Caring for Patients With Hypertension and Diabetes Before, During and After Pregnancy: A Treatment and Management Guide

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Introduction

People with an underlying chronic condition, such as hypertension (HTN), diabetes (DM) or heart disease, are more likely to experience severe maternal morbidity (SMM) than those with no chronic conditions. Your patient may not know they have HTN or DM. This guide provides key reminders on managing chronic HTN and DM for patients before, during and after pregnancy.

Considerations for Health Equity

Be alert for biases in your own thinking and the system around you. Patients may be facing other stressors in their lives. When counseling patients about healthy habits to reduce the risk or impact of HTN and DM, consider not only their diet and exercise choices but also:

- Possible financial challenges
- Cultural practices
- The impact of systemic racism on neighborhood structures, social systems and health care

Every visit is an opportunity to recognize chronic HTN and DM and help reduce inequities. The environment in which people live, work and play can influence their physical and mental health and overall well-being. Talk with your patients about their challenges before, during and after pregnancy, and work together to optimize their health and well-being.

Patients Before Pregnancy

Take the Opportunity

For adults of reproductive age, gynecologic checkups may be their only routine contact with the health care system. Take these opportunities to provide or counsel on preventive care.

Help patients recognize and address common conditions such as HTN and DM.

The prevalence of chronic HTN[1] is lower when self-reported than with actual measurements. Often, hyperglycemia[2] (high blood sugar) discovered during pregnancy represents a preexisting condition.

Identifying chronic HTN and DM prior to pregnancy gives your patient the chance to:

- Optimize management of chronic conditions before conception
- Start making healthy lifestyle changes
- Switch to medications (if needed) that are safer during pregnancy[3]
- Start prenatal care promptly
- Be aware of the need for increased monitoring during pregnancy[4]

Screen for HTN

U.S. Preventive Services Taskforce (USPSTF) Recommendation

Who: Everyone age 18 and older[5]

When: At least once every three to five years, or every year for people who are:

- Age 40 and older
- At increased risk of HTN (for example, people who are Black, have high-normal blood pressure (BP) or who have overweight or obesity)

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1 American College of Obstetricians and Gynecologists. ACOG Practice Bulletin No. 203: Chronic Hypertension in Pregnancy. *Obstet Gynecol*. Jan 2019;133(1):e26-50. doi:10.1097/AOG.0000000000003020.

2 American Diabetes Association. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes—2023. *Diabetes Care*. 2023 Jan 1;46(Supplement 1):S19-S40. doi:10.2337/dc23-S002

3 Bramham K, Parnell B, Nelson-Piercy C, Seed PT, Poston L, Chappell LC. Chronic hypertension and pregnancy outcomes: systematic review and meta-analysis. *BMJ*. 15 Apr 2014;348:g2301. doi:10.1136/bmj.g2301

4 Seely EW, Ecker J. Chronic hypertension in pregnancy. *Circulation*. 18 Mar 2014;129(11):1254-1261. doi:10.1161/CIRCULATIONAHA.113.003904.

5 U.S. Preventive Services Task Force. Hypertension in Adults: Screening. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/hypertension-in-adults-screening. Published April 27, 2021.

How: Be sure you and your patients follow the proper protocol to measure BP:[6]

- Patient is at rest for five minutes; no talking during this time or during measurement
- Patient has not smoked, consumed caffeine or exercised for 30 minutes prior
- Patient has emptied their bladder
- Patient's arm is resting on a flat surface at heart level
- Patient's back is supported, their legs are not crossed and their feet are on the floor
- Provider measures BP on the patient's bare arm with the correct size cuff:

Arm circumference	Cuff size
22 to 26 centimeters (cm)	Small adult
27 to 34 cm	Adult
35 to 44 cm	Large adult
45 to 52 cm	Adult thigh (use on arm)

Update: 2017 American College of Cardiology (ACC)/American Heart Association (AHA) guidelines mean you may see more young people with a diagnosis of HTN.

Different expert organizations have different HTN guidelines. Clinicians who follow the 2017 ACC/AHA guideline will diagnose stage 1 HTN starting at a BP of 130/80 millimeters of mercury (mmHg). Using this baseline, an estimated 22% of U.S. adults age 18 to 39 have HTN, with 13% of those being women.[7]

ACC/AHA BP (mmHg) Definitions[6]

- Normal: less than (<) 120/< 80
- Elevated: 120 to 129/< 80
- Stage 1 HTN: 130 to 139/80 to 89
- Stage 2 HTN: greater than or equal to (≥) 140/≥ 90
- The ACC/AHA guidelines recommend lifestyle changes as the main treatment for everyone with elevated BP or HTN. They recommend pharmacologic treatment for Stages 1 and 2 in the presence of clinical cardiovascular disease (CVD) or a 10-year atherosclerotic CVD risk of 10% or above, using a risk calculator such as the ACC Risk Estimator Plus. Visit **tools.acc.org/ASCVD-Risk-Estimator**.

6 Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Hypertension*. 2018;71(6). doi:10.1161/hyp.0000000000000065

7 National Center for Health Statistics. National Health and Nutrition Examination Survey. https://www.cdc.gov/nchs/data/factsheets/factsheet_nhanes.pdf. Published July 2020.

