

# EMERGENCY GUIDE for DENTAL AUXILIARIES

S E C O N D E D I T I O N



**Janet Bridger Chernega**

# ***EMERGENCY GUIDE FOR DENTAL AUXILIARIES***

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***Second Edition***

**Janet Bridger Chernega, C.D.A., B.S.**

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# Preface

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Medical emergencies can and do occur within the dental office environment. A large percentage of these emergencies could be prevented or at least better treated if all the members of the dental team were more knowledgeable in the prevention and management of emergency situations.

The *Emergency Guide for Dental Auxiliaries* is designed to provide dental auxiliary students with the basic skills and knowledge necessary in order for each of them to function effectively as a member of the dental team. This text will also be an effective refresher tool for dental auxiliaries who are already working in dentistry.

The text includes objectives, review questions, and problem-solving situations. This design should help the reader master new information as well as provide a format that will simplify review of previously learned material.

The last chapter of the text provides information on the legal aspects of emergency care in the dental office. This chapter is designed as an overview. It is important that readers check the laws governing their own state for more detailed information.

Every effort has been made to ensure that the information in this text is accurate and up to date. However, due to the rapidly changing nature of both the dental and medical fields, the reader is encouraged to keep informed of changes announced by medical or dental authorities.

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# Prevention 1

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## **KEY TERMS**

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Blood pressure  
Carotid artery  
Diastolic pressure  
Hypertension

Pulse  
Radial artery  
Respiration rate  
Systolic pressure

## **OBJECTIVES**

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Upon completion of this chapter the student will be able to:

- Name four vital signs
- Demonstrate the technique for recording each of these four vital signs
- Explain the normal range of each of the vital signs
- Explain the importance of having an accurate health history for each dental patient
- Demonstrate the technique for completing and updating the health history
- Demonstrate the technique for utilizing the *PDR*

Most dental office emergencies can be prevented through the use of available information such as that found on thorough health histories. Dentists over the years have found that the easiest way to treat an emergency is to prevent it from occurring. This chapter discusses several ways of gathering information that may help prevent an emergency.

## **Vital Signs**

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The human body has certain vital signs that are important to measure: blood pressure, pulse, respiratory rate, and temperature.

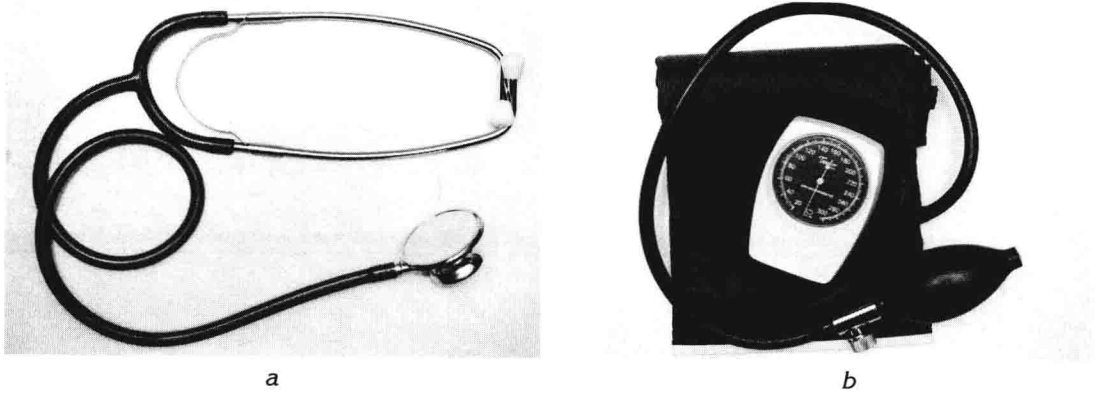


Figure 1-1 (a) Stethoscope and (b) sphygmomanometer

## Blood Pressure

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*Blood pressure* is the pressure the blood places on the walls of the arteries. When there is too much pressure on the arteries, the patient suffers from *hypertension*, also known as high blood pressure. Hypertension can result in serious conditions such as stroke or cardiac arrest. By measuring blood pressure, the dentist may diagnose possible hypertension and prevent an emergency from occurring in the office.

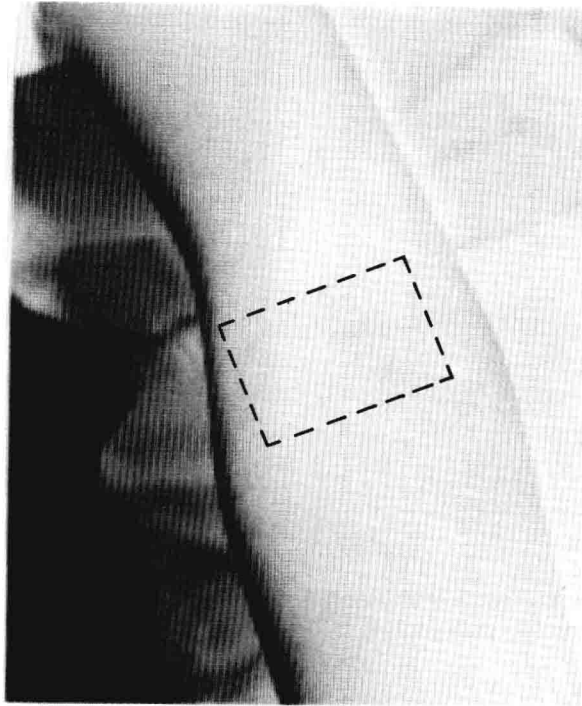
Two readings are recorded when blood pressure is measured. The first reading is the *systolic pressure*, a measurement of the pressure on the arteries when the heart is beating, or working. The second reading is the *diastolic pressure*, which is a measurement of the pressure on the arteries when the heart relaxes between beats. If a person reports a blood pressure reading of 120/80, the 120 represents the systolic pressure and the 80 the diastolic pressure.

