NCTCFP
NATIONAL CLINICAL TRAINING CENTER FOR FAMILY PLANNING

# Identifying and Managing Hypertension in Family Planning Settings:

## A Title X Prescriber's Supplement to "Hypertension Prevention and Control Improvement Toolkit"

"Hypertension Prevention and Control Improvement Toolkit" available at:
https://rhntc.org/resources/hypertension-prevention-and-control-improvement-toolkit

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# Overview

This supplement provides Title X prescribers with evidence-based resources for diagnosing and managing hypertension. We recommend that you refer to the "Hypertension Prevention and Control Improvement Toolkit" (available at https://rhntc.org/resources/hypertension-prevention-and-control-improvement-toolkit) for background information and materials to help your family planning program develop a systematic, comprehensive method to improve care.

If your site opts to provide services for people with hypertension, this focused resource will assist clinical services providers with information and materials to manage uncomplicated hypertension. For many individuals, family planning care settings may be their primary point of health care access and sole interface with the health care system.

### Terminology Used in This Supplement

Recommendations made by leading organizations, such as the American College of Cardiology (ACC) and American Heart Association (AHA) were developed for "men" and for "women." The term 'women' is used in this toolkit, but it should be understood that these recommendations are applicable to all individuals who can become pregnant, including cisgender women, transgender men, nonbinary individuals, or others.

# Purpose of this Supplement

This supplement is intended for Title X licensed clinical services providers and is a collection of evidence-based resources related to the identification and management of individuals with hypertension. Through this supplement, we aim to facilitate the adoption of best clinical practices and recommendations for the management of hypertension in family planning settings. The supplement does not have to be used sequentially and you can go directly to specific topics according to your needs and interests.

Each section provides specific resources and job aids, including PDF files and websites accessible via hyperlink. Except where noted, the resources in this collection have not been created by the National Clinical Training Center for Family Planning (NCTCFP) but have been vetted by NCTCFP subject matter experts for relevance and accuracy.

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# Introduction

Hypertension impacts individuals of all ages. It affects approximately 8% of individuals of reproductive age and more than 39 million adults in the United States.[1] Approximately 52% of individuals have uncontrolled hypertension.[2] Hypertension increases the risk for cardiovascular disease, and hypertension alone accounts for about 1 in 5 deaths of people in the United States. Hypertension complicates 5–10% of pregnancies, with rates likely to increase due to rising rates of obesity as well as escalating maternal ages in pregnancy.[3] It increases the risk of pregnancy complications (e.g., preeclampsia, placental abruption, and gestational diabetes) resulting in poor infant outcomes including prematurity, fetal growth restriction, and infant death.[1] Hypertension during pregnancy leads to a greater risk of hypertension after pregnancy. Furthermore, an increased prevalence of hypertension has been observed among women in the post-menopausal years.[3]

Unfortunately, significant disparities exist in the treatment and management of hypertension. For example, hypertension is both more common and less likely to be treated among Black adults. Additionally, individuals aged 18 to 39 are less likely to have controlled hypertension than older individuals. Black individuals, as well as those who are uninsured, are already at a higher risk of negative pregnancy outcomes, and are more likely to experience hypertension complications.[4] Many individuals who are otherwise underserved seek care in Title X settings, so these visits represent critical opportunities for diagnosis, management, and treatment of people with hypertension.

# Pathophysiology

Reviewing the pathogenesis of hypertension and the various pathways and mechanisms involved is an important first step in managing hypertension. Evidence suggests that the pathophysiology of hypertension results from complex interactions between environmental, behavioral, and genetic factors. As a result, there are differing risks, demographic distributions, and pathophysiologic pathways for hypertension observed in women compared to men. For example, women with hypertension are at higher risk of developing left ventricular hypertrophy, diastolic dysfunction, heart failure (HF), increased arterial stiffness, diabetes, and chronic kidney disease (CKD).[5] Pregnancy brings about physiologic and anatomic changes in the cardiovascular system, beginning in the first trimester, which continues through the postpartum period that impacts hypertension.[6,7] Younger individuals with premature ovarian insufficiency, polycystic ovarian syndrome (PCOS), and infertility may also have an increased risk of developing hypertension.[8] Those with a prior pregnancy loss (miscarriage and stillbirth) are also at higher risk, with an approximately twofold increased risk of myocardial infarction (MI), cerebral infarction, and renovascular hypertension.[9] Finally, rates of hypertension increase after menopause when estrogen levels fall, suggesting that estrogen may have a vascular-protective effect.[3]

