.6
12.6
Underweight
Normal
Overweight
Obese

Pathophysiology

- Personal insulin resistance

Plus

- Steadily rising insulin resistance related to human placental lactogen.

- Immediate fall after placenta delivery

Morbidity

- Preeclampsia
- Cesarean section
- Macrosomia
- Shoulder dystocia
- Neonatal hypoglycemia
- Neonatal Jaundice
- NICU stay

Screen for pre-pregnancy diabetes by HbA1c

- BMI > 25 kg/m^2 *or* BMI >23 kg/m2 in Asian Americans *with one or more of the following*
  - Physical inactivity
  - First degree relative with diabetes
  - High risk ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
  - Previously given birth to an infant weighing ≥ 4000 gm
  - Previous gestational diabetes
  - Hypertension (140/90 mm Hg or on treatment for hypertension)
  - HDL cholesterol <35 mg/dl or triglyceride level > 250mg/dl
  - Polycystic ovarian syndrome
  - HbA1c ≥ 5.7%, impaired glucose tolerance or impaired fasting glucose on previous testing
  - Other clinical conditions associated with insulin resistance (e.g. acanthosis nigricans)
  - History of cardiovascular disease
  - Age 35 years or greater
  - HIV infection

Screen for pre-pregnancy diabetes by HbA1c

- HgbA1c results
  - ≥6.5% – meets criteria for diagnosis of diabetes. Manage as a pre-existing diabetic.
  - 5.7 – 6.4% - impaired glucose tolerance. Consider recommendation for nutrition counseling. Plan routine screening with 1hr GCT at 24-28w. Clinical judgement and shared decision making about starting home glucose monitoring before routine screening if additional risk factors
  - <5.7% - normal. 1hr GCT at 24-28w

Glucose challenge test tips for patients

- 50 gram is not a fasting test
- Do not restrict carbohydrates for 3 days prior to the 100 gram test
- Bring a sandwich to eat after last blood draw
- Drink it cold

Glucose cutoffs

- 50 gram ≥ 135 mg/DL
- 100 gram
  - Fasting ≥ 95 mg/dL
  - 1-hour ≥ 180 mg/dL
  - 2-hour ≥ 155 mg/dL
  - 3-hour ≥ 140 mg/dL
- Home targets
  - Fasting < 95 mg/dl
  - 1-hour < 140 mg/dl
  - 2-hour < 120 mg/dl

Three hour 100 gram OGTT with one abnormal value

- Fasting blood glucose ≥ 95 mg/dL.
  - Consider home glucose monitoring for 7-10 days to determine need for ongoing monitoring.
  - Review recommendations for nutrition and exercise during pregnancy or refer to dietician or clinical diabetes educator
- Elevated 1, 2, or 3 hour
  - Review recommendations for nutrition and exercise during pregnancy or refer to dietician or clinical diabetes educator

Next steps after diagnosis

- Medical Nutrition Therapy
  - Refer to nutrition counselor RD
  - Clinic generated handouts
  - ADA handouts
  - Video/on line resources
  - The intention of diet changes is not to lose weight and is not to be hungry
- Exercise
  - Encourage moderate intensity aerobic exercise at least 5 days per week or a minimum of 150 minutes per week.
  - 15-to-20-minute brisk walk after meals

