

Root of The Matter: Blood Pressure Matters

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At the College we are frequently asked questions related to monitoring and updating blood pressure for clients. Specifically: 1. Why do I need to take blood pressure? 2. Does every client need their blood pressure taken? 3. What are the blood pressure ranges? 4. What should I do if the blood pressure is high? While these are all good questions, it is best to set the stage with the responsibilities as guided through the CDHBC Bylaws related to the Practice Standards and the Code of Ethics.



The [CDHBC Practice Standards](#) (PS) outline the responsibility of the dental hygienist to assess and update blood pressure as indicated or as appropriate for the client's needs. The PS go further to state that this assessment data must be analyzed to determine any treatment considerations and/or modifications including the need for a medical consultation and/or medical clearance.¹ The following CDHBC Practice Standards apply to the monitoring of blood pressure in practice:

Practice Standard Policy 3.1: A dental hygienist *“must collect baseline assessment data* as appropriate for the client.... and update the data as required. In a clinical setting, this should include: vital signs, if indicated”*.¹

Practice Standard Policy 4.1: *“...In a clinical setting this should include the implications of conditions that are abnormal or unhealthy, and conditions that require special care”*.¹

The CDHBC Code of Ethics are meant to guide dental hygienists as they provide safe and ethical care during all aspects of treatment.² The following are the [CDHBC Code of Ethics](#) statements that pertain to taking and updating blood pressure:

#1 - Hold paramount the health and welfare of those served professionally;

*The dental hygienist is committed to the care and best interests of clients.*²

#2 - Provide competent and appropriate care to clients;

*The dental hygienist provides dental hygiene services in a legal and safe environment utilizing current knowledge and skills. The standards of dental hygiene services are consistent with professional practice as outlined in provincial and national standards....*²

#9 - Maintain a high level of skill by participating in programs of continued study to update and advance their body of knowledge;

*The dental hygienist is conscious of the changes in research, technology and clinical practice. The dental hygienist is committed to meeting the diverse needs of the client and is responsible for maintaining currency and competency....*²

What constitutes hypertension? The Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) defines hypertension as a systolic blood pressure greater than or equal to

*The extent of data collected will vary with the different practice settings and with clients who have specific needs or conditions. Professional judgment must be used to determine the data that is needed to assess each client.

140 mm Hg or a diastolic blood pressure greater than or equal to 90 mm Hg as recorded during two or more readings on two or more occasions (office visits).³

In 2014, [Statistics Canada](#), published results related to cardiovascular disease in Canadians. They found that more than 5 million Canadians live with hypertension and up to 43% of those do not know they have high blood pressure (HBP).^{4,5} HBP is known as the silent killer and the leading risk of death.^{3,4,6,7,8} Hypertension has no symptoms so those with high blood pressure will not feel the damage occurring to the heart, arteries or other organs that may lead to a heart attack or stroke.¹³ According to the [World Health Organization](#) (WHO), half of those being treated for HBP drop out of care within the first year and for those who remain, only half take at least 80% of the prescribed antihypertension medications.⁹ The JNC 7 further adds that two-thirds of those taking antihypertension medications do not have control of their BP to a level <140/90 mmHg.³

The American Society of Anesthesiologists (ASA) and the Seventh Report of the Joint National Committee on Prevention, Detection, Elevation and Treatment of High Blood Pressure: the JNC 7 report, outline parameters for the classification of blood pressure. These guidelines have been further developed to apply to the dental practice setting. **Table 1** has amalgamated the JNC 7 parameters with those from the American Heart Association¹⁰, the dental hygiene textbooks *Dental Management of the Medically Compromised Patient*¹¹ (which was adapted from the JNC7 Report) and *Medical Emergencies in the Dental Office*.¹²

TABLE 1: Classification of Blood Pressure (BP) in Adults and Recommendations for Follow-up (adapted from 3, 5, 11, 12)				
BP Classification	Systolic BP (mm Hg)		Diastolic BP (mm Hg)	Recommended Follow-up
Normal	less than 120	and	less than 80	<ul style="list-style-type: none"> Recheck in 2 years Observe routine dental management
Prehypertension	120-139	or	80-89	<ul style="list-style-type: none"> Recheck in 1 year Observe routine dental management
Hypertension Stage 1	140-159	or	90-99	<ul style="list-style-type: none"> Confirm within 2 months Observe routine dental management Implement stress management protocol
Hypertension Stage 2	160 -199	or	100 -114	<ul style="list-style-type: none"> Recheck BP in 5 minutes If still elevated, perform medical consultation before beginning dental therapy Observe routine dental therapy Implement stress reduction protocol
<u>Hypertensive Crisis</u>	200 or higher	or	115 of higher	<ul style="list-style-type: none"> Recheck in 5 minutes Referral for immediate medical consultation Do not perform dental therapy