This brief video explains the physiologic regulation of blood pressure and the pathogenesis of hypertension (including essential and secondary hypertension). The clinical features, diagnosis, and treatment of hypertension are delineated through case studies.

"Hypertension Pathophysiology" Video with Captions (Vimeo)

*Presented by Marti Anselmo, DNP, ANP-BC*

"Hypertension Pathophysiology" Video Transcript (DOCX)

# Screening, Assessment, and Diagnosis

Hypertension affects individuals in all phases of life. In each stage, there are different risk factors, assessments, and diagnostic tools that a provider may consider. For example, a clinician may approach screening, assessment, or diagnosis differently in an individual who is pregnant, lactating, open to becoming pregnant, an adolescent/young adult, using combined hormonal contraception, or undergoing assisted reproductive therapy.[5]

The following resources provide current guidelines for screening, assessment, and diagnosis of hypertension.

### Summary of Updated Recommendations for Primary Prevention of Cardiovascular Disease in Women: JACC State-of-the-Art Review (Link)

### WPSI Clinical Summary Table (PDF)

Women's Preventive Services Initiative 'Blood Pressure Screening' (2021).

### Checklist for Identifying CVD Risk Factors (PDF)

A framework for assessing adverse pregnancy outcomes, autoimmune diseases, genetic, and lifestyle factors for cardiovascular disease in women.

### Blood Pressure Thresholds & Recommendations (PDF)

Guidance for evaluation of blood pressure levels and considerations for treatment.

### Detection of White Coat Hypertension or Masked Hypertension in Patients Not on Drug Therapy (PDF)

Strategies for managing patients in whom unreliable blood pressure readings in the medical setting are suspected.

### Drug/Substance Exacerbators and Inducers of Hypertension (PDF)

A summary of commonly used medications and supplements which may cause blood pressure elevations.

# Non-Pharmacological and Pharmacological Management

Effective management of hypertension improves cardiovascular outcomes.[5] Many factors need to be accounted for and balanced when deciding on treatment, whether non-pharmacological or pharmacological. Prescriber advice and support around lifestyle and behavioral management is an important component of managing hypertension.[1] For many people, family planning care settings may be their primary point of health care access and sole interface with the health care system. Prescribers in family planning settings have an opportunity to support clients in modifying their risk for cardiovascular disease with lifestyle modifications and antihypertensive medications for blood pressure reduction. The Reproductive Health National Training Center (RHNTC) has resources to assist clinical staff and health providers in supporting their clients in this effort, including the "Hypertension Prevention and Control Improvement Toolkit" (available at https://rhntc.org/resources/hypertension-prevention-and-control-improvement-toolkit). Clinical services providers may want to review specific dietary actions and medications used in hypertension management.

### DASH Eating Plan: Healthy Eating, Proven Results (Link)

This guide developed by the National Heart, Lung, and Blood Institute describes the Dietary Approaches to Stop Hypertension (DASH) eating plan, which emphasizes vegetables, fruits, whole grains, fish, poultry, beans, nuts, low-fat dairy, and healthy oils. The eating plan is aimed, in part, at helping Americans with high blood pressure, a leading risk factor for heart disease, stroke, and other health problems. The guide provides many helpful tips including how to get started, related research, and tools for a healthy life.

### Common Hypertensive Medications for Prescribers (PDF)

A summary table of the major types of commonly prescribed first-line antihypertensives.

### U.S. Medical Eligibility Criteria Recommendations for Contraceptive Use in Women with Hypertension and Women with a History of High Blood Pressure During Pregnancy (PDF)

A summary table of the major types of commonly prescribed first-line antihypertensives.

