

## **Hypertension**

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Hypertension (HTN), more commonly known as high blood pressure, is an alarmingly prevalent medical condition that affects nearly 48.1% of adults aged 18 and older in the United States. Concerningly, one out of five of these individuals remain unaware of their condition and its severity due to its silent, often asymptomatic nature (Centers for Disease Control and Prevention, [CDC], 2025). Blood pressure (BP) is a measure of the force exerted by blood on the arterial walls, and directly corresponds with cardiac output and systemic vascular resistance. A normal BP is classified as a systolic blood pressure (SBP) of 120 mmHg or lower, and a diastolic blood pressure (DBP) of 80 mmHg or lower (Bludorn & Railey, 2024). In contrast, HTN is characterized by an elevation of SBP greater than or equal to 140 mmHg, a DBP greater than or equal to 90 mmHg, or both (Walther & Wirtz, 2023). Individuals with HTN often live years with minimal to no symptoms. However, as BP remains elevated, the risk of developing cardiovascular and kidney disease increases significantly (Wang et al., 2022). Despite its potential to lead to detrimental health outcomes, the incidence of HTN-related complications can be significantly minimized through public health education that highlights the importance of early detection, effective risk reduction, and consistent treatment adherence.

### **Statement of the Problem**

HTN can be further divided into two subcategories: primary and secondary HTN. Primary HTN is idiopathic and accounts for nearly 90% of all adult cases (Bludorn & Railey, 2024). Although considered idiopathic, the progression and management of primary HTN can be substantially influenced by factors such as genetics, diet, physical activity, and substance use (Shahoud et al., 2023). Secondary HTN is associated with an identifiable, underlying cause. Two common contributors are renovascular disease and primary aldosteronism, both of which over-activate the renin-angiotensin-aldosterone system, a key regulator of BP (Bludorn & Railey,

2024). In secondary HTN, addressing the underlying disorder often results in a decrease in BP.

In most cases, HTN remains asymptomatic and undiagnosed until a hypertensive crisis occurs. When symptoms do appear, clients may experience headaches, fatigue, heart palpitations, visual disturbances, profuse sweating, or claudication in the lower extremities (Schub et al., 2024). In secondary HTN, clients display symptoms related to the underlying cause (Bludorn & Railey, 2024). To manage these symptoms, prompt diagnosis is imperative to enable early, effective intervention. HTN is diagnosed when BP reaches the stage 1 threshold on two or more separate occasions in a clinical setting. Stage 1 HTN is classified as a SBP between 130-139 mmHg and a DBP between 80-89 mmHg. It may further progress to stage 2, which is characterized by a SBP between 160-179 mmHg and a DBP of 100-109 mmHg. In severe cases, clients may experience a hypertensive crisis in which SBP is greater than or equal to 180 mmHg and DBP is greater than or equal to 110 mmHg (Schub et al., 2024). By following diagnostic guidelines and utilizing information obtained from a comprehensive health history evaluation, the healthcare team can reduce the risk of a hypertensive crisis.

HTN can have devastating consequences for vital organ systems if left undiagnosed or poorly managed. Research has demonstrated that HTN significantly increases the risk of heart disease and stroke, two of the leading causes of death in the United States (CDC, 2025). Cardiovascular disease and stroke accounted for 941,652 deaths in 2020 and contributed to approximately \$417.9 billion in healthcare costs between 2017 and 2020 (Martin et al., 2025). In addition, elevated BP can cause significant damage to the kidneys, leading to fluid retention and resistant HTN, a condition where BP becomes unresponsive to various treatment modalities (CDC, 2024). As HTN remains untreated, the rising prevalence of HTN-related complications leads to more frequent medical crises, placing physical, emotional, and financial strain on

healthcare facilities and its nurses. As higher acuity patients increasingly enter the emergency department, the demand for frequent training and continued education becomes critical to equip nurses with the skills and knowledge needed to care for these individuals. Nurses may also be responsible for implementing educational initiatives focused on risk reduction and treatment adherence to help mitigate the incidence of HTN (Hannan et al., 2022).

