

Addressing Disparities: Hypertensive Disorders of Pregnancy

High Blood Pressure During and After Pregnancy

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MATERNAL HEALTH LAB

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Maternal Mortality Affects Too Many Mothers



688

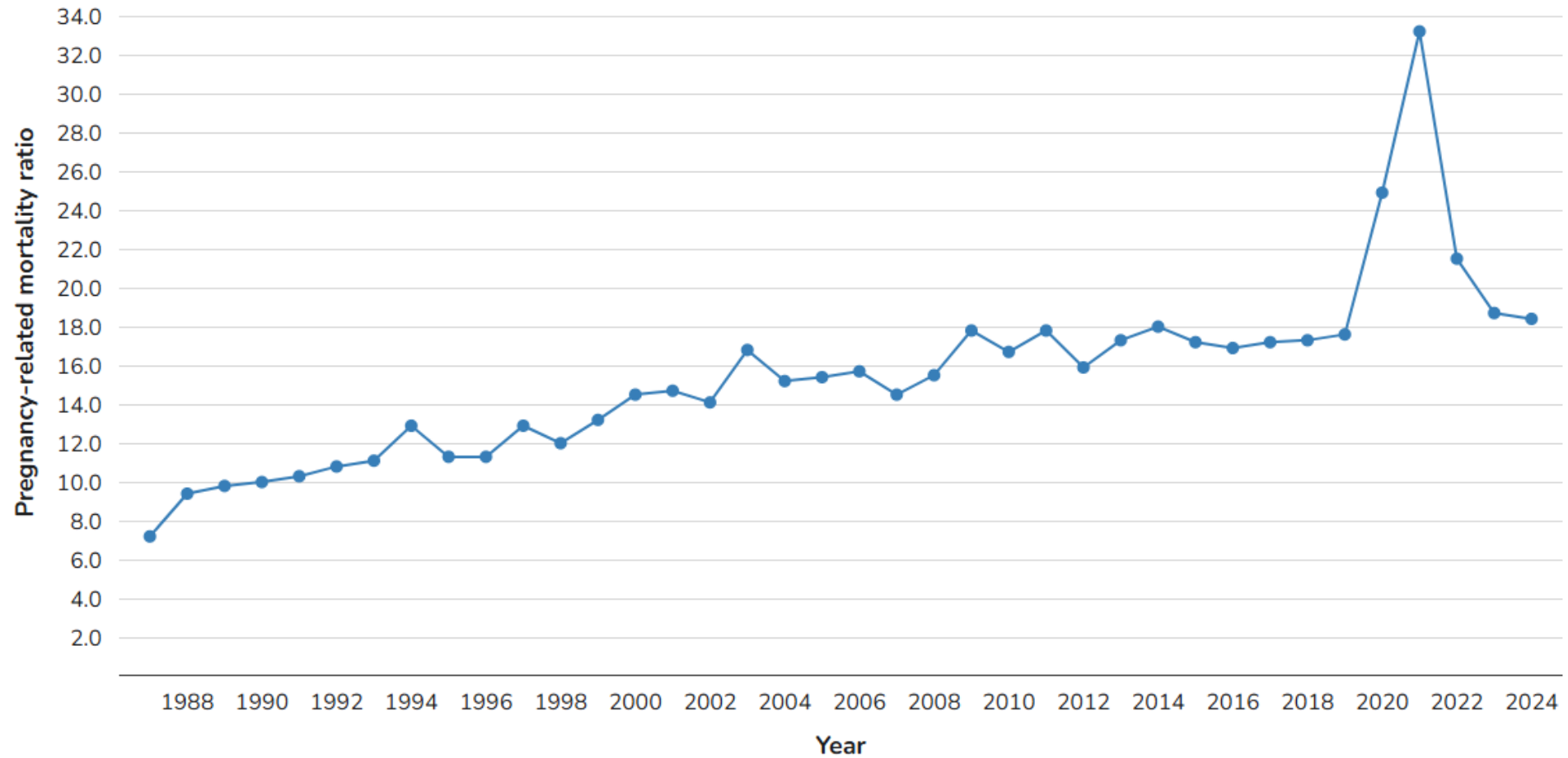
3-4X

80%

- In 2024, 688 women died of maternal causes in the United States.*
- Non-Hispanic Black women and American Indian/Alaska Native women are 3-4 times more likely to die than Non-Hispanic White women.
- More than 80% of pregnancy-related deaths are preventable.

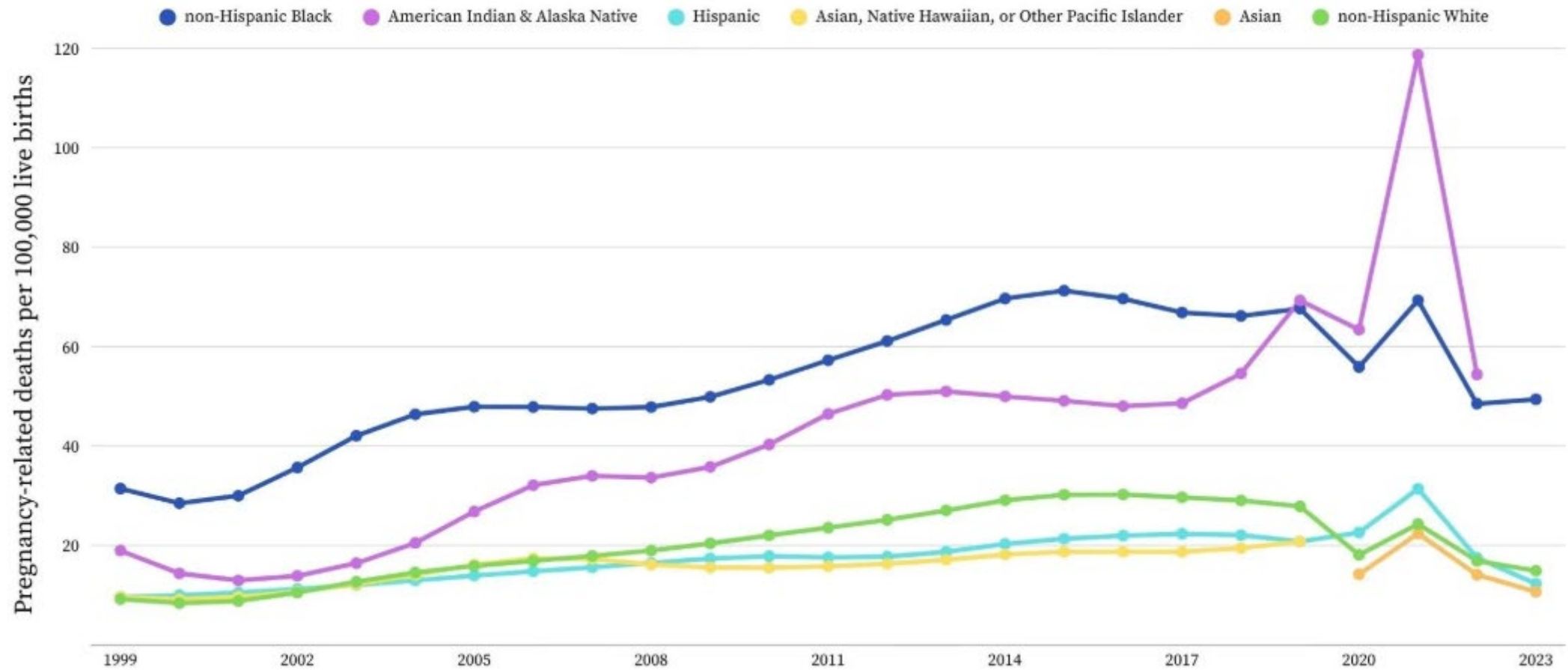
*Source: Maternal Mortality Rates in the U.S., 2025, CDC.gov
Data are from the National Vital Statistics System