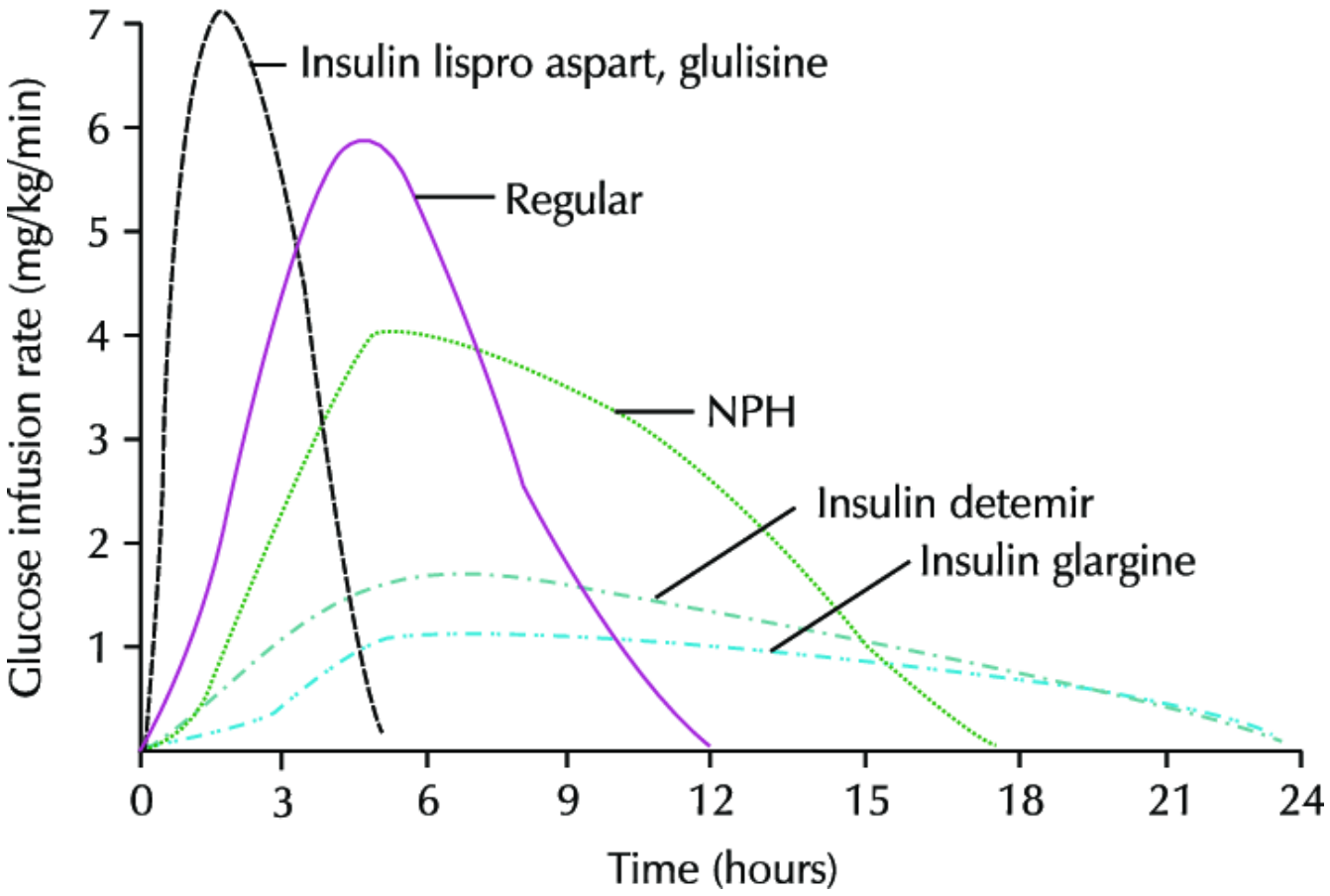
Next steps

- Home monitoring (fasting and 1 hour postprandial)
- Establish means to communicate glucose numbers (phone, fax, portal, CGM)
- Communication allows coaching and encouragement

Medication

- Insulin is the standard treatment – many reasonable option)
- Start medication if roughly 30% of a given time-frame is abnormal
- Lots of nuance and experience drives dosing decisions
- Many regimen options
- GDM patient are not “brittle”
- Can be fairly aggressive at increasing insulin dose especially when high BMI
- Expect high amount of insulin
- At extreme U500

Medication- Insulin



Medications

- Metformin
  - Metformin can be used for patients who decline insulin therapy, who cannot afford insulin therapy or for those patients whom the obstetrical care providers believe will be unable to safely administer insulin.

Surveillance

- GDMA1
  - No antenatal testing.
  - Deliver 39w0d – 40w6d
  - Ultrasound q 4w
- GDMA2
  - NST 1-2/week depending on control
  - Deliver 39w0d – 39w6d
  - Prior to 39 weeks if very poor control
  - Ultrasound q 4week

Mode of Delivery

- ACOG

  “Women with GDM should be counseled regarding the risks and benefits of a scheduled cesarean delivery when the estimated fetal weight is 4,500 g or more”

Delivery

- Intrapartum
  - Every 2 hour fingerstick with short acting insulin
  - No intermediate or long acting insulin
  - The work of labor will help keep glucose down
- After delivery: immediate resolution of placenta- mediated insulin resistance
  - 75- gram OGTT postpartum day 1-3 or at 4-12 weeks postpartum

75 gram OGTT

- Type 2 Diabetes
  - A single abnormal value on 75 gram GTT
    - Fasting ≥ 126 mg/dL
    - 2-hour ≥ 200 mg/dL
  - HBA1c ≥ 6.5%
  - Random plasma glucose ≥ 200mg/dL with symptoms of diabetes
- Impaired Fasting Glucose (IFG)
  - Fasting ≥ 100-125 mg /dl
- Impaired Glucose Tolerance (IGT)
  - 2-hour ≥ 140-199 mg/dl