### **Risk Reduction/ Treatment of the Problem**

HTN can be prevented and managed through targeted lifestyle modifications and the control of existing risk factors. The Dietary Approaches to Stop Hypertension (DASH) diet is recommended for individuals at increased risk of HTN. The DASH eating plan includes fresh fruits and vegetables, whole grains, fish, poultry, and fat-free or low-fat dairy products. Individuals are advised to limit sodium intake to less than 2 grams per day and reduce consumption of saturated and trans fats (Bludorn & Railey, 2024). Research by Gupta et al. (2023) indicates an 8-mmHg reduction in SBP within one week of following a low-sodium diet. These findings are further supported by Rivera et al. (2024), who discovered that individuals who frequently consumed ultra-processed foods were 23% more likely to develop HTN. Adhering to these dietary guidelines and engaging in at least 30 minutes of physical activity 3 to 5 times per week may also facilitate weight loss, an additional lifestyle modification that helps prevent HTN. Furthermore, acute mental stress may contribute to the development of HTN by causing hyperactivity in stress-reactive physiological systems (Walther & Wirtz, 2023). By learning to effectively respond to and manage stress, individuals can reduce the recurrence of stress responses and prevent BP from reaching hypertensive levels.

Screening for elevated BP is a crucial first step in managing HTN and preventing complications. Individuals aged 18 to 39 with no prior history of elevated BP or underlying risk

factors should have their BP manually measured by a healthcare professional every 3 to 5 years. Those with underlying risk factors or a history of elevated BP should undergo annual in-office screenings. Annual screenings are also recommended for all individuals aged 40 and older (Bludorn & Railey, 2024). Underlying risk factors that may necessitate more frequent BP screenings include obesity, a sedentary lifestyle, a high-sodium diet, family history, excessive alcohol or tobacco use, and certain racial backgrounds (Schub et al., 2024). Research conducted by the CDC (2025) concluded that non-Hispanic Black adults were at a 56% increased risk of developing HTN, while non-Hispanic White adults were at a 48% increased risk. Startlingly, management rates among these individuals ranged from 25% to 32% (CDC, 2025).

Managing HTN involves a combination of lifestyle modifications and pharmacologic therapy. Lifestyle changes are generally the first approach for managing elevated BP and include regular physical activity, adherence to the DASH diet, stress management, and smoking cessation. If these measures alone are insufficient, pharmacologic therapy may be initiated (Schub et al., 2024). Antihypertensive medications that may be used in the treatment plan of HTN include thiazide diuretics, long-acting calcium channel blockers, angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, and beta-blockers (Schub et al., 2024). Approximately 48.1% of American adults with HTN are managing their BP with one or more of these medications (CDC, 2025). To evaluate the effectiveness of treatment regimens, BP should be measured monthly until individualized target goals are met. Once these goals are achieved, BP can be reassessed every 3 to 6 months or more frequently with at home monitoring (Bludorn & Railey, 2024). Utilizing evidence-based practice guidelines for the identification and management of HTN can reduce the risk of complications by nearly 50%, resulting in improved health outcomes and quality of life (Bludorn & Railey, 2024).

## **Planning of Teaching Content**

Providing accessible, evidence-based education to clients and local communities is a fundamental pillar of the nursing profession. To educate the Sussex County, Delaware community about HTN, our group will utilize visual aids, such as a tri-fold poster and take-home brochure, to illustrate key risk factors, prevention strategies, screening recommendations, potential complications, and treatment options. We will also apply the Know-Want to Know-Learned teaching model to prompt reflection on previously learned knowledge and provoke questions. To encourage active engagement, we will manually measure the participant's BP and classify their results. Additionally, we will incorporate game-based learning, where participants will attempt to identify the salt content in common household foods, such as canned vegetables, fruit cups, and breakfast cereals. By the end of the session, our goal is for participants to identify at least three modifiable risk factors and two prevention strategies that they can incorporate into their daily routine to prevent the development or progression of HTN.