Pregnancy-related mortality ratio in the United States: 1987–2024



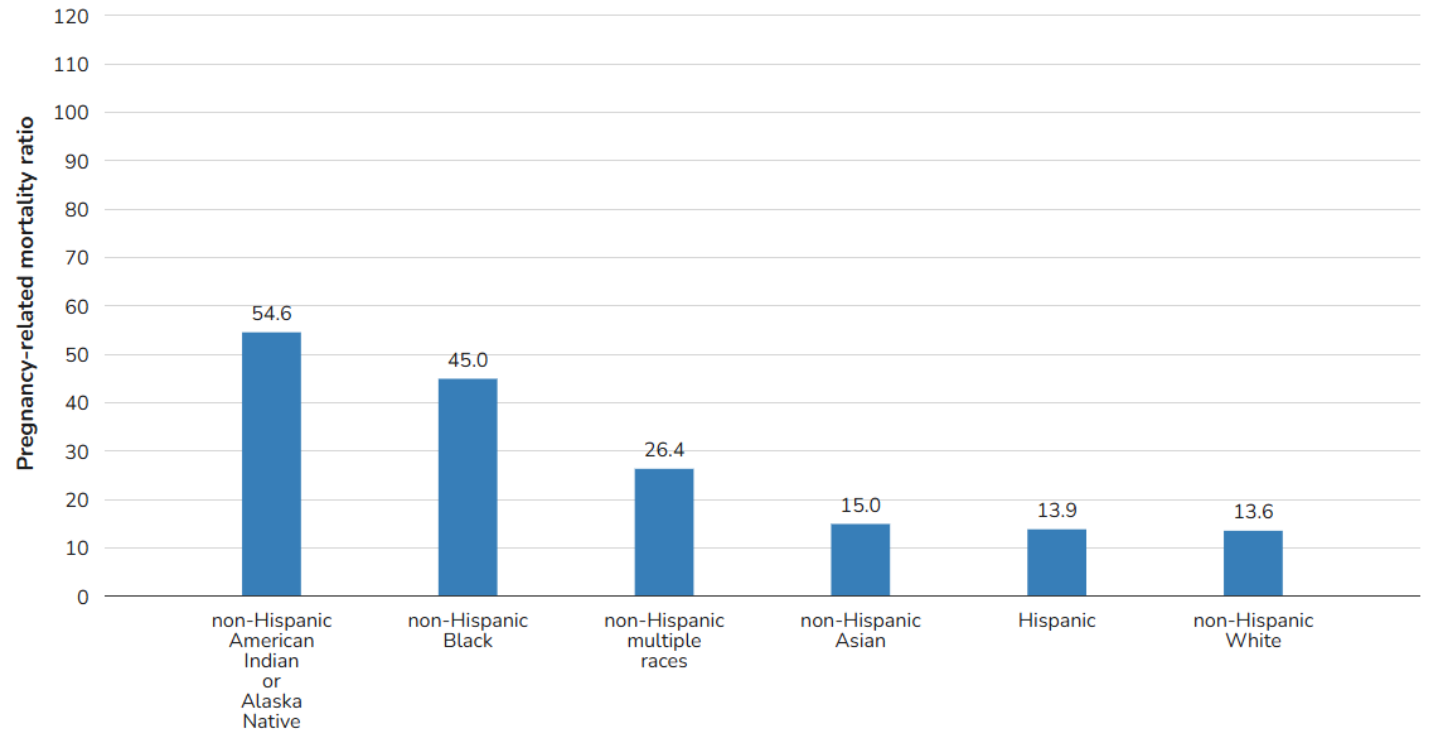
Source: <https://www.cdc.gov/maternal-mortality/php/pregnancy-mortality-surveillance-data>

Maternal Mortality Rates in the United States by Race & Ethnicity, 1999-2023



<https://www.mmhla.org/articles/new-maternal-mortality-data-and-analysis-published-by-cdc-and-commonwealth-fund>

Pregnancy-related deaths by race-ethnicity United States, 2024



Source: <https://www.cdc.gov/maternal-mortality/php/pregnancy-mortality-surveillance-data>

Why is Addressing HDP Important?

