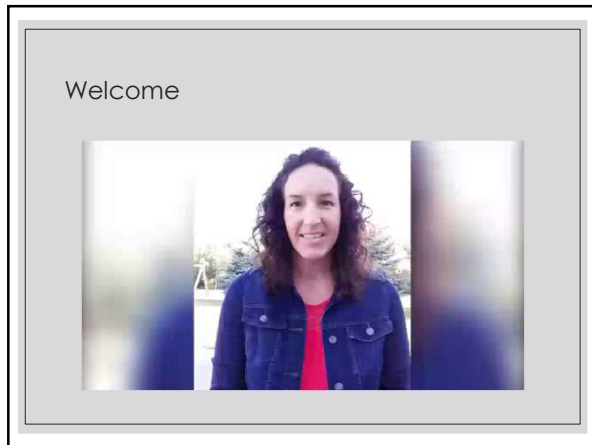
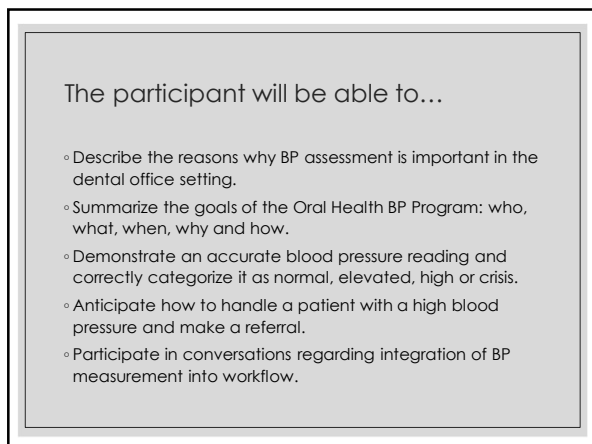


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Purpose of this Project

Despite progress toward improving health in North Dakota, there are unmet needs in chronic disease prevention and management. In the state, 30.4% of adults are diagnosed with hypertension, unequally affecting some populations (e.g., low-income). Dental providers can help bridge this gap by working with medical partners on efforts to prevent cardiovascular disease (CVD).



Cheri Kiefer, RN, BSN, RDN, RD
Oral Health Program Director

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Why Check BP in a Dental Office?

- According to the Academy of General Dentistry, there is a relationship between gum (periodontal) disease and health complications such as a stroke and heart disease.
- Other research shows that more than 90% of all systemic diseases (diseases involving many organs or the whole body) have oral manifestations, including swollen gums, mouth ulcers, dry mouth and excessive gum problems.
- Since most people have regular oral examinations, their dentist may be the first health care provider to diagnose a health problem in its early stages. Poor oral health can lead to problems.
- It's all about screening and early detection! This can help identify patients with high blood pressure that are "hiding in plain sight." It also provides an opportunity to discuss current lifestyle choices, such as physical activity, eating habits, tobacco habits, alcohol use and sodium intake.

<https://oral.health.nd.gov/stay-healthy/>

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North Dakota Prevalence

Hypertension

Also known as high blood pressure and the "silent killer"



In North Dakota, 29.6% of adults have been told they have high blood pressure (2017)



1 in every 3 adults in the U.S. have high blood pressure



1 in every 5 adults in the U.S. with high blood pressure still don't know they have it



\$48.6 billion is spent on high blood pressure every year in the U.S.

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? WHO

? WHAT

🕒 WHEN

📈 WHY

? HOW

7

What is Blood Pressure (BP)?

- Blood pressure: The force of blood pushing against blood vessel walls. It is measured in millimeters of mercury (mm HG).
- High blood pressure or hypertension means that the pressure in your arteries is higher than it should be.
- Systolic (top) number: The pressure when your heart beats or is contracted.
- Diastolic (bottom) number: The pressure when the heart rests between beats.
- Normal: < 120/<80
- For the purposes of this project, the ND DoH is asking that BP should be taken for all new, recall, and emergency procedure adult patients (over 18 years of age).

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Risk Factors

<p>Controllable:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Smoking and exposure to secondhand smoke <input type="checkbox"/> Diabetes <input type="checkbox"/> Overweight/obese <input type="checkbox"/> High cholesterol <input type="checkbox"/> Unhealthy diet (high in sodium, low in potassium and excessive alcohol) <input type="checkbox"/> Physical inactivity 	<p>Cannot be modified or difficult to control:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Family history of HBP <input type="checkbox"/> Race/ethnicity (African American) <input type="checkbox"/> Increasing age <input type="checkbox"/> Gender (males) <input type="checkbox"/> Chronic kidney disease <input type="checkbox"/> Obstructive sleep apnea
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9

