

## Hypertension diagnosis should be based on ambulatory blood pressure monitoring, NICE recommends

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Primary hypertension should be diagnosed only after patients have undergone ambulatory blood pressure monitoring rather than a series of measurements in a clinic, recommend UK guidelines published this week.

In one of the biggest changes to previous guidance from the National Institute for Health and Clinical Excellence (NICE), the updated guideline recommends that people who are found to have a blood pressure of 140/90 mm Hg or higher during a clinic visit should be offered ambulatory blood pressure monitoring—measurement of blood pressure at regular intervals throughout the day—to confirm the diagnosis of primary hypertension.

At least two measurements an hour should be recorded during a person's usual waking hours, and the average should be taken of at least 14 measurements to confirm a diagnosis of hypertension. Home blood pressure monitoring can be an alternative for patients unable or unwilling to use ambulatory monitoring.

"The recommendation will change the way blood pressure is diagnosed for the first time in more than a century," said Bryan Williams, professor of medicine at the University of Leicester and University Hospitals NHS Trust and chairman of the guideline development group.

"It is a step change that is likely to be replicated across the world and means that the diagnosis of hypertension will be more accurate," he added.

After reviewing the available evidence, the guideline group found that a series of blood pressure readings throughout the day as achieved by ambulatory monitoring is a better predictor of heart disease and stroke associated with hypertension than single clinic measurements. "We need to improve the detection of persistent hypertension rather than basing risk assessment and management on high readings of blood pressure at single time points," Professor Williams explained.

"As many as 25% of people with a high blood pressure reading subsequently have normal blood pressure on ambulatory blood pressure monitoring," he warned. "Using ambulatory monitoring is a better way of getting the diagnosis of hypertension right and ensuring that the right people are treated with antihypertensives."

Many general practices currently do not have ambulatory blood pressure monitors, and Professor Williams acknowledges that

the updated guideline will require a major change in systems of care. "But we think that greater use of ambulatory monitoring will be cost saving for the NHS, by reducing the numbers of patients treated for hypertension," he explained.

Professor Williams said that an ambulatory blood pressure monitor typically costs around £1500. He estimated that general practices would need one monitor for every 2000 patients—the typical list size for one GP—to diagnose new cases of hypertension. This would pay for itself in one year, he said, based on the costs saved in unnecessary treatment and clinic visits.

The guideline recommends that patients with blood pressures of 135/85 mm Hg or higher on ambulatory monitoring should be offered lifestyle interventions. Those who also have target organ damage, established cardiovascular disease, renal disease, diabetes, or a 10 year cardiovascular risk of 20% or higher, and patients with blood pressures of 150/95 mm Hg or higher, should be offered antihypertensive drug treatment.

The guideline simplifies drug treatment choices. Professor Williams said, "There is a strong steer to calcium channel blockers as the preferred initial treatment for people over the age of 55, based on trial evidence showing they are the most effective agents for suppressing blood pressure variability." Diuretics should be considered in people at high risk of heart failure or who have oedema, the guideline says.

The updated guideline also incorporates recent research showing the benefits of lowering raised blood pressure in very elderly people. It recommends offering antihypertensive drug treatment to people aged 80 years or over who have a daytime average blood pressure of 135/85 mm Hg or higher in addition to target organ damage, established cardiovascular disease, or a 10 year cardiovascular risk of 20% or greater.

*Hypertension: management of hypertension in adults in primary care* is available at [www.nice.org.uk/CG127](http://www.nice.org.uk/CG127). A summary of the guidance is on [bmj.com](http://bmj.com) (BMJ 2011;343:d4891, doi:10.1136/bmj.d4891).

**bmj.com** Research: Relative effectiveness of clinic and home blood pressure monitoring compared with ambulatory blood pressure monitoring in diagnosis of hypertension: systematic review (BMJ 2011;342:d3621, doi:10.1136/bmj.d3621).

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