Root of The Matter: Blood Pressure Matters Updates

CDHBC Dental Hygiene Advisors

Since the last *Blood Pressure Matters* article from the March 2018 edition of Access, Hypertension Canada released a Comprehensive Guideline for the Prevention, Diagnosis, Risk Assessment, and Treatment of Hypertension in Adults and Children in 2020. These Hypertension Canada guidelines highlight the management of resistant hypertension and the management of hypertension in women planning pregnancy, with an added emphasis on hypertension in children.[1] These guidelines are focused more on medical management by a physician as opposed to information directly affecting dental hygienists during client care.

This Access article will highlight recommendations from Hypertension Canada along with information related to baseline blood pressure (BP) requirements, implications, and considerations prior to implementing invasive dental hygiene care. It is important to note that standardized BP measurements and protocols to screen for hypertension remain intact, along with a focus on healthy lifestyle modifications otherwise known as "health behaviour changes".

The College would like to stress that it is not within the Scope of Practice for a dental hygienist to diagnose hypertension. This is a diagnosis that a physician would make. The CDHBC Bylaws, specifically related to the CDHBC Practice Standards (PS), outline the responsibility of the dental hygienist to assess and update BP as indicated or as appropriate for the client's needs. This assessment data is then analyzed to determine any treatment considerations and/or modifications to care including the need for a medical consultation and/or medical clearance.[2] Further to this, the CDHBC Code of Ethics provides ethical statements meant to provide guidance to ensure that safe and ethical interactions are upheld and appropriate interventions are provided during all aspects of dental hygiene care.[3] This includes assessing BP to ensure the risk of a medical emergency is reduced.

Table 1 outlines the variations between terminology and classifications used by the American College of Cardiology (ACC)/American Heart Association (AHA) 2017 and those used by Hypertension Canada 2020.[1,4]

Table 1: Comparison of ACC/AHA 2017 and Hypertension Canada 2020 Blood Pressure Classifications [1,4]

ACC/AHA 2017 Blood Pressure Classification	Hypertension Canada 2020 Blood Pressure Classification
Normal BP SBP < 120 mm Hg and DBP < 80 mm Hg	**Low Risk** SBP < 120 mm Hg and DBP < 80 mm Hg
Elevated BP SBP 120-129 mm Hg and DBP < 80 mm Hg	**Moderate Risk** SBP 121-139 mm Hg and DBP 80-89 mm Hg
Hypertension Stage 1 SBP 130-139 mm Hg or DBP 80-89 mm Hg	**Elevated Risk** SBP 140-159 mm Hg or DBP 90-99 mm Hg
Hypertension Stage 2 SBP ≥ 140 mm Hg	**Medical Referral to MD** SBP ≥ 160 mm Hg

or DBP ≥ 90 mm Hg	or DBP ≥ 100 mm Hg
Hypertension Crisis SBP ≥ 180 mm Hg and/or DBP ≥ 120 mm Hg	**Target range for those with diabetes or chronic kidney disease** SBP < 130 mm Hg and DBP < 80mm Hg

Dental Hygiene Management Considerations related to BP classifications are outlined in Table 2. These are specific for adult clients with no known co-morbidities and no other conditions that require medical clearance or modifications prior to dental hygiene care. **Table 2 is not meant to provide the only means of clinical decision making related to management considerations when BP is elevated.** Safe and ethical care relies on more than one assessment. A comprehensive medical history, lifestyle habits review, and medication assessment, along with BP readings contribute vital information to inform clinical decisions. Clinical decisions may include: treatment management to prevent a medical emergency, determining consultation and referral needs, and educational strategies just to name a few. Co-morbidities should also be considered in clinical decision making. Co-morbidities may include but are not limited to: diabetes, chronic kidney disease, and recent myocardial infraction.

Information found in **Table 2** has been adapted from the following resources: *Dental Management of the Medically Compromised Patient 9th edition*[5], *Darby's Comprehensive Review of Dental Hygiene*[6], *Medical Emergencies in the Dental Office 7th edition*[7], and *Highlights From the 2017 Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults*[8].