Follow up care

- Amend EMR history and problem list
- Copy the primary care provider regarding GDM
- Careful discussion with her about the risk for type 2 diabetes and repeat GDM, need for frequent testing
- Encourage breast feeding

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Session 2, Maternal Care in Rural Areas: focus on Hypertension and Pre-Eclampsia

February 18, 2025

Hypertensive Disorders of Pregnancy

Robert N. Blatman, MD
Maternal Fetal Medicine
Dartmouth Health

Hypertensive Disorders of Pregnancy

- Chronic Hypertension
  - Hypertension before 20 weeks and after 12 weeks postpartum
- **Gestational Hypertension**
  - Hypertension that develops after 20 weeks and resolves by 12 weeks postpartum
  - No proteinuria or
  - No sign/symptoms of end-organ dysfunction
- **Preeclampsia**
  - Hypertension that develops after 20 weeks and resolves by 12 weeks postpartum
  - Proteinuria and/or
  - Signs/symptoms of end-organ dysfunction
  - Does not require edema
- Chronic Hypertension with Superimposed preeclampsia
- Eclampsia

Epidemiology basics

- >70000 deaths worldwide
- Incidence in US is about 5% (and creeping up)
- Late onset preeclampsia (>34 weeks) is about 6 fold more common than early onset
- One third are nulliparous
- About 5% are recognized postpartum

Risk Factors Preeclampsia

- Previous preeclampsia
- Family history of preeclampsia
- Renal Disease
- Autoimmune disease
- Diabetes
- Obesity
- AMA
- Adolescent pregnancy
- Multiple Gestation

Typical Presentation of preeclampsia

- 85% present with hypertension and proteinuria after 34 weeks
  - Hypertension: Diastolic >=140 or systolic >=90
  - On 2 occasions 4 hours apart
- Proteinuria
  - 300mg/24 hour or
  - Urine Pr/Cr ratio of >= 0.3 or
  - 2+ on urine dip (only if more quantitative options are not available)

Severe Preeclampsia

- **Symptoms**
  - Headache
    - Generally not responsive to pain medication
  - Abdominal Pain
    - RUQ or epigastric
  - Visual changes
    - Scotomata, blurred vision, rarely cortical blindness
  - Pulmonary edema
- **Laboratory findings**
  - Elevated LFTs (> double high end of normal)
  - Thrombocytopenia (<100)
  - Elevated Creatinine (>1.1)
- **Oliguria** (<500cc/24 hour**)**

Potential Complications of Preeclampsia

- **Seizures (eclampsia)**
- **Hypoxia**
- **Stroke**
- **Abruption**
- **Fetal Growth Restriction**
- **Stillbirth**
- **Death**

Atypical Presentations

- HELLP syndrome
  - Hemolysis
  - Elevated LFTs
  - Low Platelets
- Gestational proteinuria
  - 20-25% go onto develop preeclampsia
- Presentation <20 weeks
  - Most are associated with molar pregnancies or severe preexisting disease (Such as antiphospholipid antibody syndrome)

Management:
Gestational Hypertension/Preeclampsia without severe features

- Delivery at 37 week

- <37 week, Expectant management until:
  - 37 week or
  - Development of severe features

Management:
Preeclampsia with severe features

- Admit

- Delivery may often be delayed until 34 weeks
  - Severe range blood pressure that can be controlled
  - No evidence of end-organ damage

Management:
Preeclampsia with severe features

- Delivery before 34 weeks is indicated for:
  - Fetal demise
  - Fetal surveillance indicating fetal jeopardy
  - Escalating hypertension poorly responsive to antihypertensives
  - Persistent symptoms unresponsive to pain medication
    - Headache
    - Upper abdominal pain
  - Pulmonary Edema
  - Acute renal injury
  - Escalating LFTs
  - HELLP Syndrome

Management:
Preeclampsia with severe features

- Possible indications for delivery before 34 weeks
  - Abruption
  - Labor
  - Maternal request?

Intrapartum Management: General Principals

- OK to induce labor
- Use Continuous EFM (not a candidate for Intermit Ausculation
- Manage Hypertension:
  - Target BP is unclear. 130's-140's/80's-90's is probably reasonable
- May reasonable to have primary c/section for those most at risk of failing IOL:
  - Early gestational age
  - Worrisome maternal pathology
    - Very low platelets, severe symptoms

Intrapartum Management: General Principals

Seizure Prophylaxis

- Preeclampsia without severe features
  - Probably doesn't need Magnesium (We usually don't)
  - (but seizure risk is close to 1%)
- Preeclampsia with severe features
  - Magnesium Sulfate 4-6 gram loading dose and then 2gm/hour for most people
  - Adjust maintenance downward for those with high creatinine or low urine output
  - Check levels clinically or with lab every 4 hours
  - Continue until 24 hours postpartum. Maybe longer with neurologic symptoms.

