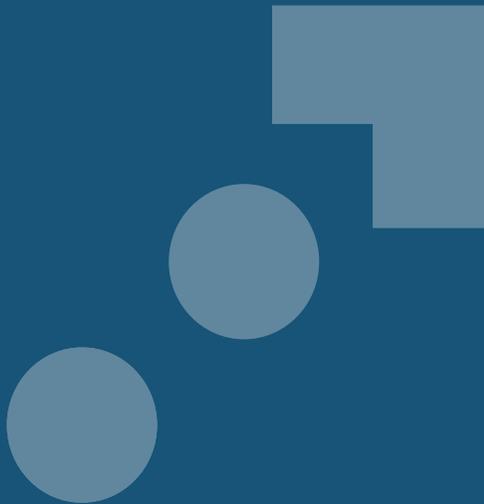


# ADVANCEMENTS IN HYPERTENSION MANAGEMENT



**AtCor** Medical  
SphygmoCor<sup>®</sup>



# Hypertension Management and New Blood Pressure Guidelines

Noninvasive central blood pressure technology individualizes treatment decisions and helps get patients to goal.

As new blood pressure guidelines suggest more aggressive therapy to achieve lower targets,<sup>1</sup> it is important to individualize care with a focus on central effects of intervention.

- There is significant variability in central aortic blood pressure among individuals with the same brachial blood pressure.<sup>2,3</sup>
- Antihypertensive medications have differential effects on central vs. brachial blood pressure, which can explain variability in clinical outcomes.<sup>3</sup>
- Central blood pressure is more predictive of cardiovascular outcomes than brachial blood pressure, primarily due to proximity to target organs.<sup>2</sup>
- The intensive treatment arm in the SPRINT study showed a significantly higher occurrence of hypotension than the standard treatment arm.<sup>4</sup>

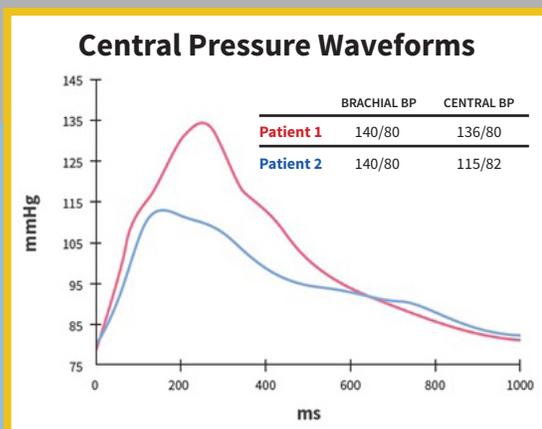
➤ **Physicians need new information to get patients to goal.**

## The Role of Central Arterial Pressure Waveform Analysis in Clinical Practice

Central pressure waveform analysis is most commonly used in conjunction with brachial blood pressure measurements to individualize treatment for hypertensive patients, as well as for treat/no-treat decisions in high-normal patients.

A panel of researchers and clinicians from leading U.S. medical centers identified three areas where pulse wave analysis can significantly impact patient care.<sup>5</sup>

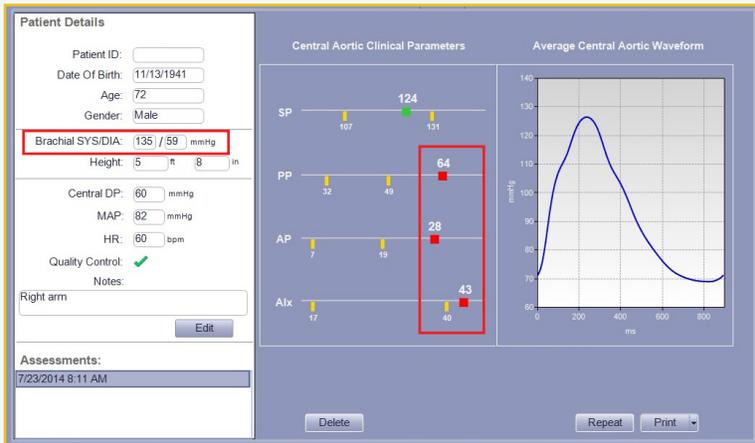
- > When to initiate, intensify or change therapy
- > What class of antihypertensive to add when another medication is needed
- > Whether a change made at a previous office encounter had a desirable effect