Nationally,
from 2016-
2020:

- HDP was the cause of 7% of pregnancy-related deaths

In Michigan,
from 2016-
2020:

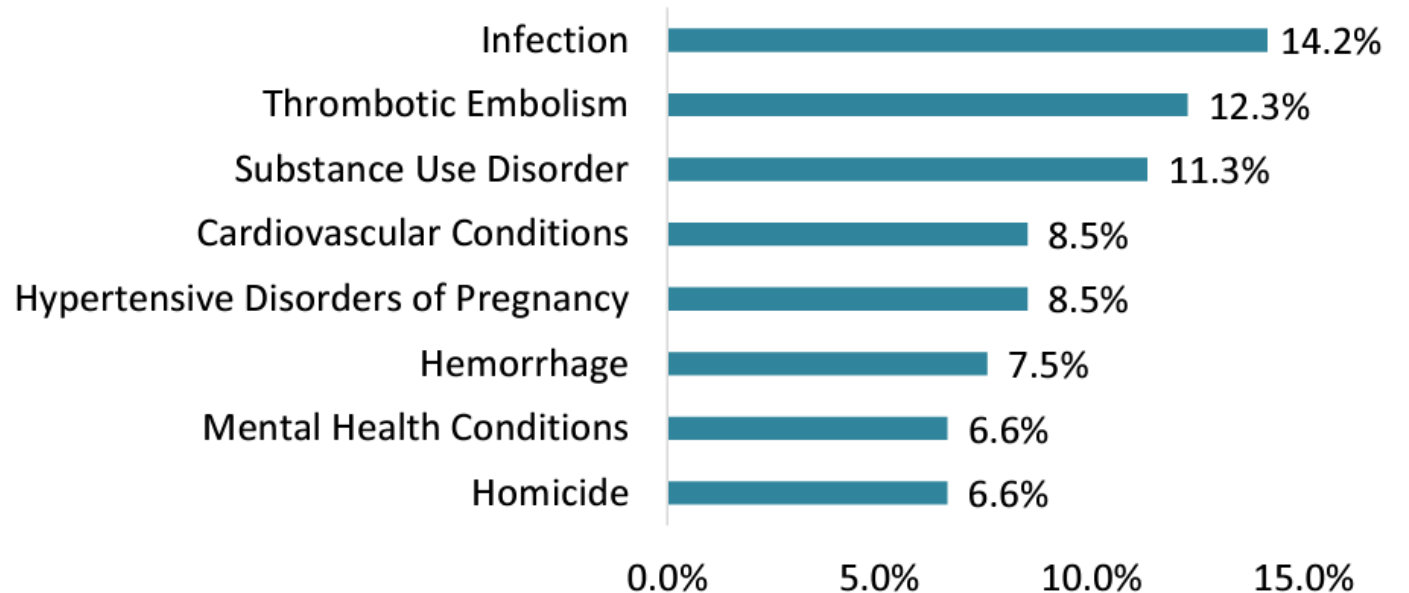
- HDP was the 4th leading cause of pregnancy-related deaths (8.5%)



In Michigan: 2016-2020

- Maternal Mortality Ratio of 19.4 pregnancy-related deaths per 100,000 live births
- 74.5% of pregnancy-related deaths were determined to be preventable
- Black women were 2.2 times more likely to die from pregnancy-related causes in Michigan compared to white women (36.5 and 16.3 per 100,000 live births, respectively)

Leading Causes of Pregnancy-Related Mortality



Pregnancy-related mortality is the death of a person while pregnant or within one year of the end of a pregnancy from any cause related to or aggravated by the pregnancy or its management. This does not include accidental or incidental causes.

HDP and Risks to the Fetus

Lack of oxygen and nutrients, which can impair fetal growth

Preterm birth

Stillbirth if placental abruption (separation of the placenta from the uterine wall) leads to heavy bleeding in the mother

Infant death

HDP and Long-Term Maternal Complications

3 to 4 times the
risk of high
blood pressure

Double the risk
for heart disease
& stroke

Increased risk of
developing
diabetes

Challenges in Addressing Maternal Mortality and HDP:

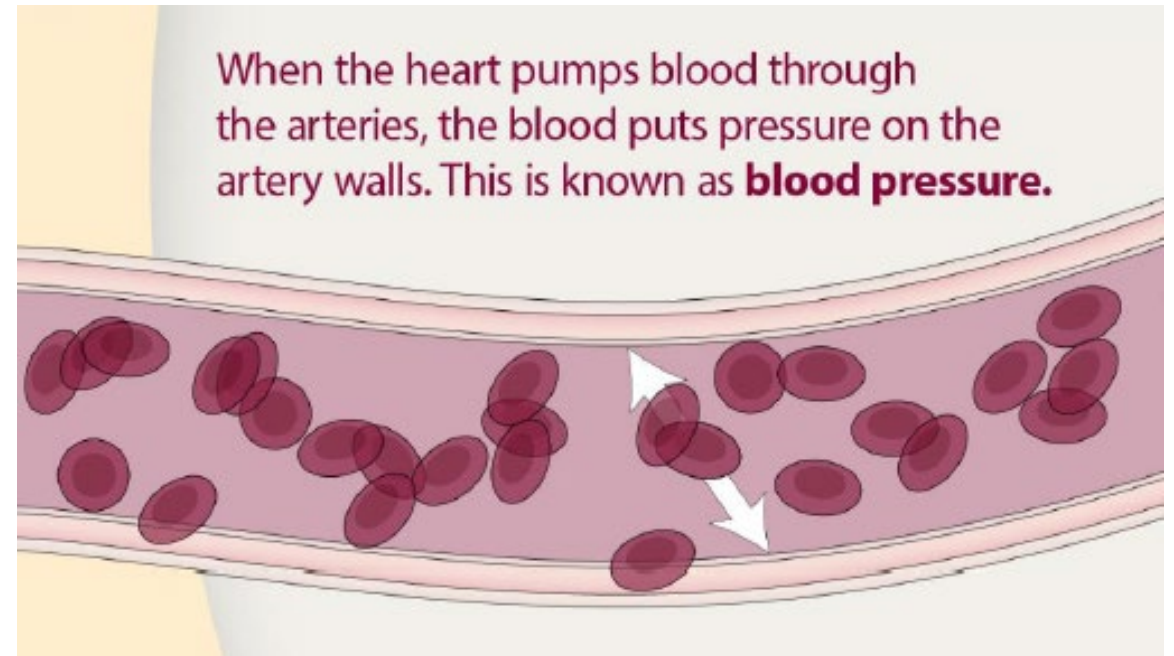
- Delays in identifying, seeking, reaching, and receiving timely quality care is one of the most complex maternal health problems to resolve.
- Delays account for many women reaching available expert care late and when in worse clinical condition.



