

Blood Pressure Measurement in Dental Practice

Information and Guidelines

Background:

In November 2017, the American Heart Association and American College of Cardiology released new clinical guidelines on hypertension (HTN) identification and management. The American Dental Association conveyed the new clinical guideline updates in December 2017.

Summary of Changes:

The threshold for diagnosis of hypertension is now lower and the previous category of “prehypertension” has been replaced with “elevated blood pressure (BP).” In the current guidelines, BP in the “normal range” is less than 120 Systolic BP (SBP) and less than 80 Diastolic BP (DBP). Treatment, in the form of recommended lifestyle modification and/or weight loss, is now recommended at the “elevated BP” level. BP over 130/80 is now considered hypertension Stage 1 and will most likely be treated with medication therapy.

These changes will affect many people and the practice of medicine and dentistry in unique ways. It also presents new opportunities for screening and monitoring. With these changes, it is estimated that over 46% of United States (U.S.) adults will be classified as having hypertension. Of those who have hypertension, only about 50% are under good control.

The new guidelines do not change the level of what is unsafe for dental office procedures. Uncontrolled hypertension is still 180/110 or greater, which is the level that is considered unsafe for dental procedures. These guidelines are intended for those individuals who are 18 years of age and older.

2003 Guidelines (OLD)				2017 Guidelines (NEW)			
Class	SBP		DBP	Class	SBP		DBP
Normal	<120	And	<80	Normal	<120	And	<80
Pre-HTN	120-139	Or	80-89	Elevated	120-129	And	<80
HTN Stage 1	140-159	Or	90-99	HTN State 1	130-139	Or	80-89
HTN Stage 2	≥160	Or	≥100	HTN Stage 2	≥140	Or	≥90
SBP= systolic blood pressure							
DBP= diastolic blood pressure							
HTN= hypertension							

Opportunities and awareness for dental offices:

- Regular BP measurement at dental offices will provide opportunities to create awareness for evaluation and conversations related to risks of having elevated BP, such as heart disease, stroke, kidney disease, etc.
- Blood pressure screenings also present opportunities to discuss current lifestyle choices, such as physical activity, eating habits, tobacco habits, alcohol use, and sodium intake.
- Be familiar with hypertension medications, side effects and how they may affect your patient's oral health. For example, calcium channel blockers (CCB) may cause dry mouth, increasing the changes of tooth decay. Amlodipine, a CCB, used as an antihypertensive medication may cause gingival hyperplasia.
- If the reading is above 130/80 (HTN, Stage 1), patients should be instructed to follow up with their primary care provider (PCP).

Considerations for taking BP:

- Accuracy in measurement of BP is critical to accurate identification and management of hypertension.
- Proper size of cuff for the patient: <https://targetbp.org/blood-pressure-improvement-program/patient-measured-bp/implementing/smbp-selecting-the-right-cuff-size/>.
- Type of BP machine. Manual is considered the gold standard. Devices with an upper arm cuff provide the most accurate BP readings and are recommended for use in the dental office. The following link may assist you in determining what BP measurement device to use: https://targetbp.org/tools_downloads/measure-accurately-pre-assessment/.
- BP site. The upper arm is considered most accurate. Wrist cuffs are sensitive to body positioning and usually read higher than upper arm.
- Position for taking BP will need to be altered to ensure accuracy. (Example: sitting in a chair with feet on the floor and legs uncrossed instead of the dental chair with feet elevated).
- If your patients' blood pressure reading/repeat reading is >120/80, the blood pressure should be rechecked at separate measurements by 1-2 minutes. Hypertension is based on a minimum of 3 readings that are elevated. The following link may assist you in this process: https://targetbp.org/tools_downloads/measure-accurately-pre-assessment/.
- These criteria are for adults only.

Preparing your patients:

- Patient should sit for at least 5 minutes before taking BP.
- Ask the patient if they have recently smoked, exercised or had caffeine. If yes, may need to wait **at least** 30 minutes to check BP. You should document the potential etiology of elevated blood pressure in the patient chart and when notifying the patients PCP.
- Do not talk to the patient during the reading. Patient should be silent as well.
- Does the patient need to use the restroom? A distended bladder can elevate the patient's BP.
- Patient should be seated with back supported at the level of the heart and feet on the floor, legs uncrossed.