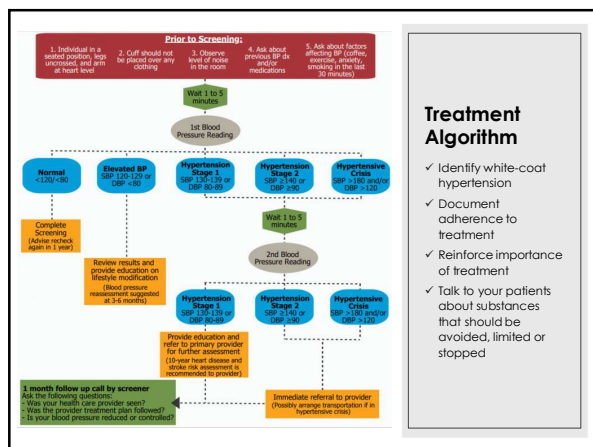
What is Hypertension?

Blood Pressure Category	Systolic mm HG (top)		Diastolic mm HG (bottom)	Document/Referral
Normal	Less than 120	and	Less than 80	Document in chart
Elevated	120-129	and	Less than 80	Document in chart, flag for recheck at next appointment.
High blood pressure (Hypertension) Stage 1	130-139	or	80-89	Inform patient – speak to HCP at next appointment Document/flag
High Blood Pressure (Hypertension) Stage 2	140 or higher	or	90 or higher	Inform patient – speak to HCP at next appointment Complete referral process Document/flag
Hypertensive Crisis (consult physician immediately)	Higher than 180	And/or	Higher than 120	Determine if emergent or urgent. Refer if urgent or transfer to ED if emergent. Document/flag

American Heart Association guidelines, 2017; accepted by the American Dental Association in December of 2017.

At what blood pressure would it be considered unsafe to conduct dental procedures?

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SECTION A: DENTAL PRACTICE TO COMPLETE

Patient Information	Practice Information
Name: _____	Referring Practice: _____
DOB: _____	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.

Referral

Suggested Process:

- Inform patient/educate
- Instruct patient to see their PCP or local physician
- Complete a referral form and send to PCP within 1 week
 - Fax, phone, secure email, NDRIN
- Document the encounter in chart/copies of referral document in chart
- Document any follow-up correspondence received from the patient's PCP
- Follow-up on the referral during the next patient visit

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Referral Correspondence from PCP

SECTION B: MEDICAL PRACTICE TO COMPLETE

Patient Information	Practice Information
Name: _____	Referring Practice: _____
DOB: _____	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: _____

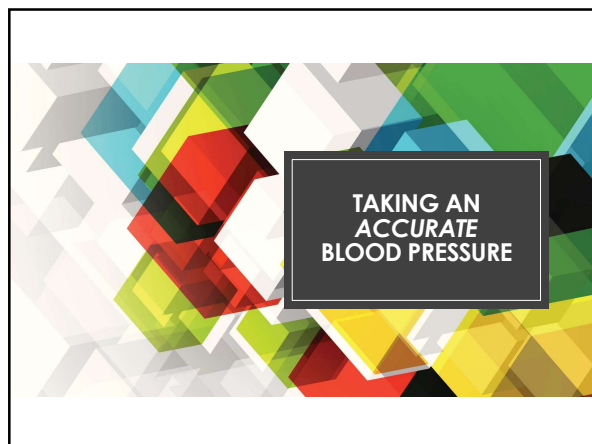
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What if the Patient Doesn't Have a PCP?

- Does your dental office have a relationship with a local clinic?
 - When you have a question about BP? Or when they have an oral health question?
 - Do they take new patients?
 - What other resources do you have in your community where a patient could have their BP rechecked?
- If yes, do they know you are now taking blood pressures on your patients?
- If no, what can you do to develop that relationship?




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Causes of Variation in Measurement

- Location of:
 - Workday
 - Evening - Decrease
 - Sleep - Decrease
 - Provider's office – Increase (white coat syndrome)
- Device: Manual cuff – Automated Machine – Patient's Cuff
- How a high reading is handled
- Which arm is measured



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Sphygmomanometer is Fun to Say!