Hypertension Basics

Blood pressure (BP) is the force of your blood pushing against the walls of your arteries. It is measured in millimeters of mercury (mm HG) and recorded as two numbers:

- Systolic pressure (the top number): the pressure when the heart beats and pumps blood.
- Diastolic pressure (the bottom number): the pressure when the heart is at rest between beats.



Blood Pressure Categories



BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120-129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130-139	or	80-89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

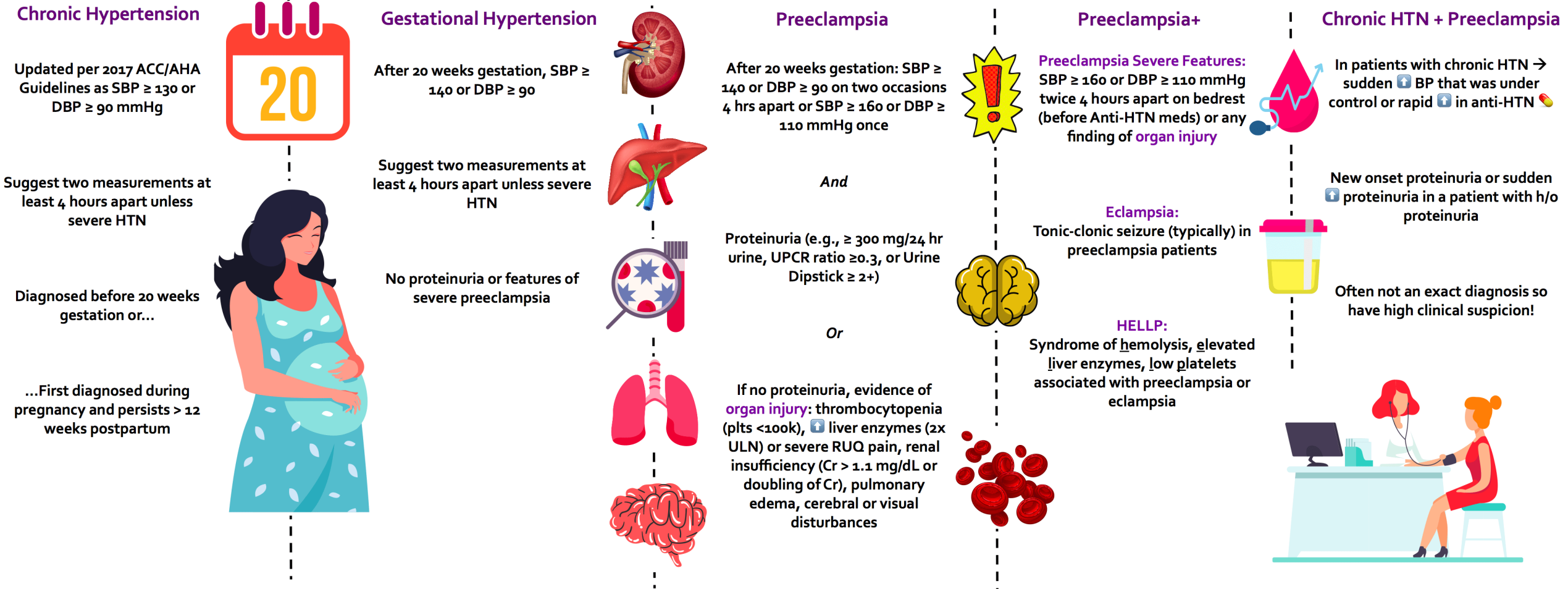
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heart.org/bplevels

Hypertensive Disorders of Pregnancy (HDP)

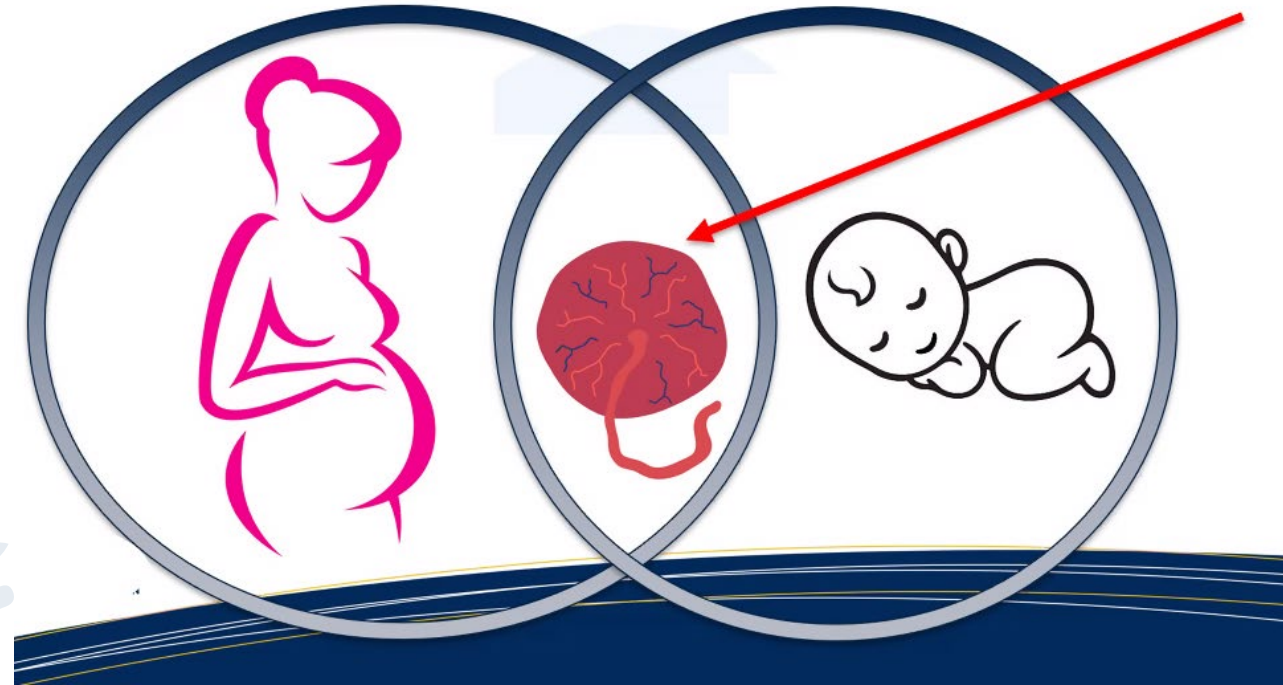
Condition	Description
Chronic Hypertension	High blood pressure that is present before pregnancy or diagnosed before 20 weeks of pregnancy. Women who have chronic hypertension can also develop preeclampsia.
Gestational Hypertension	High blood pressure that develops at or after 20 weeks of pregnancy without evidence of protein in the urine or other heart or kidney problems. Gestational hypertension usually improves after delivery. However, some women with gestational hypertension have a higher risk of developing chronic hypertension in the future.
Preeclampsia	Occurs when a woman with previously normal blood pressure suddenly develops high blood pressure and protein in the urine or other problems (e.g., low platelet count, impaired liver function) after 20 weeks of pregnancy. Women who have chronic hypertension can also develop preeclampsia.
Eclampsia	Some women with preeclampsia can develop seizures. Eclampsia is a medical emergency.
Hemolysis Elevated Liver Enzymes and Low Platelet Count (HELLP) Syndrome	HELLP syndrome is a life-threatening condition that can occur during pregnancy or soon after delivery. It can cause high blood pressure and seizures and can lead to a potentially fatal liver disorder or stroke if left untreated.