# Follow-up and Referral

Follow-up and referral, as well as the period of time for follow-up, varies depending on age, reproductive status, stage of hypertension, presence or absence of target organ damage, antihypertensive medications, and the level of blood pressure control.[10]

The following resource reviews current best clinical practices for follow-up evaluation of individuals taking antihypertensive medications.

### Follow-Up Visit Evaluation of BP During Antihypertensive Drug Therapy (PDF)

Guidance for assessing patients after initiation of antihypertensive therapy.

# Prescriber's Resources

The following section provides additional helpful resources to support clinicians and other staff as they identify and manage hypertension in family planning settings.

### Clinician Café (Link)

*National Clinical Training Center for Family Planning, 2021*

This online training was developed by the National Clinical Training Center for Family Planning to provide a menu for clinicians to utilize for managing clients with hypertension with various helpful resources located on NCTFP's website as well as additional resources.

### ASCVD Risk Estimator Plus (Link)

*American College of Cardiology*

The atherosclerotic cardiovascular disease (ASCVD) Risk Estimator Plus is a tool that can be utilized for primary prevention in clients without ASCVD and calculates 10-year risk for ASCVD categories as low, borderline, intermediate, and high-risk.

### Client-Centered Reproductive Goals & Counseling Flow Chart (PDF)

*Reproductive Health National Training Center*

This flow chart from the RHNTC provides simple focused questions (PATH questions) to assess Parenthood/Pregnancy Attitude, Timing, and How important is pregnancy prevention. This flow chart is designed to facilitate listening and is an efficient way to offer client-centered conversations about preconception care, contraception, and fertility.

### NCTCFP “Getting to the Heart of It" (MP4)

*Sheahan, et al. National Reproductive Health Conference, 2021*

This video is from the August 2021 National Reproductive Health Title X Conference with the title: *Family Planning Providers: Virtually Unstoppable*. In the video, expert panelists address trends in the epidemiology of hypertension in women and explain the relationship of hypertension to maternal morbidity and mortality. They also identify root causes of disparities in hypertension by race and ethnicity and discuss the effects and health outcomes of hypertension in women across the lifespan. Finally, the panel describes the role(s) of family planning providers in the prevention, detection, and management of hypertension.

# Annotated Bibliography


1. ACOG Committee Opinion No. 763: Ethical Considerations for the Care of Patients with Obesity. (2019). *Obstetrics and gynecology*, *133*(1), e90–e96. https://doi.org/10.1097/AOG.0000000000003015

   Obesity is a medical condition that may be associated with bias among health care professionals, and this bias may result in disrespectful or inadequate care of patients with obesity. Clinicians play an integral role in advocating for best practices in health care and optimizing health outcomes for patients with obesity and should be prepared to care for their patients with obesity in a nonjudgmental manner, being cognizant of the medical and societal implications of obesity. This ACOG Committee Opinion provides practical guidance and uses people-first language instead of labels (i.e., "a person with obesity" versus "an obese patient").

2. Brown, H. L., Warner, J. J., Gianos, E., Gulati, M., Hill, A. J., Hollier, L. M., Rosen, S. E., Rosser, M. L., Wenger, N. K., & American Heart Association and the American College of Obstetricians and Gynecologists. (2018) Promoting Risk Identification and Reduction of Cardiovascular Disease in Women Through Collaboration with Obstetricians and Gynecologists: A Presidential Advisory from the American Heart Association and the American College of Obstetricians and Gynecologists. *Circulation*, *137*(24), e843–e852. https://doi.org/10.1161/CIR.0000000000000582

   This is a joint "call to action" by the American Heart Association and the American College of Obstetricians and Gynecologists. Healthy lifestyles and behaviors should be a point of emphasis in the care of all women and should be discussed at each visit. Clinician interactions or patient surveys should address diet, physical activity, depression screening, and a detailed family and social history. Screen for CVD and screen for both traditional and non-traditional CVD risk factors. Address genetic risk factors, smoking cessation, and mental health. Regular screening and risk review sends a consistent message to patients of the importance of healthful lifestyle adherence. New consumer medical technologies, software algorithms can trigger patient education and referrals and extend to social media networks to educate, empower, and motivate women.