Confounding and clinically tricky Circumstances

- Preexisting Maternal disease with
  - Proteinuria
  - Hypertension
  - Elevated LFTs
  - Headache
  - Often difficult diagnostic conundrum
- Almost severe?
  - Headache the is somewhat responsive to treatment
  - BP that is tickling severe

Prevention of Preeclampsia

- Aspirin
- Timing and best doses are not completely clear
- ACOG, SMFM and USPSTF all recommend 81mg/day
- Europe (FIGO) uses 150mg
- Society of Ob/Gyns of Canada recommends 162mg/day
- I generally recommend 162/day starting at 12 weeks and continuing until delivery

Strategies to Improve Rural Perinatal Healthcare: Maternal Mental Health

Julia Frew, MD

Department of Psychiatry, Dartmouth Health

March 18, 2025

Outline

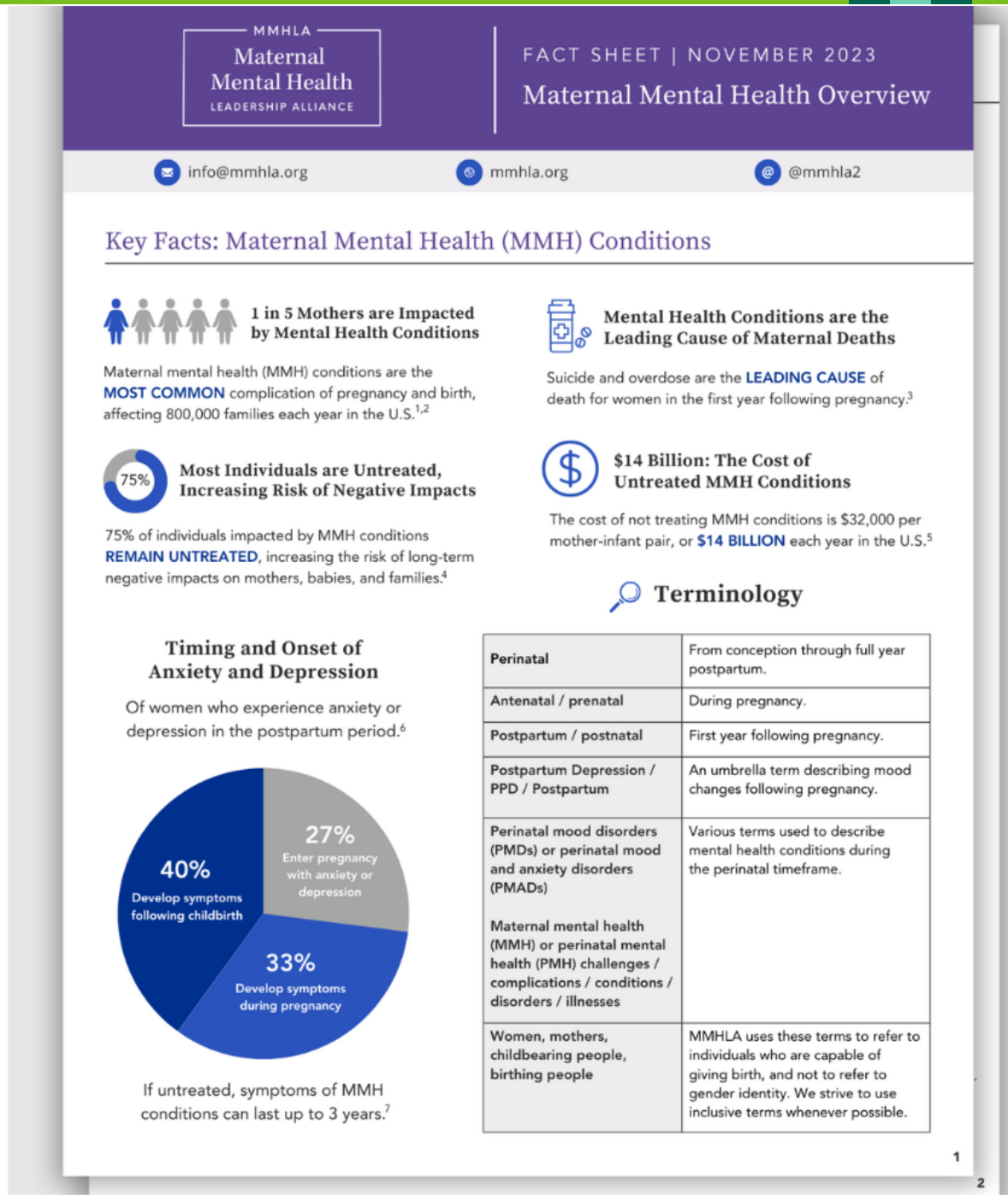
- Epidemiology
- Screening
- Assessment
- Treatment
- Resources

