



Department of Nephrology

# Center for Blood Pressure Disorders

The Center for Blood Pressure Disorders provides quality patient care for optimal control in patients with severe hypertension and related blood pressure disorders. The center's advanced approach is highly effective in monitoring and managing patients' blood pressure.

## Areas of Focus

Advanced Testing | Continuing Care | Ambulatory Monitoring

For more than 70 years, Cleveland Clinic has been at the forefront of research and advances in hypertension management. Our Center for Blood Pressure Disorders is staffed with a team of experienced nephrologists, internists, physician assistants and clinical nurse practitioners. A collaborative approach to diagnosis, care and monitoring of blood pressure disorders results in outcomes that far surpass national benchmarks. Patient education and involvement help foster this team approach to treatment.

### Advanced Testing

Our research scientists have identified some of the chemicals and processes that lead to severe hypertension, resulting in testing methods that aid in early detection and control of blood pressure disorders.

- Testing to assess the cause of severe hypertension includes salt loading tests, clonidine suppression tests and hemodynamic testing in conjunction with the Sydell and Arnold Miller Family Heart & Vascular Institute.
- Measuring blood pressure with a 24-hour blood pressure monitor helps to identify newly defined patterns of hypertension.
- Noninvasive devices that measure central blood pressure in the aorta and arterial stiffness identify patients who have early cardiac risk factors. Measuring central blood pressure in the aorta accurately determines blood pressure in vital organs: the heart, kidney and brain.

### Continuing Care

The center employs innovative blood pressure management strategies through Internet-based blood pressure monitoring and other services. Medical staff ensure that patients are continuously monitored through devices that provide home blood pressure measurements so antihypertensive medications can be adjusted as needed. We care for patients with some of the most severe cases of hypertension.

### Ambulatory Monitoring

The latest areas of hypertension research address blood pressure patterns that can go unnoticed in a regular checkup. "White coat hypertension" occurs when a patient's blood pressure elevates during an office visit, but normally is under control. "Masked hypertension" occurs when a patient's blood pressure appears normal during physician office visits, but it exceeds healthy limits at home. Our group recently demonstrated that abnormal blood pressure patterns based on 24-hour ambulatory monitoring can identify those patients who are at higher risk for progression of kidney disease.

Ambulatory monitoring devices worn by patients allow for continuous blood pressure measurement so abnormal patterns are identified and treated. This results in better control of blood pressure.

Patients travel from all over the United States, Europe and Asia to receive care at the Center for Blood Pressure Disorders.

## Innovative Solutions

The Center for Blood Pressure Disorders is leveraging technological advances to improve hypertension monitoring and management.

### Internet-/Telephone-Based Blood Pressure Management Program

Hypertension patients anywhere in the country and world can subscribe to this Internet-/telephone-based program. Patients will have the ability to send blood pressure readings via the Internet-/telephone directly from their home blood pressure devices. This data is periodically reviewed by the Center for Blood Pressure Disorders, and patients are provided with feedback. Appropriate changes are made to their antihypertensive therapy. This virtual clinic improves patient-healthcare provider connectivity and care in management of hypertension.

This Internet-/telephone-based clinic involves the following:

- Initial patient assessment and individualized goal blood pressure level and management plan
- Biweekly review of blood pressure readings and changes in medications by staff via email/telephone
- Follow-up contact with physician to discuss the treatment plan and office visits as indicated

## Research

### Nocturnal Hypertension Project

Patients with nocturnal hypertension have well-controlled blood pressure during the day but present with elevated blood pressure during sleep. Preliminary data from hypertension studies indicate that nocturnal hypertension may be associated with damage to target organs, including the heart, brain and kidneys.

- In a multicenter study called "African-American Study of Kidney Disease and Hypertension," nearly 40 percent of the participants had nocturnal hypertension even though they had controlled blood pressure during the daytime.
- These results highlight the importance of 24-hour blood pressure monitoring for identifying uncontrolled high blood pressure outside the clinic or doctor's office setting.
- Early intervention and control of hypertension decrease the risk of serious target organ damage and kidney disease.

### Hypertension Gene Study (CORIN)

Cleveland Clinic scientists discovered an enzyme in the heart that controls blood pressure and is encoded in the CORIN gene. Lack of this enzyme or a variation in the CORIN gene may cause hypertension in patients. This discovery may lead to improved screening for hypertension and heart disease, as well as a more targeted approach and treatments for individuals with a deficiency in the CORIN gene.



Only 33 percent of U.S. patients who receive treatment for hypertension control their blood pressure at its recommended goal level. Although many of the patients treated at the Center for Blood Pressure Disorders have severe hypertension, 65 percent achieve goal blood pressure levels. The center is striving to increase this outcome to 80 percent.

For an appointment with a nephrologist,  
call 216.444.6771

For more information,  
visit [clevelandclinic.org/nephrology](http://clevelandclinic.org/nephrology).