3. Cho, L., Davis, M., Elgendy, I., Epps, K., Lindley, K. J., Mehta, P. K., Michos, E. D., Minissian, M., Pepine, C., Vaccarino, V., Volgman, A. S., & ACC CVD Women's Committee Members. (2020) Summary of Updated Recommendations for Primary Prevention of Cardiovascular Disease in Women: JACC State-of-the-Art Review. *Journal of the American College of Cardiology*, *75*(20), 2602–2618. https://doi.org/10.1016/j.jacc.2020.03.060

   The ACC Cardiovascular Diseases in Women Committee undertook a review of the recent guidelines and major studies to summarize recommendations pertinent to women. In this update, the authors address special topics, particularly the risk factors and treatments that have led to some controversies and confusion. Specifically, sex-related risk factors, hypertension, diabetes, hyperlipidemia, anticoagulation for atrial fibrillation, use of aspirin, perimenopausal hormone therapy, and psychosocial issues are highlighted.

4. Florio, K. L., DeZorzi, C., Williams, E., Swearingen, K., & Magalski, A. (2021). Cardiovascular Medications in Pregnancy: A Primer. *Cardiology Clinics*, *39*(1), 33–54. https://doi.org/10.1016/j.ccl.2020.09.011

This review is to guide clinical decisions for clinicians caring for pregnant people with cardiovascular disease requiring treatment. This is an overview of the more commonly used cardiovascular medications (Table 1) from preconception through postpartum and lactation.

5. Gibbs, B., Hivert, B., France, M., Jerome, G. J., Kraus, W., E., Rosenkranz, S., K., Schorr, E., N., Spartano, N., L., Lobelo, F. Physical Activity as a Critical Component of First-Line Treatment for Elevated Blood Pressure or Cholesterol: Who, What, and How? A Scientific Statement from the American Heart Association. (2021) https://doi.org/10.1161/HYP.0000000000000196

   The purpose of this scientific statement is to: (1) highlight the mild-moderate–risk patient groups indicated for lifestyle-only treatment for elevated blood pressure or cholesterol; (2) describe recommendations, average effects, and additional considerations when prescribing lifestyle treatment with physical activity; and (3) provide guidance and resources for clinicians to assess, prescribe, counsel, and refer to support increased physical activity in their patients.

6. Lindley, K. J., Bairey Merz, C. N., Davis, M. B., Madden, T., Park, K., Bello, N. A., & American College of Cardiology Cardiovascular Disease in Women Committee and the Cardio-Obstetrics Work Group (2021). Contraception and Reproductive Planning for Women with Cardiovascular Disease: JACC Focus Seminar 5/5. Journal of the American College of Cardiology, 77(14), 1823–1834. https://doi.org/10.1016/j.jacc.2021.02.025

   Evidence-based recommendations regarding contraceptive options for women with, or at high risk for, cardiovascular disease as well as recommendations regarding pregnancy termination for women at excessive cardiovascular mortality risk due to pregnancy.

7. Nilsson, P. M., Viigimaa, M., Giwercman, A., & Cifkova, R. (2020). Hypertension and Reproduction. Current hypertension reports, 22(4), 29. https://doi.org/10.1007/s11906-020-01036-2

   Review article about sexual and reproductive health and life factors associated with an increased risk of hypertension and cardiovascular disease. Includes information about cardiovascular risk due to early life programming and on cardiovascular effects of sexual and reproductive health in men.

   Pages 5 and 6 address on reproductive issues; PCOS, risks to pregnancy or to the pregnant person with chronic HTN, Teratogenic HTN meds, Contraception and HTN, ART and risk of HTN.

8. Parikh, N. I., Gonzalez, J. M., Anderson, C. A., Judd, S. E., Rexrode, K. M., Hlatky, M. A., ... & American Heart Association Council on Epidemiology and Prevention; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular and Stroke Nursing; and the Stroke Council. (2021). Adverse Pregnancy Outcomes and Cardiovascular Disease Risk: Unique Opportunities for Cardiovascular Disease Prevention in Women: A Scientific Statement from the American Heart Association. *Circulation*, *143*(18), e902-e916.