Perinatal Mental Health Conditions

- Common
- Impactful
- Treatable, but often go untreated

Suicide and overdose are the LEADING CAUSE of death for women in the first year following pregnancy, with 80% of those deaths deemed preventable.

https://www.cdc.gov/maternal-mortality/php/data-research/index.html



MMHLA Maternal Mental Health LEADERSHIP ALLIANCE

FACT SHEET | NOVEMBER 2023

Maternal Mental Health Overview

info@mmhla.org mmhla.org @mmhla2

Key Facts: Maternal Mental Health (MMH) Conditions

1 in 5 Mothers are Impacted by Mental Health Conditions

Maternal mental health (MMH) conditions are the **MOST COMMON** complication of pregnancy and birth, affecting 800,000 families each year in the U.S.[1,2]

Mental Health Conditions are the Leading Cause of Maternal Deaths

Suicide and overdose are the **LEADING CAUSE** of death for women in the first year following pregnancy.[3]

Most Individuals are Untreated, Increasing Risk of Negative Impacts

75% of individuals impacted by MMH conditions **REMAIN UNTREATED**, increasing the risk of long-term negative impacts on mothers, babies, and families.[4]

$14 Billion: The Cost of Untreated MMH Conditions

The cost of not treating MMH conditions is $32,000 per mother-infant pair, or **$14 BILLION** each year in the U.S.[5]

Timing and Onset of Anxiety and Depression

Of women who experience anxiety or depression in the postpartum period.[6]

If untreated, symptoms of MMH conditions can last up to 3 years.[7]

Terminology

Perinatal	From conception through full year postpartum.
Antenatal / prenatal	During pregnancy.
Postpartum / postnatal	First year following pregnancy.
Postpartum Depression / PPD / Postpartum	An umbrella term describing mood changes following pregnancy.
Perinatal mood disorders (PMDs) or perinatal mood and anxiety disorders (PMADs) **Maternal mental health (MMH) or perinatal mental health (PMH) challenges / complications / conditions / disorders / illnesses**	Various terms used to describe mental health conditions during the perinatal timeframe.
Women, mothers, childbearing people, birthing people	MMHLA uses these terms to refer to individuals who are capable of giving birth, and not to refer to gender identity. We strive to use inclusive terms whenever possible.

1

Screening

- ACOG recommends that screening for perinatal depression and anxiety occur at the initial prenatal visit, later in pregnancy, and at postpartum visits using a standardized, validated instrument.

- Lifeline for Moms has created composite screeners including:
  - Depression: PHQ9 or EPDS
  - Anxiety: GAD-7
  - Bipolar disorder: MDQ (only needs to be done once as it queries lifetime symptoms)
  - PTSD: PC-PTSD-5
  - Supplemental patient safety screener

- Screen all perinatal patients for SUD using a validated questionnaire or conversation with patient
  - Routine urine drug screening not recommended