Keep in mind: The American College of Obstetricians and Gynecologists (ACOG) notes that these 2017 ACC/AHA guidelines were not designed for people who are pregnant, and the role of medication for mild HTN in pregnancy is not clear.[1]

Screen for DM

American Diabetes Association (ADA) recommendation[2]

Who: Everyone age 35 and older

People with a history of gestational diabetes

Consider adults of any age who have both:

- Overweight or obesity (body mass index (BMI) greater than or equal to 25 kilograms per meters squared (kg/m^2), or greater than or equal to 23 kg/m^2 in Asian Americans)
- One or more of the following: first-degree relative (parent, sibling or child) with DM, HTN or history of CVD, high-density lipoprotein (HDL) less than 35 milligrams per deciliter (mg/dL) or triglycerides less than 250 mg/dL, Polycystic Ovary Syndrome, physical inactivity, high-risk race or ethnicity (Black, Latino, Asian, Native American, Pacific Islander) or other conditions associated with insulin resistance[2]

When: Every three years if result is normal and no change in risk[2,8]

How: Choose a screening method for DM or prediabetes:

- Hemoglobin A1C
- Fasting plasma glucose
- Oral glucose tolerance test

8 U.S. Preventive Services Task Force. Prediabetes and Type 2 Diabetes: Screening. https://uspreventiveservicestaskforce.org/uspstf/recommendation/screening-for-prediabetes-and-type-2-diabetes. Published August 24, 2021.

Take Action

If your practice includes diagnosing and treating chronic HTN, prediabetes and DM:

- Confirm diagnosis of HTN, prediabetes or DM.
- Complete baseline evaluation for underlying causes and impact of HTN, DM or both.
- Work with your patients to develop a treatment plan, incorporating lifestyle and pharmacologic treatment, as appropriate.
- Consider referring people with obesity and HTN, or with abnormal blood glucose, to intensive behavioral counseling interventions such as the National Diabetes Prevention Program, Diabetes Self-Management Program or Chronic Disease Self-Management Program to promote a healthier diet and physical activity.[8,9]

If your practice does not include diagnosing and treating these conditions:

- Refer your patients for diagnostic confirmation and appropriate management.
- Make sure that your patients understand the risks of HTN and diabetes and the rationale for follow-up diagnosis and management.

For all settings:

- Recognize the role of social determinants of health, including the potential impact of systemic racism on neighborhood structures, social systems and health care.
- Talk with your patients and provide resources to support healthy choices.
- For patients who wish to become pregnant or would like to continue an unplanned pregnancy:
  - Identify medications that would not be safe during pregnancy.
  - Address the potential need for medication changes in collaboration with your patients.
- For those who do not wish to become pregnant:
  - Assess the need for contraception.
  - Ensure adequate contraception, if needed, that is appropriate according to your patient's preferences.

9 U.S. Preventive Services Task Force. Healthy Diet and Physical Activity for Cardiovascular Disease Prevention in Adults With Cardiovascular Risk Factors: Behavioral Counseling Interventions. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/healthy-diet-and-physical-activity-counseling-adults-with-high-risk-of-cvd. Published November 24, 2020.

Develop a workflow for your practice to maximize preventive care.

- Make sure that the patient's elevated BP is addressed.
- Make sure the patient gets screened for DM.
- Make sure the patient gets appropriate follow-up whether in the practice or with their primary care provider (PCP) or specialist.
- Use your electronic health record (EHR) to identify and track patients who need follow-up visits.

Patients During Pregnancy

Take the Opportunity

Many patients with known chronic conditions do not seek pre-pregnancy counseling.[1] Recognizing chronic HTN and DM early in pregnancy gives you more opportunities to work with your patients on optimizing healthy eating and physical activity, encouraging medication adherence if needed, connecting to specialty care when necessary and planning for increased monitoring as the pregnancy progresses.

Identifying chronic HTN and DM during pregnancy gives your patients the chance to:

- Optimize management during pregnancy and after
- Start or continue healthy eating and physical activity
- Collaborate on increased monitoring during pregnancy[4]
- Switch to medications (if needed) that are safer during pregnancy[3]

Consider Chronic HTN

- Remember that mild chronic HTN may be masked by the normal changes in hemodynamics (the dynamics of blood flow within the organs and tissues of the body) of early pregnancy.
  - Note: ACOG has not changed their definitions for diagnosing HTN in a pregnant person.[1]

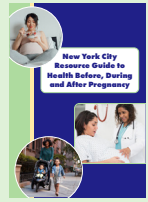
Recognize Chronic DM

- Test for prediabetes and DM at the initial prenatal visit for patients with risk factors[2] (see Page 6).
  - Note: Do not rely on A1C to identify DM during the second and third trimesters.[2]

Take Action

For people who are pregnant and have chronic HTN, DM or both, you can:

- Make a management plan with your patients and monitor them for complications throughout the pregnancy.
  - Involve specialty care as needed.
  - **Note:** While the impact of Stage 1 HTN in pregnancy is not yet clear, ACOG suggests people with Stage 1 HTN be managed according to their guidelines for HTN in pregnancy.[1]
- Act on any concerning elevations in BP or blood glucose at any point during the pregnancy.
- If not already completed before pregnancy:
  - Evaluate for possibility of secondary HTN.
  - Evaluate for possible end-organ involvement from HTN and possible complications of DM.
- Offer support for lifestyle approaches that are likely to help control HTN, DM or both. Refer to the "Healthy Pregnancy Plate Planner" and the "New York City Resource Guide to Health Before, During and After Pregnancy."