Dental hygienists incorporate assessment, diagnosis, planning, implementation and evaluation (ADPIE) into practice every day. Part of the assessment component of the process of dental hygiene care involves the monitoring of blood pressure. Hypertension Canada states that “Health care professionals who have been specifically trained to measure BP accurately should assess BP in all adult patient at all

appropriate visits”.⁵ Dental hygienists have been educated to obtain, document and make appropriate referrals. This puts them in the perfect position to screen for hypertension, and reinforce physician directed antihypertension medication regimes. Clients are often not aware that they have hypertension or if they have HBP they may not be compliant with taking their blood pressure medications.^{14, 15, 13}

The dental hygienist is responsible for minimizing the risk of a medical emergency during client care. In dental hygiene practice, the first step in minimizing risk is accomplished by obtaining a comprehensive medical history, completing a medication review and obtaining vital signs.^{11, 12} A baseline blood pressure should be taken at the first appointment. The AHA recommends starting blood pressure screening at the age of 20.¹⁶ The baseline blood pressure reading and subsequent updates will assist in making clinical decisions related to: frequency for taking the BP (see Table 1), modifications to care including incorporating stress reduction protocols and referrals to the physician for medical consultation and/or medical clearance and ultimately the prevention of a medical emergency. It is important to note that if a client has diabetes or kidney disease monitoring BP should be done more frequently regardless of the previous appointment reading.⁶

As mentioned earlier, dental hygienists are responsible for providing safe and ethical care during all aspects of treatment.² This would include evaluating the client’s ability to tolerate the proposed treatment, and involves evaluating blood pressure prior to the administration of local anesthetic. Therefore, the evaluation of a client’s blood pressure should be obtained prior to the administration of local anesthetic.^{10, 13, 17} The dental hygienist needs to be aware of the specific antihypertensive medications that require a modification to the epinephrine concentration (maximum dose of 0.04mg/appointment) when administering oral local anesthetic. For example, β_1 -Adrenergic Antagonists (Beta-blockers).¹³

When planning to incorporate blood pressure into practice it is important to ensure that a reliable blood pressure monitor is being used. Hypertension Canada states that taking blood pressure with an automated unit is preferred to manual measurements.⁵ If unsure which BP monitoring unit is reliable, Hypertension Canada has a section on the website titled [Devices Endorsed by Hypertension Canada](#) which lists recommended units. If the blood pressure monitoring unit is endorsed by Hypertension Canada it will have a trade mark seal.



The following are some quick reminders on how to obtain a reliable blood pressure measurement. These tips include when and how to take the BP:^{6, 10}



- After a 5 min rest
- No tobacco, caffeine 30 min to an hour before monitoring
- No exercise 30 min prior to monitoring
- Sitting position
- Support the back
- Middle of the cuff at the heart level
- Lower edge of the cuff 3cm above the elbow crease
- Arm supported and at the heart level
- Legs uncrossed and preferable on the floor
- No talking during BP measurement
- Comfortable environment

Uncontrolled severe hypertension may have oral manifestations such as excessive bleeding after surgical procedures or trauma.¹¹ However most oral manifestations come from side effects of antihypertensive medications. It is important to be aware of the common oral side effects associated with these medications. Some of the oral side effects may include, but are not limited to: xerostomia, lichenoid reactions, oral burning and gingival overgrowth. Common medications prescribed in BC for the treatment of HBP as listed on the [BC Ministry website](#) include:

- Thiazide diuretics
- Long-acting calcium channel blocker (CCB);
- Angiotensin converting enzyme inhibitor (ACE-I)
- Angiotensin II receptor blocker (ARB).
- Beta¹-Adrenergic Antagonists (Beta-Blockers)



The American Heart Association sees all health care professionals as playing a role in either BP screening and/or reinforcing adherence to physician recommended treatment regimens.¹⁰ Incorporating the assessment of monitoring blood pressure in the practice setting not only meets the CDHBC Practice Standards and Code of Ethics, it provides a screening tool for preventing medical emergencies during dental hygiene care. The inclusion of the BP assessment into practice is not meant to be time consuming. There are newer generation automated BP monitoring units that are more time efficient and provide accurate results. As with all aspects of dental hygiene care, ensure appropriate documentation of the blood pressure in the client chart along with any pertinent conversations and/or consultation notes.

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