> Two patients with identical brachial blood pressures can have significantly different central waveforms and central pressure indices, leading to different treatment decisions.<sup>2</sup>

# CASE STUDIES

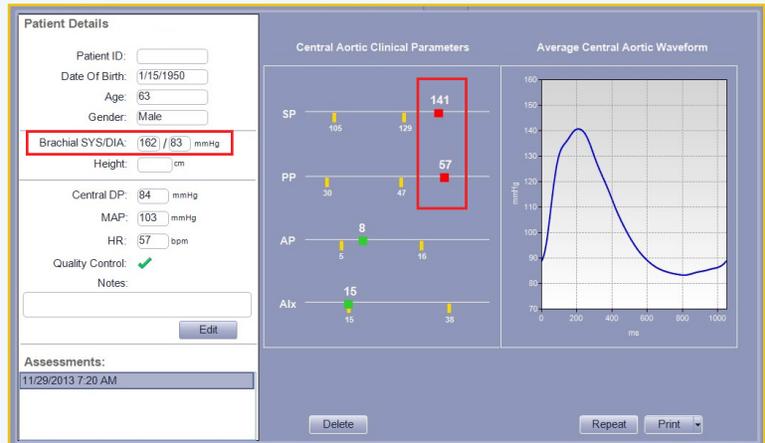
## > CASE I



- 72-year-old male
- Brachial blood pressure: 135/59 mmHg
- Normal central systolic pressure: 124 mmHg
- Elevated central pulse pressure: 64 mmHg indicates significant risk
- Elevated augmentation parameters indicate significant contribution of arterial stiffness and early wave reflections to central pulse pressure

Pulse wave analysis reveals very stiff arteries resulting in significant pressure wave reflection and LV afterload, and a central pulse pressure well above the threshold risk level of 50 mmHg.<sup>6</sup> This translated to a 20% increase in event rates in this population at 5 years. This is equivalent to the event rate at 10 years for the high-risk classification under the Framingham risk score. Vasodilating medications (ACEi, ARB, CCB, vasoactive BB) may be efficacious in reducing effects of early wave reflections. In such patients, more aggressive therapy to relax the vasculature and reduce central pulse pressure is recommended.

## > CASE II



- 63-year-old male
- Brachial blood pressure: 162/83 mmHg
- Elevated central systolic pressure: 141 mmHg
- Very low aortic pressure augmentation indicates that elevated central systolic pressure is likely due to other causes, such as fluid volume imbalance, high cardiac output or sympathetic over-activity

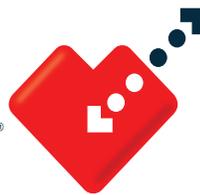
At this patient's follow-up visit, pulse wave analysis reveals very low arterial stiffness and age- and gender-normal AP and Alx (augmentation pressure and augmentation index). The results indicate that the patient's hypertension is not due to stiff arteries and therapies targeting arterial stiffness would not be thought to be as effective as diuretics or other medications to remove fluid. Diuretics may be more effective in lowering blood pressure in these patients through volume reduction.

## > Reimbursement for Arterial Pressure Waveform Analysis

The AMA CPT Editorial Panel assigned CPT code **93050** for use in reporting noninvasive arterial pressure waveform analysis, which the SphygmoCor system provides.

# ESSENTIAL FOR HYPERTENSION MANAGEMENT

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3. Williams et al. Circulation. 2006;113:1213-1225. | 4. The SPRINT Research Group. N Engl J Med. 2015;373:2103-16
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