HYPERTENSIVE DISORDERS OF PREGNANCY



Preeclampsia – A Placental Problem

- Affects both the mother and the unborn baby.
- A rapidly progressive condition characterized by high blood pressure and **usually** the presence of high levels of protein in the urine **OR** the new development of platelets, trouble with the kidneys or liver, fluid in the lungs, or signs of brain trouble such as seizures and/or visual disturbances.
- It can happen after the 20th week of pregnancy or up to 6 weeks after birth.
- Early recognition of preeclampsia signs and symptoms can be life-saving.





<https://preeclampsia.org/signs-and-symptoms>

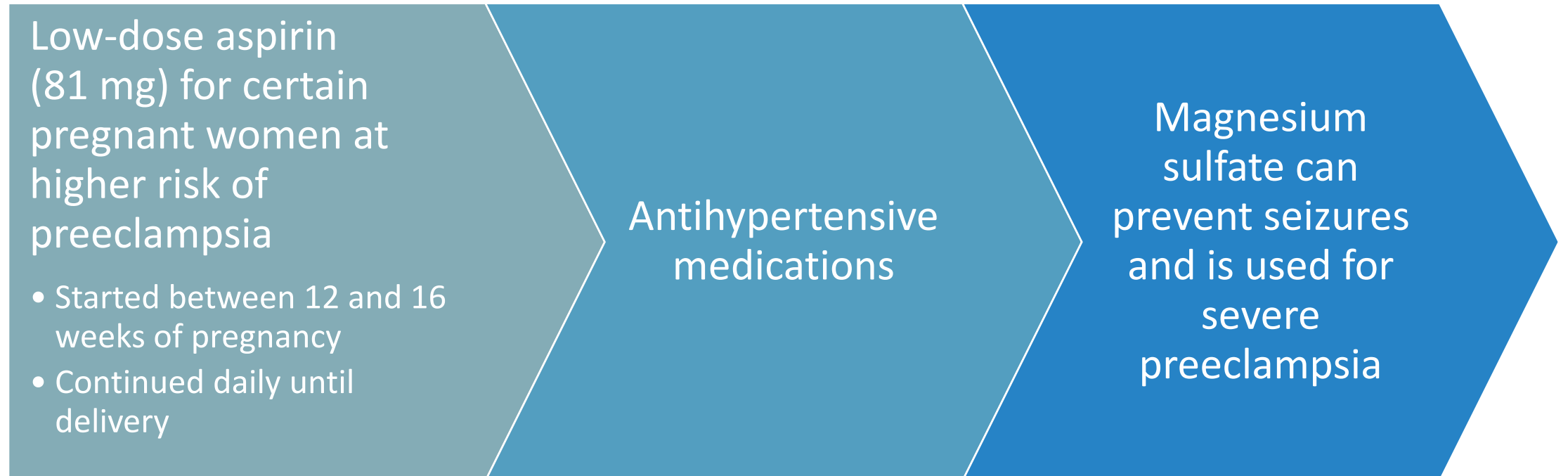
Postpartum Preeclampsia

Can develop between
48 hours to 6 weeks
after birth

Occurs in up to 27.5%
of pregnancies in the
United States

Most deaths from
HDP occur
postpartum

Prevention and Treatment



Risk Factors and low-dose aspirin use

Risk Level	Risk Factors
High (1 or more risk factors)	<ul style="list-style-type: none">• History of preeclampsia in previous pregnancy• Multifetal gestation (twins, triplets, etc.)• Chronic hypertension (high blood pressure)• Type 1 or 2 diabetes• Renal disease (kidney disease)• Autoimmune disease such as lupus
Moderate (2 or more risk factors)	<ul style="list-style-type: none">• Nulliparity (never having given birth)• Obesity (Body mass index >30)• Family history of preeclampsia (e.g., mother or sister)• Black race (due to social, rather than biological factors)• Lower income• Age 35 and older• Personal history factors (e.g., low birthweight or small for gestational age, previous adverse pregnancy outcome)• In vitro fertilization
Low	<ul style="list-style-type: none">• Previous uncomplicated full-term delivery

Source: Low-Dose Aspirin Use for the Prevention of Preeclampsia and Related Morbidity and Mortality; Practice Advisory, December 2021; <https://www.acog.org>

Antihypertensive Medications

The American College of Obstetricians and Gynecologists (ACOG) recommends utilizing **140/90** as the threshold for initiation or titration of medical therapy of chronic hypertension in pregnancy, rather than the previously recommended threshold of 160/110.

