

# Vital Signs

1

**DENTALELLE TUTORING**

# Recording of Vital Signs

2

- At the New Patient Exam (and in some cases EVERY appointment) vital signs must be recorded
- Often vital signs are only recorded for adults and older children – here is the **normal** range:
- **Blood pressure** – 115/75 (or 120/80 depending on the text you read but 115/75 is the normal range under the ‘heart and stroke foundation’.
- **Pulse** – 60-90 BPM
- **Respiration** – 14-20 RPM
- **Temperature** – 97-99 degrees

# Normal Results

3

- A normal body temperature taken orally is  $98.6^{\circ}\text{F}$  ( $37^{\circ}\text{C}$ ), with a range of  **$97.8\text{--}99.1^{\circ}\text{F}$**  ( $36.5\text{--}37.2^{\circ}\text{C}$ ).
- A **fever** is a temperature of  $101^{\circ}\text{F}$  ( $38.3^{\circ}\text{C}$ ) or higher in an infant younger than three months or above  $102^{\circ}\text{F}$  ( $38.9^{\circ}\text{C}$ ) for older children and adults. **Hypothermia** is recognized as a temperature below  $96^{\circ}\text{F}$  ( $35.5^{\circ}\text{C}$ ).
- Respirations are quiet, slow, and shallow when the adult is asleep, and rapid, deeper, and noisier during and after activity.
- Average respiration rates at rest are:
  - **infants**, 34–40 per minute
  - **children** five years of age, 25 per minute
  - Tachypnea is rapid respiration above 20 per minute.

# Continuation

4

- The strength of a heart beat is raised during conditions such as fever and lowered by conditions such as shock or elevated intracranial pressure. The average heart rate for older children (aged 12 and older) and adults is approximately 72 beats per minute (bpm). **Tachycardia** is a pulse rate over 100 bpm, while **bradycardia** is a pulse rate of under 60 bpm.

# Blood Pressure

5

- To record blood pressure, a person should be seated with one arm bent slightly, and the arm bare or with the sleeve loosely rolled up. The cuff is placed level with the heart and wrapped around the upper arm, one inch above the elbow.
- If the blood pressure is monitored manually, a cuff is placed level with the heart and wrapped firmly but not tightly around the arm one inch above the elbow over the brachial artery. Positioning a **stethoscope** over the brachial artery in front of the elbow with one hand and listening through the earpieces, the cuff is inflated well above normal levels (to about 200 mmHg), or until no sound is heard. Alternatively, the cuff should be inflated 10 mm Hg above the last sound heard. The valve in the pump is slowly opened. Air is allowed to escape no faster than 5 mmHg per second to deflate the pressure in the cuff to the point where a clicking sound is heard over the brachial artery. The reading of the gauge at this point is recorded as the systolic pressure.

# Blood Pressure Continuation

6

- The sounds continue as the pressure in the cuff is released and the flow of blood through the artery is no longer blocked. At this point, the noises are no longer heard. The reading of the gauge at this point is noted as the diastolic pressure. "Lub-dub" is the sound produced by the normal heart as it beats. Every time this sound is detected, it means that the heart is contracting once. The noises are created when the heart valves click to close. When one hears "lub," the atrioventricular valves are closing. The "dub" sound is produced by the pulmonic and aortic valves.
- With children, the clicking noise does not disappear but changes to a soft muffled sound. Because sounds continue to be heard as the cuff deflates to zero, the reading of the gauge at the point where the sounds change is recorded as the diastolic pressure.
- Blood pressure readings are recorded with the systolic pressure first, then the diastolic pressure (e.g., 120/70).
- Blood pressure should be measured using a cuff that is correctly sized for the person being evaluated. Cuffs that are too small are likely to yield readings that can be 10 to 50 millimeters (mm) Hg too high. **Hypertension** (high blood pressure) may be incorrectly diagnosed.