https://www.acog.org/programs/perinatal-mental-health/patient-screening

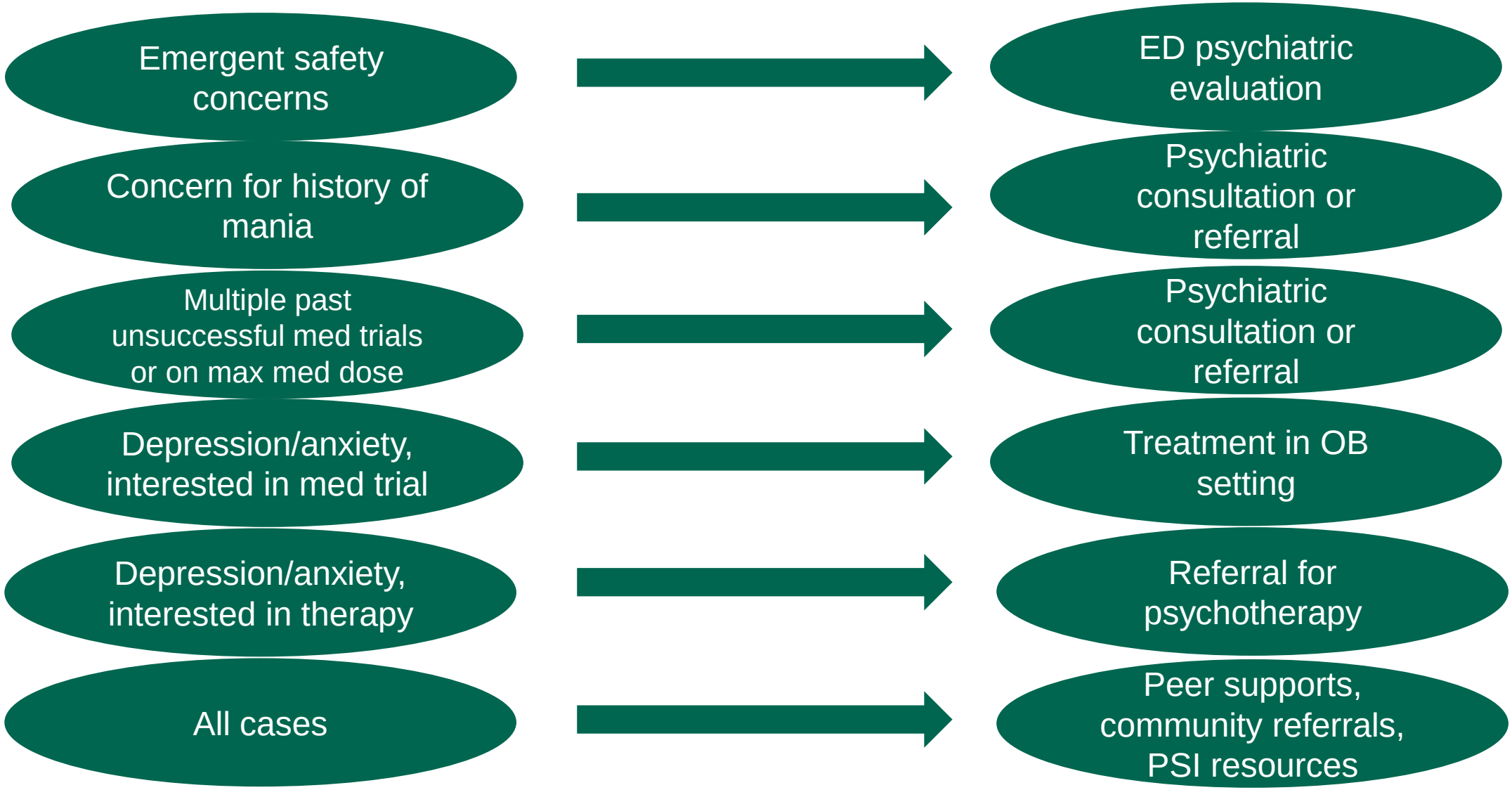
https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2015/06/alcohol-abuse-and-other-substance-use-disorders-ethical-issues-in-obstetric-and-gynecologic-practice

Assessment (screening ≠ diagnosis)

- Positive screening results should trigger further assessment
- At a minimum, assess:
  - Safety
  - Severity of symptoms
  - Interest/openness to treatment options (meds, psychotherapy)
  - Presence of current treatment providers

"Is this something I can address in the OB setting, or do I need additional support?"

Assessment


Emergent safety concerns
ED psychiatric evaluation
Concern for history of mania
Psychiatric consultation or referral
Multiple past unsuccessful med trials or on max med dose
Psychiatric consultation or referral
Depression/anxiety, interested in med trial
Treatment in OB setting
Depression/anxiety, interested in therapy
Referral for psychotherapy
All cases
Peer supports, community referrals, PSI resources

Treatment of MMH conditions in the OB setting

- **If:**
  - No concern for history of mania
  - At least moderate symptoms of anxiety/depression
  - Interest in med trial
- **Then:**
  - Initiate SSRI or SNRI (choose previously effective med, if applicable)
  - Titrate to effect or to at least a moderate dose
    - Sertraline 100-150mg
    - Fluoxetine 40-60mg
    - Escitalopram 15-20mg

Know Your Local Resources

- Psychiatry services in your medical system
  - Collaborative/integrated care models
  - Subspecialty mental health care
  - Electronic or curbside consultation
- Community Mental Health Centers
- Family Resource Centers/Parent Child Centers
- Private Practice providers in the community
  - https://www.psychologytoday.com/us/therapists
- PSI Online Provider Directory:
  - https://www.postpartum.net/get-help/provider-directory/

Looking for a knowledgeable provider or support group in your area?