Source: Clinical Guidance of the Integration of the Findings of the Chronic Hypertension and Pregnancy (CHAP) Study

Expectant Management: What it means for your clients and patients

Early identification, accurate diagnosis, and timely management

Delivery Timing:

- Preeclampsia **without severe** features or gestational hypertension:
Recommend delivery ≥ 37 weeks
34-36 weeks: shared decision-making on delivery
- Preeclampsia **with severe** features:
Delivery ≥ 34 weeks
Before 34 weeks, maternal or fetal condition is unstable

Postpartum Follow-up Visit

- Self-monitoring blood pressure until a visit with healthcare provider within 7-10 days after delivery OR
- A visit with healthcare provider within 72 hours (3 days) for those with severe hypertension

Following this initial contact, it's recommended that ongoing care be provided as needed including a comprehensive postpartum visit within 12 weeks of birth.

Beyond Pregnancy – Stages of Life and Health



HDP and Long-Term Maternal Complications

3 to 4 times the
risk of high
blood pressure

Double the risk
for heart disease
& stroke

Increased risk of
developing
diabetes

HIGH BLOOD PRESSURE DURING & AFTER PREGNANCY

WARNING SIGNS

GET MEDICAL CARE RIGHT AWAY IF YOU START HAVING ANY OF THESE WARNING SIGNS:



Severe stomach pain that won't go away



Severe swelling of the hands and face



Severe headache that won't go away



Severe nausea and throwing up (not like morning sickness)



Dizziness or fainting



Chest pain or fast-beating heart



Changes in vision



Trouble breathing

This does not list every warning sign you might have. If something doesn't feel right, contact your health care provider.

HIGH BLOOD PRESSURE:

High blood pressure (also called hypertension) happens when your blood pushes too hard against the walls of your blood vessels. High blood pressure does not usually cause symptoms until a severe or life-threatening stage. It can start before you get pregnant, while you are pregnant, or after your pregnancy.

RISKS FOR HAVING HIGH BLOOD PRESSURE



Not being physically active



Having a close relative with high blood pressure



Smoking



Being pregnant for the first time



Blood pressure issues with a previous pregnancy

Also, being overweight and having diabetes.

RISKS TO YOU AND YOUR BABY

- Preeclampsia
- Stroke
- Heart disease
- Your baby being born too early or being too small

PREECLAMPSIA:

Preeclampsia is high blood pressure with signs of other problems. Some of these signs can be protein in your urine or seizures. Your provider will test your blood and urine to see if you are having these problems.

Preeclampsia can happen after the 20th week of pregnancy. It can also happen after giving birth, even if you did not have high blood pressure during pregnancy.

RISKS FOR HAVING PREECLAMPSIA



Diabetes*



Being pregnant with more than one baby



Chronic high blood pressure



Autoimmune conditions (like lupus)



Being overweight*



Preeclampsia with a previous pregnancy



Kidney disease

**Also a risk for developing high blood pressure.*

RISKS TO YOU AND BABY

- Stroke
- Seizures
- Organ damage
- Death
- Your baby being born too early



College of Human Medicine
MICHIGAN STATE UNIVERSITY



STRONG Beginnings
Strengthening families for a Healthy Start

MANAGING HIGH BLOOD PRESSURE DURING & AFTER PREGNANCY

TAKE CARE OF YOURSELF

NUTRITION

Focus on eating:

- Fruits and veggies
- Whole grains (oatmeal and whole grain bread/pasta)
- Low-fat milk, yogurt and cheese
- Skinless chicken and fish
- Nuts, peas and beans

Fresh, canned, and frozen fruits and veggies are all healthy choices.

Look for veggies labeled low-sodium, reduced-sodium, or no-salt-added.

PHYSICAL ACTIVITY*

5 days a week, 30 minutes a day is best. But, even just 10 minutes a day can help.

Pick a few exercises that work for you.

Examples - walk, dance, yoga, or find simple exercises online.

**Talk with your provider before changing your activity levels.*

DON'T SMOKE, USE DRUGS, DRINK ALCOHOL, OR USE MARIJUANA PRODUCTS.

MANAGING STRESS

It's normal to experience stress during and after pregnancy.

To help manage stress:

Make a list. What needs to be done and what can wait?

Try deep breathing or meditation.

Remember, it's okay to ask for help.

Work with your provider to address any mental health concerns you may have.

WORK WITH YOUR PROVIDER

MONITOR YOUR BLOOD PRESSURE AT HOME

If you are taking your own blood pressure at home, talk with your provider about important things to know.

What symptoms could mean I'm having problems with my blood pressure? What should I do if I'm having symptoms?

If a reading is higher than normal, when should I call the provider's office or go to the emergency room?

What is a healthy blood pressure reading for me?

MEDICATION

If you and your provider decide that medication is needed:

- Do not stop taking it without talking to your provider.
- Follow the directions written on your bottle.
- Talk with your provider about side effects and how to manage them.

SHARE YOUR BLOOD PRESSURE LOG



Use a blood pressure log to write down your readings. Share this log with your provider at appointments.

GO TO YOUR APPOINTMENTS

Your provider will monitor your blood pressure readings, symptoms and changes in your urine and blood.

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The American Heart Association Life's Essential 8

<https://www.heart.org/en/healthy-living/healthy-lifestyle/lifes-essential-8>



- Eat Better
- Be More Active
- Manage Blood Sugar
- Manage Weight
- Control Cholesterol
- Manage Blood Pressure
- Quit Tobacco
- Get Healthy Sleep



goredforwomen.org/en/know-your-risk/lifes-essential-8-for-pregnancy



[Nurture with Good Nutrition \(PDF\)](#) >

[Nurture with Good Nutrition - Spanish \(PDF\)](#) >



[Moms Were Made to Move \(PDF\)](#) >

[Moms Were Made to Move - Spanish \(PDF\)](#) >



[Stay Away from Tobacco \(PDF\)](#) >

[Stay Away from Tobacco - Spanish \(PDF\)](#) >



[Sleep Soundly \(PDF\)](#) >



[Be Wise with Weight \(PDF\)](#) >



[Caring for Your Cholesterol \(PDF\)](#) >

American Heart Association.



LIFE'S ESSENTIAL 8™ FOR PREGNANCY

Nurture with Good Nutrition

Maintaining a healthy eating pattern that supports the growth and development of your baby. Good nutrition before, during and after pregnancy can decrease the risk of gestational diabetes, high blood pressure and other illnesses.