# Pulse – Heart Beat

7

- The pulse can be recorded anywhere that a surface artery runs over a bone. The radial artery in the wrist is the point most commonly used to measure a pulse. To measure a pulse, one should place the index, middle, and ring fingers over the radial artery. It is located above the wrist, on the anterior or front surface of the thumb side of the arm.
- Gentle pressure should be applied, taking care to avoid obstructing blood flow. The rate, rhythm, strength, and tension of the pulse should be noted. If there are no abnormalities detected, the pulsations can be counted for half a minute, and the result doubled. However, any irregularities discerned indicate that the pulse should be recorded for one minute. This will eliminate the possibility of error. Pulse results should be noted in the health chart.

# Respirations

8

- An examiner's fingers should be placed on the person's wrist, while the number of breaths or respirations in one minute is recorded. Every effort should be made to prevent people from becoming aware that their breathing is being checked. Respiration results should be noted in the medical chart



# Temperature

9

- Temperature is recorded to check for fever (pyrexia or a febrile condition), or to monitor the degree of hypothermia.
- Manufacturer guidelines should be followed when recording a temperature with an electronic **thermometer**. The result displayed on the liquid crystal display (LCD) screen should be read, then recorded in a person's medical record. Electronic temperature monitors do not have to be cleaned after use. They have protective guards that are discarded after each use. This practice ensures that infections are not spread.

# Ergonomics

10



# Ergonomics for the Dental Assistant

- As a dental assistant, ergonomics is important to your health and longevity in the profession.
- Neutral-sitting position is **ideal**. This is sitting upright with your back straight and weight evenly distributed over the seat. Legs should be slightly separated with feet flat on the ring around the base of the chair. Your thighs should be parallel to the floor and front edge of the chair even with the patient's mouth. Position your chair close to the side of the patient with knees facing toward the patient's head. The height of the chair should be such that your eye level is 4 to 6 inches above the operator. This will give you a good line of vision into all areas of the patient's mouth.
- If your chair has an arm support, it should be at the level of your abdomen and be used for reaching and leaning forward. The position of the mobile cart or cabinet top should be over your thighs and as close as possible.

# Five Categories of Motion

12

- Class I is using fingers only such as flipping ends of the instrument.
- Class II is using fingers and wrist. This could be transferring an instrument to the operator.
- Movement of fingers, wrist and arm are Class III. Oral evacuation is in this classification.
- Mixing of dental materials involves movement of the entire arm and shoulder. This is classified as Class IV.
- Class V is movement of the arm and twisting of the body. Twisting behind you to adjust the dental light would be this classification.

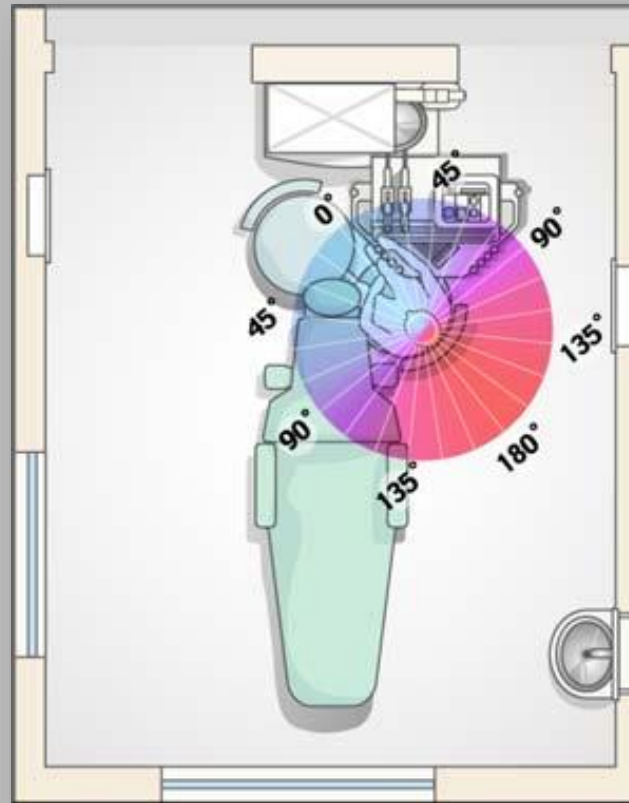
# Zones

13

- The work area around the patient is arranged into zones representing hours on a clock. The activity zone for the operator is 7 o'clock to 12 o'clock. All activities of the operator at the chairside are performed in this zone. **The assisting zone is 2 o'clock to 4 o'clock.**
- In this zone, the assistant is positioned. The assistant transfers materials and instruments in the transfer zone, which is 4 o'clock to 7 o'clock.
- Ergonomically, the design of the work area is a 20-inch radius. Keep frequently used items such as air-water syringe, high volume evacuator and saliva ejector within easy reach. All equipment and instruments should be within maximum vertical and horizontal reach. This is the sweep of your forearm in a reach of vertical and horizontal direction. **Front delivery systems** are best.