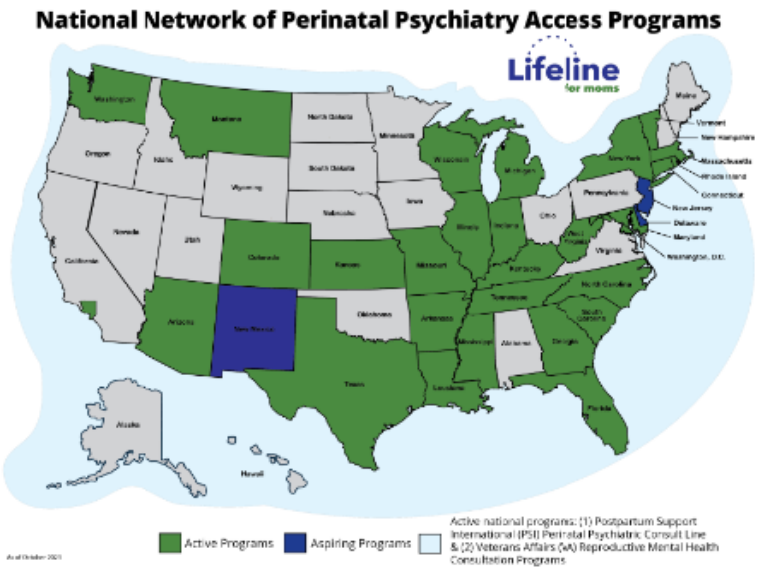
Visit the PSI online directory to find qualified perinatal mental health professionals and groups in the United States and Canada. Future plans will include the UK and Australia.

Moms, families, and providers can now quickly and easily identify trained perinatal mental health providers in their area. Providers can share practice announcements, new programs and groups, and more.

FIND A PROVIDER OR GROUP

State Resources

National Network of Perinatal Psychiatry Access Programs



Our National Network of Perinatal Psychiatry Access Programs:

- Facilitates peer learning and resource sharing among aspiring, emerging, and established Perinatal Psychiatry Access Programs and relevant partners across the U.S.
- Nurtures relationships to promote continued support for, and innovation and expansion of, existing and future programs.
- Facilitates quality improvement, program evaluation, and equity advancement within and across programs. **Learn more about our commitment to equity across our Network of Perinatal Psychiatry Access Programs.**

If your state doesn't have a Perinatal Psychiatry Access Program yet and you are interested in consulting with a perinatal psychiatrist, you can contact the **Postpartum Support International (PSI) Perinatal Psychiatric Consult Line** online or by calling **877-944-4773**.

https://www.umassmed.edu/lifeline4moms/Access-Programs/

National Resources

- PSI Perinatal Psychiatric Consult Line
  https://www.postpartum.net/professionals/perinatal-psychiatric-consult-line/

POSTPARTUM SUPPORT INTERNATIONAL

Medical Providers (For Prescribers):

The PSI perinatal psychiatric consultation line is a service provided at no cost.

The consultation line is available for medical professionals who are prescribers and have questions about the mental health care related to pregnant and postpartum patients and pre-conception planning. This consultation service is available for medical providers only.

The Perinatal Psychiatric Consult Line is staffed by experts in the field of psychiatry who are members of PSI and specialists in the treatment of perinatal mental health disorders. The service is free and available by appointment.

Fill out this form **and we will match you with an appointment. We will respond to your request within one business day.**

The presentation of perinatal mental health disorders is not always straightforward, and medication is not always immediately effective. PSI's expert perinatal psychiatrists are available to share their skills and expertise with fellow medical professionals, providing necessary guidance and reassurance on any matter, but particularly those that may be more challenging.

Online Resources for Providers

Dartmouth Health

Project ECHO

MGH CENTER for Women's Mental Health

Reproductive Psychiatry Resource & Information Center

REPROTOX®

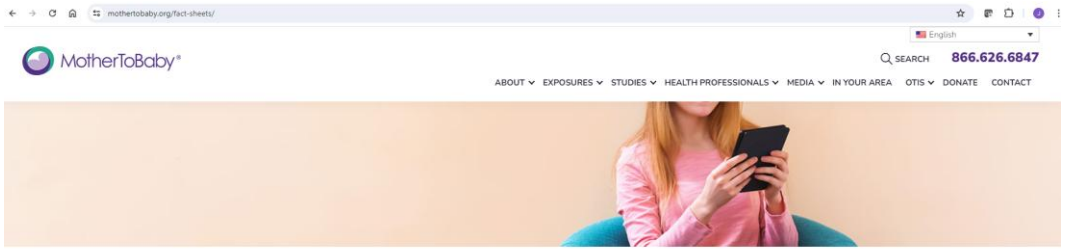
ABOUT REPROTOX | JOIN REPROTOX | SAMPLES | REPROT

Welcome to Reprotox

An information system developed by the Reproductive Toxicology Center for its members.

