

Guidelines for Management of Dental Patients with Elevated Blood Pressure

The University of Texas Dental Branch at Houston
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Background

The Dental Branch guidelines are based on the 2003 Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7), the latest in a series of reports that outline the standards of care and prevention for patients with high blood pressure and hypertension.

The new guidelines, available in the full JNC 7 report at <http://hyper.ahajournals.org/cgi/content/full/42/6/1206>, contain four key messages:

- The risk of dying of ischemic heart disease and stroke increases progressively and linearly when blood pressure exceeds 115/75 mm Hg.
- The risk of developing cardiovascular disease doubles for every increment of 20 mm Hg of systolic blood pressure or 10 mm Hg of diastolic blood pressure.
- Systolic blood pressure higher than 140 mm Hg in people older than 50 years of age is a more important risk factor than diastolic blood pressure.
- People with normal blood pressure at age 55 to 65 years have an 80 to 90 percent risk of developing hypertension by the age of 80 to 85 years.

Lifestyle modifications--such as weight loss, reduced sodium intake, adoption of the Dietary Approaches to Stop Hypertension (DASH) diet, regular aerobic physical activity, and limited alcohol intake—are beneficial for both prevention and treatment of hypertension.

JNC 7 also addresses the use of epinephrine in local anesthetic solutions for treatment of dental patients with hypertension. The report concluded that although adverse events may occur in uncontrolled hypertensive patients during dental procedures, the use of epinephrine has a minimal effect.

Classification

The primary goal of hypertensive therapy is to control blood pressure at a level of less than 140/90 mm Hg. Identifying and treating high blood pressure will reduce the risk of cardiovascular disease and associated morbidity and mortality. To that end, it is useful to provide a classification of adult blood pressure for the purpose of identifying high-risk individuals and to provide guidelines for follow-up and treatment.

CLASSIFICATION OF BLOOD PRESSURE FOR ADULTS AGE 18 & OLDER *

Category	<u>Systolic (mm Hg)</u> (SBP)		<u>Diastolic (mm Hg)</u> (DBP)
Normal	<120	and	<80
Prehypertension	120-139	or	80-89
Stage 1 Hypertension †	140-159	or	90-99
Stage 2 Hypertension †	>160	or	>100

* Not taking antihypertensive drugs and not acutely ill. When systolic and diastolic blood pressures fall into different categories, the higher category should be selected to classify the individual's blood pressure status. For example, 160/92 mm Hg should be classified as stage 2 hypertension, and 174/120 mm Hg should be classified as stage 3 hypertension. Isolated systolic hypertension is defined as SBP of 140 mm Hg or greater and DBP below 90 mm Hg and staged appropriately (e.g., 170/82 mm Hg is defined as stage 2 isolated systolic hypertension). In addition to classifying stages of hypertension on the basis of average blood pressure levels, clinicians should specify presence or absence of target organ disease and additional risk factors. This specificity is important for risk classification and treatment.

† Based on the average of two or more readings taken at each of two or more visits after an initial screening.

Clinical Guidelines

I. Taking Blood Pressure

Hypertension detection begins with proper blood pressure measurements, which should be obtained at each health care encounter. Repeated blood pressure measurements will determine whether initial elevations persist and require prompt attention or have returned to normal and need only periodic surveillance. Blood pressure should be measured in a standardized fashion using equipment that meets certification criteria. The following techniques are recommended:

- Patients should be seated in a chair with their backs supported and their arms bared and supported at heart level. Patients should refrain from smoking or ingesting caffeine during the 30 minutes preceding the measurement.
- Under special circumstances, measuring blood pressure in the supine and standing positions may be indicated
- Measurement should begin after at least 5 minutes of rest.
- The appropriate cuff size must be used to ensure accurate measurement. The bladder within the cuff should encircle at least 80 percent of the arm. Many adults will require a large adult cuff.
- Measurements should be taken preferably with a mercury sphygmomanometer; otherwise, a recently *calibrated* aneroid manometer can be used.

- All measurements, including both SBP and DBP, should be recorded. The first appearance of sound (phase 1) is used to define SBP. The disappearance of sound (phase 5) is used to define DBP.
- Two or more readings separated by 2 minutes should be averaged when determining risk. If the first two readings differ by more than 5 mm Hg, additional readings should be obtained and averaged.

II. Determining Risk / Providing Dental Treatment

The following guidelines should be followed by faculty, students and staff when determining whether to proceed with a dental appointment at UTDB. These guidelines are also intended to inform the patient of concerns regarding their hypertension that is evident when vitals are taken at the start of the visit.

Normal/: **Systolic 139 or lower or Diastolic 89 or lower**

Prehypertension:

1. No contraindications to elective dental treatment.

Stage 1 HTN: **Systolic 140 - 159 or Diastolic 90 - 99**

1. Retake and confirm blood pressure.
2. Proceed with elective dental treatment.
3. Monitor blood pressure during appointment.

Stage 2 HTN: **Systolic 160 or higher or Diastolic 100 or higher**

1. Retake and confirm blood pressure.
2. Emergency or non-invasive elective treatment only.
3. Monitor blood pressure during appointment.
4. Refer patient to physician for medical evaluation.
5. **Medical consult required prior to elective dental treatment.**

Systolic >210 or Diastolic >120

1. Retake and confirm blood pressure with alternate device, such as mercury-manometer type sphygmomanometer.
2. If blood pressure is unchanged, consider immediate referral of the patient to a physician or emergency room for evaluation.
3. No treatment of any type should be undertaken.
4. **Medical consult required prior to any dental treatment.**

Guidelines based on *The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*, 2003 (<http://hyper.ahajournals.org/cgi/content/full/42/6/1206>), Glick M, *The new blood pressure guidelines*, *J Am Dent Assn*, 135:585-86, May 2004, and *Medical Emergencies in the Dental Office*, Stanley F. Malamed, DDS, Fifth Edition, 1999.