Device	Pros	Cons
Manual Cuff Auscultation to listen for a change in the sounds	Durable Accurate Low maintenance	Bulky Requires practice Requires good vision/hearing
Digital/Automatic Machine uses Oscillation to detect change in the pressure	Gold Standard Very easy – Minimize human error Reports produced automatically	Delicate – Proper care required Repair can be complicated/\$\$\$ Requires periodic check with manual cuff for accuracy
Wrist monitor	Used when individual finds arm devices uncomfortable or painful	Less accurate Sensitive to body position Often improperly used

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Common Mistakes by Healthcare Professionals

- Inappropriate cuff size
- Failure to allow rest period before measurement
- Failure to palpate maximal systolic pressure before auscultation
- Talking during measurement
- Full bladder
- Lack of support for back and feet
- Crossed legs
- Taking measurement over clothing

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Factors that Interfere with Accuracy		
Factor	Systolic	Diastolic
Patient supine rather than sitting	Increase: 3 mmHg	Decrease: 2-5 mmHg
Position of patient's arm	Increase/decrease for every 10 cm above or below heart level	Increase/decrease for every 10 cm above or below heart level
Failure to support arm	Increase: 2 mmHg	Increase: 2 mmHg
Cuff too small	Decrease: 8 mmHg	Increase: 8 mmHg
Expectation bias (end digit preference)	Rounding to nearest 5 or 10 mmHg	Rounding to nearest 5 or 10 mmHg
Talking	Increase: 17 mmHg	Increase: 13 mmHg
Acute exposure to cold	Increase: 11 mmHg	Increase 8 mmHg
Acute ingestion of alcohol	Increase: 8 mmHg for <3 hrs	Increase: 7 mmHg < 3 hrs
Feet Flat on floor/legs uncrossed	Increase: 5-6 mmHg	Increase: 2-3 mmHg

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Sizing of BP Cuff		
The ideal cuff bladder length is \geq 80 percent of the patient's arm circumference. The ideal cuff bladder width is \geq 40 percent of the patient's arm circumference.		
Arm Circumference		Recommended Cuff Size (width X length in cm)
cm	in	
22-26	8.7-10.2	12 X 22 (small adult)
27-34	10.6-13.4	16 X 30 (adult)
35-44	13.8-17.3	16 X 36 (large adult)
45-52	17.7-20.5	16 X 42 (extra-large adult)

Many devices are sold with variable size cuffs that will fit a majority of arms from the small adult to large adult range. Check device specifications for the range of arm circumferences covered.

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(a) Cuff pressure > 120 mm Hg
When the cuff is inflated so that it stops arterial blood flow, no sound can be heard through a stethoscope placed over the brachial artery distal to the cuff.

(b) Cuff pressure between 80 and 120 mm Hg
Korotkoff sounds are created by pulsatile blood flow through the compressed artery.

(c) Cuff pressure < 80 mm Hg
Blood flow is silent when the artery is no longer compressed.

Getting an Accurate Measure

- ✓ Avoid smoking/caffeine for 1 hour prior to BP measurement
- ✓ Place cuff at heart level
- ✓ Ensure cuff is tight but allow two fingers to be inserted between cuff and arm
- ✓ Support back and arm
- ✓ Place feet flat on floor with legs uncrossed
- ✓ Avoid talking
- ✓ Proper placement of cuff with bladder centered over brachial artery

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Steps to Taking the Blood Pressure

- Place the patient in a seated position in a private space with feet resting flat on the floor, with arm and back supported
- Perform hand hygiene
- Ask if the patient has smoked or taken in any caffeine in the last hour; and whether they currently take BP lowering medication
- Place the cuff on a bare arm about 2 fingers above the antecubital space (bend in elbow), with bladder centered over the brachial artery

1-step	2-step
Place stethoscope over brachial artery	Palpate the radial pulse
Inflate the cuff to 160 mmHg (If you can still hear the pulse, inflate higher in 30 mmHg increments)	Inflate the cuff until the radial pulse can no longer be palpated, note the reading. This is your approximate systolic pressure.
Slowly release the pressure in the cuff.	Wait 2 minutes and take the blood pressure, pumping the cuff to 30 mmHg above the palpated reading.

- Pay attention to the first sharp release of blood known as the Korotkoff sound (this is the Systolic number)
- Continue to release pressure from the cuff, which will allow more blood flow and the Korotkoff sounds will slowly diminish
- The last sound you hear will be recorded as the diastolic pressure
- If the blood pressure is $>120/80$, wait at least 5 minutes and repeat for a total of 3 times and average the 3 readings
- Document and refer if necessary

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Tips from “Vintage” Nurses

- What do you do if your patient's arm circumference is very large but length from armpit to elbow is very short?
- What do I do when I am having trouble hearing the sounds?
- What if the PCP isn't following the same set of hypertension guidelines as we are?
- Can I take a blood pressure in the affected arm of a patient who has had a stroke?
- What if a patient has had a mastectomy and is experiencing lymphedema?

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Round Robin/Return Demo


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Lisa Thorp, BSN, RN
lthorp@qualityhealthnd.org
701-989-6241

Carolyn Tufte, LPN
ctufte@qualityhealthnd.org
701-989-6238

Quality Health Associates of ND
41 36th Ave. NW
Minot, ND 58703
Phone: 701-989-6220

 Quality Health Associates
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