Enjoy

Vegetables, fruits, whole grains, beans and other legumes, nuts, seafood, low-fat dairy, and lean proteins including skinless poultry.



Limit

Sweetened drinks, foods high in sodium and added sugars, fatty and processed meats, full-fat dairy products, and tropical oils like coconut and palm.



Avoid

Trans-fat by reading food labels and minimizing or avoiding fatty meats.



What's Good For Mom Is Good For Baby

Use these tips to help you stay on track with your healthy eating goals.

Focus on Portions and Balance

To support healthy weight gain during pregnancy, listen to your body's hunger cues and eat mindfully. Take your time so you can recognize when you're satisfied and avoid overeating. Aim to choose healthy options with whole grains, vegetables, fruits, legumes, nuts, seafood and low fat dairy.

Cook Consciously

Take control over the nutritional content of your food by learning healthy preparation methods and cooking more at home.

Look For the Heart-Check Mark

When you see it, you can be confident that a product aligns with the American Heart Association's recommendations for an overall healthy eating pattern.

Get Inspired The American Heart Association has hundreds of heart-healthy recipes to choose from at [recipes.heart.org](https://www.heart.org/recipes).

Talk To Your Healthcare Provider

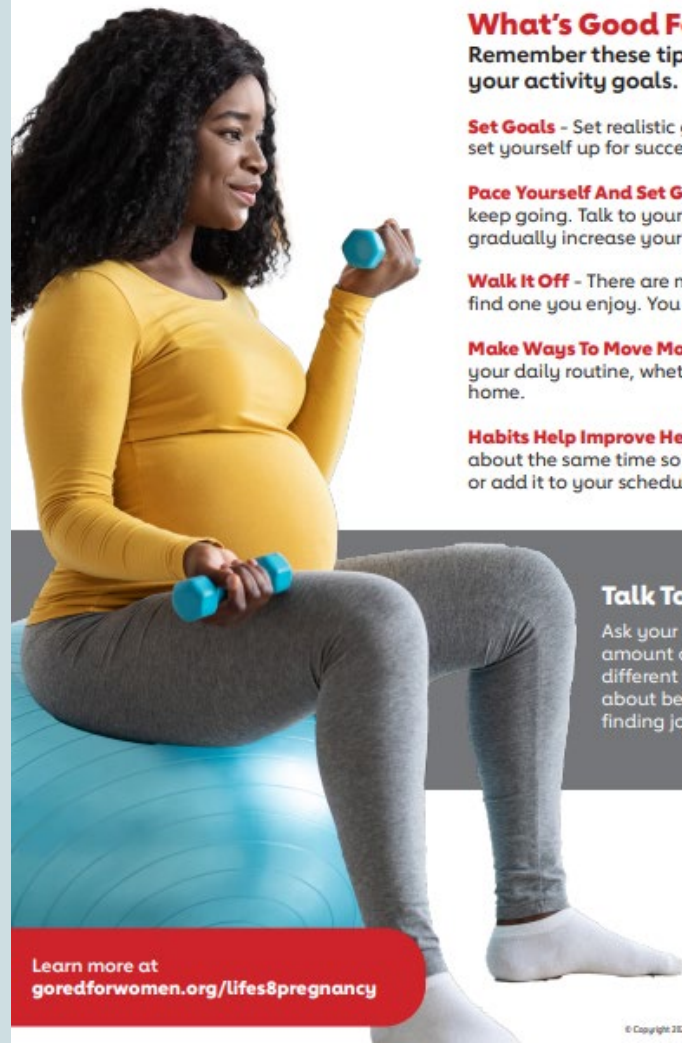
Ask your healthcare provider about what to eat and drink while pregnant, any prenatal vitamins you should take, and the number of calories you need to keep you and your baby healthy. This often depends on your weight, height activity level and can change throughout your pregnancy.

Learn more at
[goredforwomen.org/
lifes8pregnancy](https://www.heart.org/goredforwomen.org/lifes8pregnancy)



Moms Were Made to Move

Staying physically active while pregnant is encouraged but you may need to make some modifications or want to try new ways to move like prenatal yoga, walking, or gardening. **Women should get a weekly total of at least 150 minutes of moderate aerobic activity spread throughout the week.** Including some muscle-strengthening activity (like resistance or weight training) can help reduce the risk gestational diabetes and associated complications.



What's Good For Mom Is Good For Baby

Remember these tips to help you stay on track with your activity goals.

Set Goals - Set realistic goals and make small, lasting changes to set yourself up for success.

Pace Yourself And Set Goals - Once you reach these goals, keep going. Talk to your healthcare provider about safe ways to gradually increase your activity and intensity as appropriate.

Walk It Off - There are many ways to get active. It's important to find one you enjoy. You may find walking the easiest way to start.

Make Ways To Move More - Find ways to move more throughout your daily routine, whether it's at work, on your commute or at home.

Habits Help Improve Health - Do something active every day at about the same time so it becomes a regular habit. Set a reminder or add it to your schedule so you're less likely to miss a day.

Talk To Your Healthcare Provider

Ask your healthcare provider about the appropriate amount of activity your body can handle at the different stages of pregnancy. Being active isn't about being the strongest or the fastest. It's about finding joy in movement.

Learn more at
goredforwomen.org/lifes8pregnancy

CDC Hear Her Campaign Key Messages:

Women know their bodies best and can often tell when something is not right.

Listening and taking the concerns of pregnant and recently pregnant people seriously is a simple, yet powerful action to prevent pregnant-related deaths.

Timely treatment and quality care can prevent many pregnancy-related deaths.

Partners, friends, and family are important advocates to make sure any health concern is appropriately addressed by a health care provider.

Everyone has a role to play in supporting moms and preventing pregnancy-related deaths.

Source: Hear Her Campaign: cdc.gov/hearher/pregnant-postpartum

Pregnant now or within the last year?