Measuring BP:

- Place BP cuff 1 ½ inches above antecubital space
- Center over brachial artery
- Check pulse – if irregular use manual BP cuff only

- Keep thumb off the bell of stethoscope
- Inflate to 20- 30 mmHg above where pulse is no longer palpable
- Slowly deflate at a steady rate, 2-3 mmHg per heartbeat
- Listen for first of two or more beats (Korotkoff sounds) SYSTOLIC BP
- Last muffled beat (Korotkoff sound) DIASTOLIC BP
- If BP is elevated, repeat after 1-2 minutes
- Report to PCP for follow up if elevated BP

Goal of taking BP in dental office:

- Screen patients who come in for office visits by taking accurate BP.
1. If BP is elevated above 130/80, make recommendation to be evaluated by their PCP. If the patient does not have a PCP, suggest a local clinic or health system to call to see a physician.

SAMPLE POLICY

Screening Process for Hypertension: Medical-Dental Integration

Purpose: Develop Screening Protocol for Dental-Medical Integration at (*example place facility name here*). Blood pressure (BP) should be taken for all new, established and emergency procedure adult patients (over 18 years of age).

Program Guidelines: Prior to dental procedures, each patient’s chart should be reviewed to check recent blood pressure measurements and medical history, especially as it pertains to hypertension and heart disease.

1. Each adult patient shall have their blood pressure taken at every visit.
2. Refer to BP guidelines established by the dental office for direction of care to be taken based on the patients BP.
3. The new guidelines do not change the level of what is unsafe for dental office procedures. Uncontrolled hypertension is still 180/110 or greater, which is the level that is considered unsafe for dental procedures.

The following are factors all dental staff should consider to obtain accurate blood pressure readings¹.

1. Allow the patient five minutes of quiet time prior to taking their blood pressure.
2. Ask the patient if they need to use the bathroom before obtaining a reading. A full bladder can add 10-15 mm Hg.
3. Seat patient with their back supported and feet flat on the floor. An unsupported back and unsupported feet can each add 5-10 mm Hg.
4. Ensure the patient’s legs are uncrossed while taking their blood pressure. A patient whose legs are crossed can have an increase of 2-8 mm Hg.
5. Measure patient arm to ensure the correct cuff size is used. Measurement should be taken in the middle of the arm between the elbow and the shoulder.

6. Support the arm at heart level prior to measuring a patient's blood pressure. An unsupported arm, or one resting on the chair arm below the patient's heart, can add 10 mm Hg.
7. Ensure that the cuff is placed over a patient's bare arm. Have the patient remove any clothing that may interfere with proper blood pressure cuff placement. This should be done prior to the patient's five-minute rest time. Placing a cuff over a patient's clothing can add 10-40 mm Hg.
8. Do not hold conversations while a reading is in progress. Talking while having blood pressure measured can add 10-15 mm Hg.
9. Type of BP machine. Manual is considered the gold standard. Devices with an upper arm cuff provide the most accurate BP readings and are recommended for use in the dental office.

The following link may assist you in determining what BP measurement device to use:

https://targetbp.org/tools_downloads/measure-accurately-pre-assessment/

Normal	Less than 120	and	Less than 80	Encourage a healthy lifestyle changes to maintain normal BP. Document in chart.
Elevated	120-129	or	Less than 80	Recommend healthy lifestyle changes. Document in chart.
High Blood Pressure (Hypertension) Stage 1	130-139	or	80-89	Inform patient that blood pressure reading indicates hypertension and they should speak to their primary care provider. Document in chart.
High Blood Pressure (Hypertension) Stage 2	140 or higher	or	90 or higher	Inform patient that blood pressure reading indicates hypertension and they should speak to their primary care provider and a referral is recommended to their PCP, fill out referral form for hypertension (see below for referral process for patients in this stage). Document in chart.
Elevated Stage 2 Hypertension	160 or higher		100 or higher	Inform patient that blood pressure reading indicates hypertension and they should speak to their primary care provider and a referral is recommended to their PCP, fill out referral form for hypertension (see below for referral process for patients in this stage). Document in chart.
Hypertensive Crisis	Higher than 180	and/or	Higher than 120	Send to ER or call 911. Do not treat. Document in chart.

Referral Process:

Referral process: The following referral procedure should be completed for all individuals whose blood pressure readings reflect levels that are considered hypertensive, whether they have previously been undiagnosed or already diagnosed with hypertension. Referrals should be made starting at 140/90 or higher.

For patients previously undiagnosed:

1. After identifying the patient's reading is hypertensive Stage 1 and/or Stage 2, discuss the measurement recorded with the patient and provide education on the risks of hypertension and possible ways to help lower high blood pressure.