Login

REPROTOX® contains summaries on the effects of medications, chemicals, infections, and physical agents on pregnancy, reproduction, and development. The REPROTOX® system was developed as an adjunct information source for clinicians, scientists, and government agencies. Patients should consult their health care providers rather than relying on REPROTOX® summaries.



Fact Sheets

Answers to Your Frequently Asked Questions about Pregnancy & Breastfeeding Exposures

Our Fact Sheets answer frequently asked questions about many common exposures during pregnancy and breastfeeding, including medications, recreational substances, cosmetic treatments, health conditions, infections, vaccines, and more. Available in English and Spanish, our content summarizes available scientific information on whether people and their developing babies are at risk because of an exposure in their environment. *Our Fact Sheets are meant for general information purposes and should not replace the advice of your healthcare provider.*

Quick, easy-to-understand information on 275+ exposures and how they may impact pregnancy or breastfeeding

How can we help you today?

Dismiss | Chat now

Lifeline for moms

PSI POSTPARTUM SUPPORT INTERNATIONAL

Bumps Best use of medicines in pregnancy

Drugs and Lactation Database (LactMed®)

< Prev Next >

Bethesda (MD): National Institute of Child Health and Human Development; 2006-.

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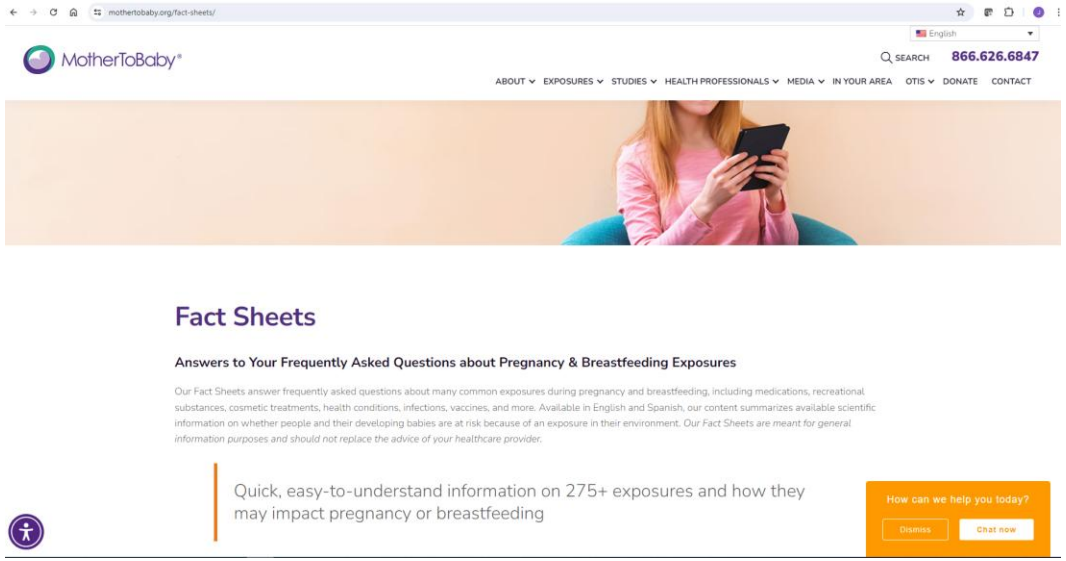
Search this book

The LactMed® database contains information on drugs and other chemicals to which breastfeeding mothers may be exposed. It includes information on the levels of such substances in breast milk and infant blood, and the possible adverse effects in the nursing infant. Suggested therapeutic alternatives to those drugs are provided, where appropriate. All data are derived from the scientific literature and fully referenced. A peer review panel reviews the data to assure scientific validity and currency.

Online Resources for Pat

MGH CENTER for Women's Mental Health
Reproductive Psychiatry Resource & Information Center

PSI POSTPARTUM SUPPORT INTERNATIONAL



STAR LEGACY FOUNDATION

resolve
THE NATIONAL INFERTILITY ASSOCIATION

Bumps
Best use of medicines in pregnancy

Resources

- Postpartum Support International: https://www.postpartum.net/
- Ammon-Pinizzotto Center for Women's Mental Health at MGH: https://womensmentalhealth.org/
- Mother to Baby (Organization of Teratology Information Specialists): https://mothertobaby.org/
- Reprotox: https://reprotox.org/
- LactMed: https://www.ncbi.nlm.nih.gov/books/NBK501922/
- BUMPS (UK Teratology Information Service): https://www.medicinesinpregnancy.org/
- Lifeline4Moms: https://www.umassmed.edu/lifeline4moms/
- Star Legacy Foundation (stillbirth and infant loss): https://starlegacyfoundation.org/
- Resolve (infertility): https://resolve.org/