Get medical care right away if you experience any of the following symptoms:



Headache that won't go away or gets worse over time



Dizziness or fainting



Changes in your vision



Fever of 100.4 °F or higher



Extreme swelling of your hands or face



Thoughts of harming yourself or your baby



Trouble breathing



Chest pain or fast beating heart



Severe nausea and throwing up



Severe belly pain that doesn't go away



Baby's movement stopping or slowing during pregnancy



Severe swelling, redness or pain of your leg or arm



Vaginal bleeding or fluid leaking during pregnancy



Heavy vaginal bleeding or discharge after pregnancy



Overwhelming tiredness

These could be signs of very serious complications. If you can't reach a healthcare provider, go to the emergency room. Be sure to tell them you are pregnant or were pregnant within the last year.

Learn more at www.cdc.gov/HearHer/AIAN



This list of urgent maternal warning signs was developed by the Council on Patient Safety in Women's Health Care.

Everyone has a role to play!

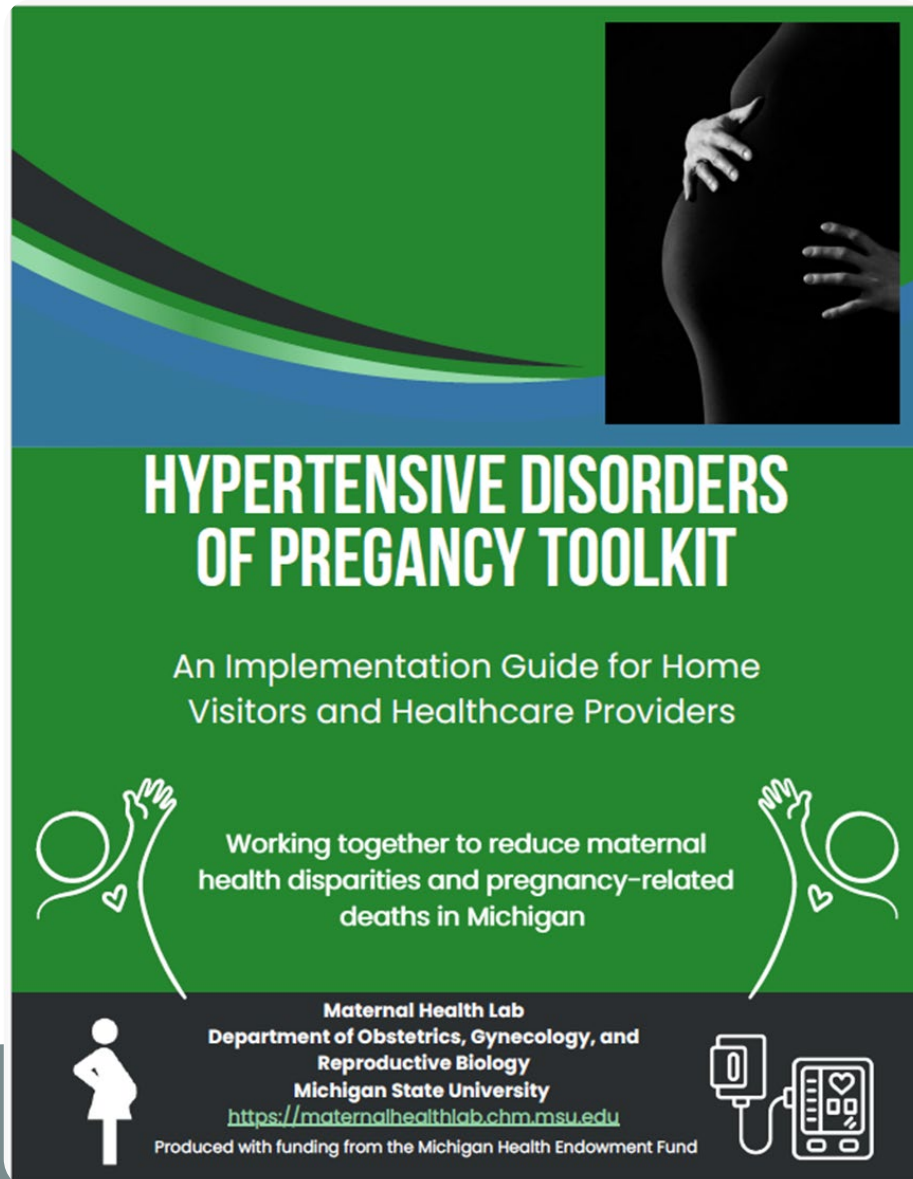
- Learn the urgent maternal warning signs.
- Listen to her concerns.
- Encourage her to seek medical help. If something doesn't feel right, she should reach out to her provider. If she is experiencing an urgent maternal warning sign, she should get medical care right away. **Be sure that she says she is pregnant or was pregnant within the last year.**
- Offer to go with her to get medical care and help her share her concerns and ask questions.
- Guide her in practicing how to ask for what she needs.
- Support her through follow-up care.

Supportive Resources

- [Educating Patients \(preeclampsia.org\)](https://preeclampsia.org)
- Hear Her Campaign: cdc.gov/hearher/pregnant-postpartum
- American Heart Association: <https://www.heart.org>
- Alliance for Innovation on Maternal Health (AIM): <https://saferbirth.org>
- American Medical Association: <https://map.ama-assn.org/resources>
- The American College of Obstetricians and Gynecologists: <https://www.acog.org>
- Michigan Maternal Mortality Surveillance (MMMS) Program: <https://www.michigan.gov/mdhhs/adult-child-serv/childrenfamilies/mmms>
- Hypertension in Pregnancy Change Package: millionhearts.hhs.gov/tools-protocols/action-guides/hypertension-pregnancy-change-package
- Healthy Hearts Resources: Michigan Department of Health and Human Services (MDHHS): <https://www.michigan.gov/mdhhs/keep-mi-healthy/chronicdiseases/cardiovascular/healthy-hearts>
- National Maternal Health Hotline: 1-833-TLC-Mama
<https://mchb.hrsa.gov/programs-impact/national-maternal-mental-health-hotline>

QUESTIONS





Our Partners:

- Compassus MIHP, Genesee County
- Henry Ford Health – Women-Inspired Neighborhood (WIN) Network: Detroit
- Hurley Medical Center MIHP, Genesee County
- Strong Beginnings – A federal Healthy Start Community Health Worker home visiting program, Kent County

THANK YOU!

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<https://maternalhealthlab.chm.msu.edu/tools>