Table 2: Blood Pressure Classifications and Dental Hygiene Management Considerations
(Adapted from 4, 5, 6, 7, 8)

BP Category	Systolic BP (mm Hg)		Diastolic BP (mm Hg)	DH Management Considerations
Low Risk	< 120	and	< 80	• Evaluate yearly or if any changes to medical/medication history • Observe routine dental hygiene management
Moderate Risk	120-139	and	80-89	• Evaluate at continuing care appointments or if a change in medical/medication history • Observe routine dental hygiene management • Advise client of BP readings • Encourage client to seek a consultation with physician • Encourage healthy lifestyle management
Elevated Risk	140-159	or	90-99	• Monitor at consecutive appointments • Observe routine dental hygiene management • Implement stress management protocol • Advise (verbal and written) client of BP readings • Encourage healthy lifestyle management • Advise client to seek a consultation with physician

Medical Referral to MD	160-179	or	100-110	• Recheck in 5 minutes • If still elevated, obtain medical consult prior to providing dental hygiene care • Continue to monitor BP at consecutive appointments • Implement stress management protocol • Non-invasive dental hygiene care only • Do not perform invasive dental hygiene care until BP is below this level
Hypertensive Crisis (Consult physician immediately)	≥ 180	and/or	≥ 120	• Recheck in 5 minutes • If BP remains elevated, referral for immediate medical consultation • Do not perform dental hygiene care invasive or non-invasive until BP is controlled

When providing dental hygiene care for a client with hypertension (moderate risk and greater), stress management protocols shouldbe incorporated. This may include short morning appointments, appropriate pain control, and monitoring the client to ensure they are not becoming anxious during the appointment. If increased anxiety and/or apprehension is noted, the appointment should be rescheduled for another time.[5, 6] For those with anxiety, pharmaceuticals (such as benzodiazepines) may be prescribed by the dentist or physician prior to the appointment and/or the use of nitrous oxide, administered by the dentist, during the appointment.[5]

For those clients who are taking antihypertensive medications, care must be taken when adjusting the client chair to ensure orthostatic hypotension is avoided. As well, limiting the dose of epinephrine when administering local anesthetic (e.g., no more than 2 cartridges of LA with 1:100,000 epinephrine) for specific medications such as beta blockers.[5, 6, 7] It is also important to be aware of antihypertensive drug interactions with those drugs commonly prescribed in the dental office. Nonsteroidal anti-inflammatory drugs have a potential to decrease effectiveness of some antihypertensive medications.[5, 7] The Hypertension Canada's 2020 guidelines now state that the use of low-dose acetylsalicylic acid (ASA) for primary prevention of cardiovascular disease is no longer recommended in people with hypertension.[1] This recommendation should be coming from the clients' physician as it is not within the Scope of Practice for the dental hygienist to make this decision.

The following list provides a refresher on standard techniques for obtaining an accurate BP measurement related to: preparing the client, BP techniques, documentation, and client feedback.[1, 4]

- Sitting position
- Empty bladder
- After a 5-minute rest
- Support the back
- Legs uncrossed with feet on the floor
- No tobacco, caffeine, or exercise 30 min before monitoring
- No talking during measurement
- No clothing under the location of the cuff
- Use a validated BP measurement device*
- Use appropriate cuff size
    - For automated, follow recommendation of manufacturer
    - For auscultation, bladder width should cover close to 40% of the arm circumference and bladder length should cover 80-100% of arm circumference

- Support the arm at heart level
- Middle of the cuff at the heart level, lower portion of cuff directly above the elbow
- At the first visit, record BP in both arms. Use the arm that gives the higher reading for subsequent readings
- Wait 1-2 minutes between measurements
- Document BP findings in the client record of care, indicating the arm, and method (digital or auscultatory)
- Provide the BP readings to the client, both verbally and in writing
- If the BP reading is ≥ 130/80 mm Hg, after 2 consecutive readings on 2 occasions, encourage the client to follow-up with their physician

According to the 2020 Hypertension Canada guidelines, BP should be measured regularly by a health care professional in children 3 years of age and older.[1] BP readings in children are compared to the norms for age, sex, and height; recommendations and follow-ups are based on where the BP reading falls within a certain percentile. Assessing BP in children is not as straightforward as screening BP in adult clients. At this time, the College is waiting for a response from Hypertension Canada for clarification on the dental hygienist's role in screening BP for this demographic. Due to the traditionally non-invasive care provided by dental hygienists to this population, the College currently recommends incorporating stress management strategies as required. If there are suspected additional health concerns, a referral or consultation with a physician might be in order.

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.[9] Incorporating BP monitoring in the practice setting not only meets the CDHBC Practice Standards and Code of Ethics, it provides a screening tool to plan modifications for care and, when required, referrals for consultation and/or medical clearance to ultimately prevent medical emergencies during dental hygienecare.

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 BP in the client chart along with any pertinent conversations and/or consultation notes.

*Hypertension Canada refers to dabl for the most current list of validated BP measurement devices.

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