   This statement summarizes evidence that adverse pregnancy outcomes (APOs) such as hypertensive disorders of pregnancy, preterm delivery, gestational diabetes, small-for-gestational-age delivery, placental

abruption, and pregnancy loss increase a person's risk of developing cardiovascular disease (including fatal and nonfatal coronary heart disease, stroke, peripheral vascular disease, and heart failure). It highlights the importance of screening for APOs when cardiovascular disease risk is assessed in women.

9. Stanhope, K. K., & Kramer, M. R. (2021). Association Between Recommended Preconception Health Behaviors and Screenings and Improvements in Cardiometabolic Outcomes of Pregnancy. Preventing Chronic Disease, 18, E06. http://dx.doi.org/10.5888/pcd18.200481

   Good study to support primary care throughout life, not just when preparing for pregnancy or when pregnant. Finds significant association between obesity and pre-pregnancy disease predicted APO. This article describes the association between 14 preconception health indicators and risk of adverse pregnancy outcomes. Pre-pregnancy chronic disease and obesity predicted gestational diabetes and hypertensive disorders of pregnancy. Given the challenges in reversing these conditions in the year before pregnancy, efforts to improve preconception health may be best directed broadly to expand access to primary care for all women.

10. Wenger, N. K., Arnold, A., Bairey Merz, C. N., Cooper-DeHoff, R. M., Ferdinand, K. C., Fleg, J. L., Gulati, M., Isiadinso, I., Itchhaporia, D., Light-McGroary, K., Lindley, K. J., Mieres, J. H., Rosser, M. L., Saade, G. R., Walsh, M. N., & Pepine, C. J. (2018). Hypertension Across a Woman's Life Cycle. *Journal of the American College of Cardiology*, *71*(16), 1797–1813. https://doi.org/10.1016/j.jacc.2018.02.033

    This review discusses specific characteristics relating to risk factors and management for primary prevention of hypertension in teenage and young adult women, hypertension in pregnancy, use of oral contraceptives and assisted reproductive technologies, pregnancy, lactation, menopause, hormone replacement, hypertension in elderly women, and issues of race and ethnicity. Authors note a gap in knowledge about the association between hypertensive disorders of pregnancy and cardiovascular disease risk.

11. Whelton, P. K., Carey, R. M., Aronow, W. S., Casey, D. E., Jr, Collins, K. J., Dennison Himmelfarb, C., DePalma, S. M., Gidding, S., Jamerson, K. A., Jones, D. W., MacLaughlin, E. J., Muntner, P., Ovbiagele, B., Smith, S. C., Jr, Spencer, C. C., Stafford, R. S., Taler, S. J., Thomas, R. J., Williams, K. A., Sr, Williamson, J. D., … Wright, J. T., Jr (2018). 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: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Hypertension, 71*(6), 1269–1324. https://doi.org/10.1161/HYP.0000000000000066

    This is the most recent U.S. national joint clinical guideline on Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults. It is the most comprehensive current guideline on this topic.

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[3] Nilsson PM, Viigimaa M, Giwercman A, Cifkova R. Hypertension and Reproduction. *Curr Hypertens Rep*. 2020;22(4):29. Published 2020 Mar 13. https://doi.org/10.1007/s11906-020-01036-2

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[8] Srivaratharajah K, Abramson BL. Identifying and managing younger women at high risk of cardiovascular disease. *CMAJ*. 2019;191(6):E159-E163. https://doi.org/10.1503/cmaj.180053

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[10] Holt, H. K., Gildengorin, G., Karliner, L., Fontil, V., Pramanik, R., & Potter, M. B. (2022). Differences in hypertension medication prescribing for black Americans and their association with Hypertension Outcomes. *The Journal of the American Board of Family Medicine, 35*(1), 26–34. https://doi.org/10.3122/jabfm.2022.01.210276