- Review any anti-hypertensive medications with your patients and avoid those with risks in pregnancy, particularly angiotensin-converting enzyme inhibitors (ACEs) and angiotensin receptor blockers (ARBs).
  - Seek maternal-fetal medication consultation if there is a reason these cannot be stopped.

- Review any DM medications with your patients and avoid those with risks in pregnancy.
  - Teach your patients and their families how to recognize and respond to hypoglycemia (low blood sugar) and hyperglycemia (high blood sugar).
- Initiate daily low-dose acetylsalicylic acid (ASA or aspirin) (81 mg) between 12 and 28 weeks and ideally before 16 weeks of pregnancy for patients with HTN or chronic DM. Continue until delivery (unless contraindicated).[1,10]
- Assess for impacts of social determinants of health and potential impacts of structural racism, including new changes or challenges that may accompany pregnancy. Provide resources and referrals as needed. Share the "New York City Resource Guide to Health Before, During and After Pregnancy," which has information that may be helpful to your patients.

Follow your practice's established workflow to address missed appointments, needed screenings or other referrals.

10 American College of Obstetricians and Gynecologists. ACOG Practice Bulletin No. 201: Pregestational Diabetes Mellitus. *Obstet Gynecol*. Dec 2018;132(6):e228-48. doi:10.1097/AOG.0000000000002960

Take the Opportunity

More than half of maternal deaths happen after pregnancy, as do more than half of postpartum strokes.[11] Make sure your patients know the importance of follow-up for HTN or DM, including the risks of chronic conditions if HTN or DM was first observed before or during pregnancy. Use your EHR or a tracking system to see who is missing their postpartum follow-up visits, so your practice can reach out and encourage them to return.

Following up on gestational or chronic HTN and DM after pregnancy gives your patients the chance to:

- Optimize management of chronic conditions during the first year after pregnancy
- Recognize serious risks or warning signs of SMM and maternal mortality (MM)
- Continue with efforts toward healthy eating and physical activity
- Prepare for a future pregnancy and reduce risks throughout the life-course

Maintain consistency in managing HTN and DM and vigilance for complications

Plan close follow-up during the first year after giving birth for patients with chronic conditions, such as HTN and DM, or who were newly diagnosed with HTN or DM during pregnancy, as clinically indicated.

Develop a workflow for your practice to maximize the chance that your patients will return for postpartum visits.

- Consider scheduling the visit before your patients go home after delivery.
- Assign staff to schedule and to follow up on missed appointments.
- Use your EHR to identify and track your patients who need postpartum visits.

11 American College of Obstetricians and Gynecologists. ACOG Committee Opinion No. 736: Optimizing Postpartum Care. *Obstet Gynecol*. May 2018;131(5):e140-50. doi:10.1097/AOG.0000000000002633

Take Action

- Make sure your patients know who to call for postpartum concerns. Share with them the warning signs of severe postpartum complications.
- Schedule postpartum visits, in person or via telehealth depending on needs.
  - Reevaluate BP no more than seven to 10 days after delivery (72 hours for severe HTN).[1]
  - ACOG recommends people who have given birth have contact with a maternal care provider within the first three weeks and a comprehensive postpartum visit no later than 12 weeks.[11]

- Make sure your patients know that severe HTN or superimposed preeclampsia can occur during the postpartum period and that DM does not always resolve after pregnancy.
- Offer appropriate contraception; refer to U.S. Medical Eligibility Criteria (MEC) or Selected Practice Recommendations (SPR) for guidance on contraceptive use.
- Identify who will provide ongoing management for HTN and DM.
  - Continue to encourage follow-up for your patients and, if you are not managing their HTN or DM, collaborate as needed on their care.[11]
- Counsel your patients about risks for future pregnancy and lifetime risk of HTN.[1]
- Reassess for social determinants of health, including new challenges that may arise with an infant at home. Continue to provide resources to support healthy choices and access to care and follow-up as needed.

Consider At-home Blood Pressure Monitoring

Recommend or help your patients obtain a validated device — a validated device list is available at **validatebp.org**.

- If possible, recommend a device with electronic storage of readings either in the device itself or in an application (app).

Ensure correct cuff size.

If BP is different between arms, have patients use the arm with higher readings.
Teach them how to properly measure their BP. See Page 4 for more detailed instructions.

- Take at least two readings one minute apart
  - Morning before any medications (if used)
  - Before evening meal

Advise on how often to measure, according to need.

For more information on self-measured BP monitoring, visit **nyc.gov/health** and search for **self-measured BP monitoring**.