The following are educational topics on healthier lifestyle habits: eating healthier; decreasing sodium/salt intake; limiting alcohol intake; increasing physical activity levels; managing stress; maintaining a healthy weight; and smoking cessation. Educational material on these topics can be found at the following links:

<https://heartstroke.health.nd.gov>, <https://www.choosemyplate.gov/>,
<https://ndquits.health.nd.gov/> and <http://www.diabetesnd.org/>.

2. Instruct the patient that a referral to their PCP is needed if the patient is identified as having Stage 2 hypertension. If a patient does not have a PCP listed in their chart, suggest a local clinic or health system to call to see a physician. The referral can be sent to the patient's PCP by the dental office through a secure message system.
3. Complete a referral form and send to the patient's PCP. If a patient wishes to take the referral form to their physician, provide them with a copy. Referrals should be sent within one week.
4. Document the encounter and place completed referral in the patient's chart.
5. Document any follow-up correspondence received from the patient's PCP in the patient's chart.
6. Follow-up on the referral during the next patient visit. If the patient has not taken the necessary after-care instructions provided by dental staff during the last visit, staff should take blood pressure measurement and emphasize the risks of uncontrolled hypertension and need for follow-up care if their BP is still elevated.
7. How information is sent back and forth is determined between the dental office and the PCP. Examples of ways information can be relayed to one another are by secure: fax, phone, computer, etc.

For patients already diagnosed with hypertension:

1. After identifying the patient's reading is hypertensive Stage 1 and/or Stage 2, discuss the measurement recorded with the patient and provide education on the risks of hypertension and possible ways to help lower high blood pressure. If the patient is currently taking medication for hypertension, provide education on hypertension risks and benefits of lifestyle change(s). Refer to the PCP for treatment follow-up as needed.

The following are educational topics on healthier lifestyle habits: eating healthier; decreasing sodium/salt intake; limiting alcohol intake; increasing physical activity levels; managing stress; maintaining a healthy weight; and smoking cessation. Educational

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<https://heartstroke.health.nd.gov>, <https://www.choosemyplate.gov/>,
<https://ndquits.health.nd.gov/> and <http://www.diabetesnd.org/>.

2. Instruct the patient that a referral to their PCP is needed if the patient is identified as having Stage 2 hypertension. If a patient does not have a PCP listed in their chart, suggest a local clinic or health system to call to see a physician. The referral can be sent to the patient's PCP by the dental office through a secure message system.
3. Complete a referral form and send to the patient's PCP. If a patient wishes to take the referral form to their physician, provide them with a copy. Referrals should be sent within one week.
4. Document the encounter and place completed referral in the patient's chart.
5. Document any follow-up correspondence received from the patient's PCP in the patient's chart.
6. Follow-up on the referral during the next patient visit. If the patient has not taken the necessary after-care instructions provided by dental staff during the last visit, staff should take blood pressure measurement and emphasize the risks of uncontrolled hypertension and need for follow-up care if their BP is still elevated.
7. How information is sent back and forth is determined between the dental office and the PCP. Examples of ways information can be relayed to one another are by secure: fax, phone, computer, etc.

Hypertensive Crisis:

Emergent:

- Chest pain
- Shortness of breath
- Active bleeding
- Seizure activity
- Slurred speech, incoherence, severe headache, or difficulty understanding language
- Choking
- Sudden, severe pain
- Report of medication overdose
- **CALL 911**

Sample referral consultation request form:

SECTION A: DENTAL PRACTICE TO COMPLETE

Patient Information	Practice Information
Name: _____ DOB: _____	Referring Practice: _____ Consulting Practice: _____
Referral consultation reasons: *(Include any relevant diagnosis information available to assist with the consultation)	
Patient presented for dental appointment with BP of: _____/_____ Current diagnosis of hypertension. Yes:____No: ____ Unknown: _____ Additional Comments: 	
Referring Provider	
Name: _____ Signature: _____ Date: _____ Contact #: (____)____-_____ Address: _____ Fax number and/or email: _____	

*Document any relevant information regarding consultation referral in patient's dental chart.

SECTION B: MEDICAL PRACTICE TO COMPLETE

Patient Information	Practice Information
Name: _____ DOB: _____	Referring Practice: _____ Consulting Practice: _____
Referral consultation response:	
____ Was unable to make contact with patient (If applicable, list additional information below.) ____ Patient seen in practice/clinic and evaluated. Current BP is____/____ Recommendations and treatment: 	
Healthcare Provider	
Name: _____ Signature: _____ Date: _____ Contact #: (____)____-_____ Address: _____ Fax number and/or email: _____	

References:

Dental Management in patients with hypertension: challenges and solutions.

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The importance of accurate blood pressure measurement.

http://xnet.kp.org/permanentejournal/sum09/blood_pressure.html

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