## **Conclusion**

Despite its increasing prevalence and potential to lead to cardiovascular and kidney disease, HTN can be effectively managed through early diagnosis, targeted lifestyle modification, & antihypertensive drug therapy. By adhering to current evidence-based guidelines for the screening and treatment of HTN, nurses can ensure that interventions are both relevant and effective. Evidence-based clinical practice also emphasizes educational initiatives that empowers clients to manage their condition at home. When clients actively engage in their care and are motivated to control their BP, the incidence of HTN-related complications can be profoundly reduced. This, in turn, improves the overall health of the American adult population and alleviates financial, emotional, and physical stress on the healthcare community.

## References

- Bludorn, J., & Railey, K. (2024). Hypertension guidelines and interventions. *Primary Care: Clinics in Office Practice*, 51(1), 41-52. <https://doi.org/10.1016/j.pop.2023.07.002>
- Centers for Disease Control and Prevention (2024, May 15). *Chronic kidney disease and high blood pressure*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. <https://www.cdc.gov/kidney-disease/risk-factors/chronic-kidney-disease-ckd-and-adults-with-high-blood-pressure.html>
- Centers for Disease Control and Prevention (2025, January 28). *High blood pressure facts*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. <https://www.cdc.gov/high-blood-pressure/data-research/facts-stats/index.html>
- Gupta, D. K., Lewis, C. E., Varady, K. A., Su, Y. R., Madhur, M. S., Lackland, D. T., Reis, J. P., Wang, T. J., Lloyd-Jones, D. M., & Allen, N. B. (2023). Effect of dietary sodium on blood pressure. *JAMA*, 330(23), 2258-2266. <https://doi.org/10.1001/jama.2023.23651>
- Hannan, J. A., Commodore-Mensah, Y., Tokieda, N., Smith, A. P., Gawlik, K. S., Murakami, L., Cooper, J., Koob, S., Wright, K. D., Cassarino, D., Arslanian-Engoren, C., & Melnyk, B. M. (2022). Improving hypertension control and cardiovascular health: An urgent call to action for nursing. *Worldviews on Evidence-Based Nursing*, 19(1), 6-15. <https://doi.org/10.1111/wvn.12560>
- Martin, S. S., Aday, A. W., Allen, N. B., Almarzooq, Z. I., Anderson, C. A. M., Arora, P., Avery, C. L., Baker-Smith, C. M., Bansal, N., Beaton, A. Z., Commodore-Mensah, Y., Currie, M. E., Elkind, M. S. V., Fan, W., Generoso, G., Gibbs, B. B., Heard, D. G., Hiremath, S., Johansen, M. C., ... Palaniappan, L. P. (2025). 2025 heart disease and stroke statistics: A report of US and global data from the American Heart Association. *Circulation*, 151(8),

e41-e660. <https://doi.org/10.1161/cir.0000000000001303>

Rivera, N., Du, S., Bernard, L., Kim, H., Matsushita, K., & Rebholz, C. M. (2024). Ultra-processed food consumption and risk incident hypertension in US middle-aged adults. *Journal of the American Heart Association*, *13*(17), Article e035189.

<https://doi.org/10.1161/jaha.124.035189>

Schub, T., Kubik, L., Seeber-Combs, C., & Hanson, D. (2024). Hypertension, adult. *Dynamic Health*. Retrieved March 13, 2025, from <https://www.dynahealth.com/diseases-and-conditions/hypertension-adult>

Shahoud, J. S., Sanvictores, T., & Aeddula, N. R. (2023, August 28). Physiology, arterial pressure regulation. *StatPearls*. <https://pubmed.ncbi.nlm.nih.gov/30860744/>

Walther, L.-M., & Wirtz, P. H. (2023). Physiological reactivity to acute mental stress in essential hypertension—a systematic review. *Frontiers in Cardiovascular Medicine*, *10*(1), Article e1215710. <https://doi.org/10.3389/fcvm.2023.1215710>

Wang, X., Carcel, C., Woodward, M., & Schutte, A. E. (2022). Blood pressure and stroke: A review of sex- and ethnic/racial-specific attributes to the epidemiology, pathophysiology, and management of raised blood pressure. *Stroke*, *53*(4), 1114-1133. <https://doi.org/10.1161/strokeaha.121.035852>