# Zones Diagram

14



# Patient Positioning

15

- You should keep everything approximately waist high, not above shoulder level or below the waist. Those levels require twisting, turning of your back and shoulders. If a side delivery system is utilized, make it your dominant side. Again, this will require less overextending of your arm and shoulder
- Do not overlook **patient positioning**. The position of the patient can greatly affect your posture. When reclining the patient, place his or her head in the **same plane as their feet**. Many dental practitioners try to perform procedures with the patient in an upright position. This causes practitioners to compensate by twisting their neck and back in order to see. Do not be afraid to ask patients to turn their heads or tilt their chins up or down. Patients are willing to comply if asked. This will allow better access and vision in the oral cavity.
- Try using indirect vision for those hard to access areas such as buccal of the left side of the mouth and lingual of the right side.

# Other Areas to Consider

16

- When deciding on a proper glove size, make sure the glove is not too tight across the palm or too constricting at the wrist. Also, the finger length should be adequate to allow for comfortable finger movement.
- Handpieces and air/water syringes have hoses that are coiled and can be heavy. Their coiled cord places resistance against the wrist and hand. If the cord is long enough, place it in your lap so the excess is not dangling down. Swiveling devices can be placed on a handpiece. These devices reduce handpiece torque. Newer handpieces are much lighter than the older models. If your air/water syringe has a tightly coiled cord, consider replacing it with a lightweight hose.
- Climate control of the workplace is important too. Exposure to cold air or drafts can cause muscles to constrict leading to fatigue or overworking of the muscles. This affects muscles of the neck, shoulders and back in particular. Always wash your hands in warm water to decrease hand fatigue.



# Stretching

17

- Routine stretching exercises for your neck, shoulders, back, arms and fingers can prevent some work-related injuries and relax the body. Stretching should be performed every hour and slowly while exhaling into the stretch.

# Exercises to Perform

18

- **Neck Rotation Exercises** 1. Head rotation \* Drop your head forward \* Rotate your head to the right shoulder \* To left shoulder \* Then return to front \* Repeat this 3-5 times
- **Shoulder & Upper Back Exercises** 1. Shoulder rotation \* Rotate your right shoulder \* Then rotate your left shoulder \* Repeat this series 3-5 times 2. Shoulder shrug \* Shrug your shoulders by raising them \* Hold this position for 5 seconds \* Repeat 3-5 times
- **Overhead reach** \* Place your hands and arms straight over your head and stretch \* Hold for 5 seconds \* Repeat 3-5 times 4. Elbow spread \* Interlock fingers behind head \* Move elbows backward \* Hold for 5 seconds \* Repeat 3-5 times

# Continuation of Exercises

19

- **Arm straightening** \* Interlock fingers behind your back and straighten arms \* Hold for 5 seconds \* Repeat 3-5 times
- **Lower Back Exercises**
  1. **Backward lean** \* Place hands on buttocks and lean backward \* Hold for 5 seconds \* Repeat 3-5 times
- **Spine rotation** \* While sitting, place your left hand on right knee \* Look over the right shoulder causing spine rotation \* Repeat other side \* Repeat series 3-5 times
- **Forward bend** \* Bend forward at waist \* Try to touch your toes \* Hold for 5 seconds \* Repeat 3-5 times
- **Wrist & Finger Exercises**
- **Finger curl** \* Stretch fingers out \* Curl them toward palm of hand \* Repeat 3-5 times
- **Finger pull** \* Pull fingertips of one hand back with the other \* Repeat with other hand \* Repeat 3-5 times