To record blood pressure two items are needed: a stethoscope and a sphygmomanometer, which consists of a gauge and an inflatable bag inside a cloth armband (Figure 1-1a and b). The sphygmomanometer comes in a range of sizes designed to fit children and adults. The size should always be selected according to the patient's size rather than the patient's age.

## Technique

Blood pressure is measured by comparing the pressure in the artery with the air pressure in the armband:

1. Expose the patient's arm. An accurate blood pressure cannot be taken over any type of clothing.

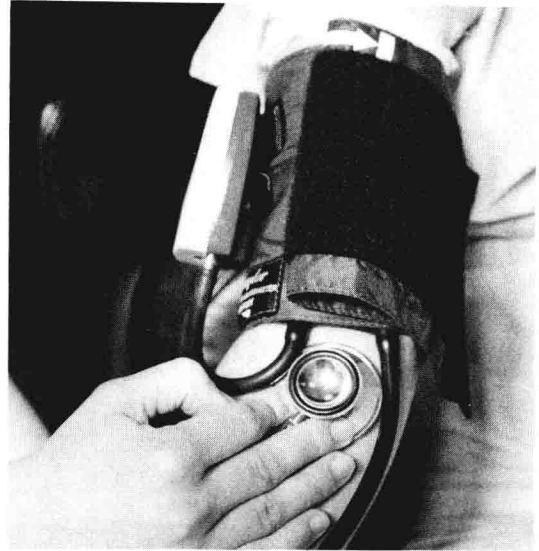


**Figure 1-2** Location of the antecubital fossa

2. Select the cuff size. Be sure to select a size that fits snugly around the patient's arm without being tight enough to stop the flow of blood. A cuff that is too large or too small may produce an inaccurate reading.
3. Place the cuff approximately an inch above the antecubital fossa (Figure 1-2).
4. Place the earpieces of the stethoscope into your ears. Make sure the earpieces are pointing toward the front of the head so that when they are placed in the ears, they follow the shape of the ear canal.
5. Close the knob on the bulb by turning it clockwise. Be sure that the knob is not so tight as to prevent it from being easily turned with two fingers (Figure 1-3).
6. Squeeze the bulb to pump air into the cuff until the pressure stops the flow of blood in the artery. This can be determined by palpating the *radial artery*. When no pulse is felt, the flow of blood has been stopped; this usually occurs around 180mg Hg. At this point the pressure in the armband is higher than that in the artery, and the artery is squeezed shut.
7. Place the stethoscope over the brachial artery (Figure 1-4).
8. Turn the knob on the bulb counterclockwise slowly to release the pressure in the cuff. If the pressure is released too rapidly to hear the pulse



**Figure 1-3**    How to close and open the knob on the blood pressure cuff



**Figure 1-4**    Placement of the stethoscope

- sound, release *all* the pressure in the cuff and begin the procedure again.
9. As soon as the cuff is loose enough to allow the blood to pass through the artery, a pulse should be heard. At this point the reading on the gauge is the systolic pressure.
  10. Continue to release the pressure in the cuff until a pulse is no longer heard. At this point the blood is flowing freely, and the reading on the gauge is of the diastolic pressure.

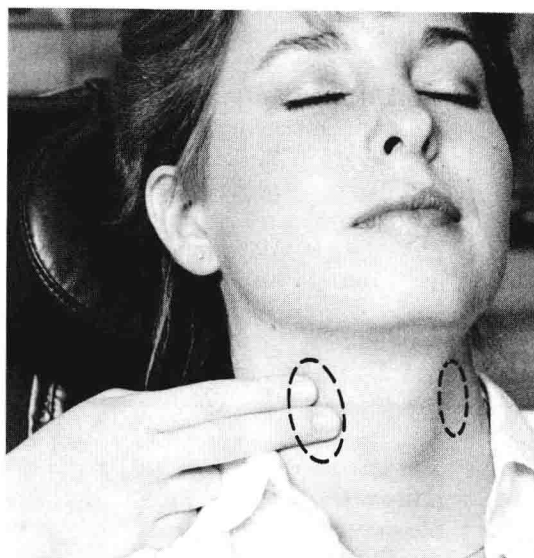
The technique described above is only one example of how to measure blood pressure. If you are in an office that utilizes a different technique, make sure you understand the steps involved and can perform the procedure accurately.

## **Normal Readings**

Doctors once considered 120/80 the normal range for blood pressure, but most now believe that a lower reading is often acceptable. To determine what is normal for a particular patient, check the blood pressure over several visits to obtain a baseline reading. In addition, a consultation with the patient's physician may sometimes be indicated.



**Figure 1-5** Measuring the pulse at the radial artery



**Figure 1-6** Measuring the pulse at the carotid artery

## Recording the Pulse

The *pulse* is also an important measurement to take on each dental patient. Measuring the pulse gives the dentist a very good picture of what is taking place with the patient's cardiac rhythm. As with any vital sign, it is important to have a baseline reading for comparison in the event of an emergency.

The pulse can be recorded at any major artery in the body. However, it is usually recorded at either the carotid artery or the radial artery. The *radial artery*, located in the wrist area, is usually the artery of choice for recording the pulse during a routine exam (Figure 1-5). It provides both easy access and an accurate reading. On the other hand, the *carotid artery*, located on either side of the neck, should be used to measure the pulse during an emergency (Figure 1-6). When cardiac output is very low because of an emergency condition, the pulse may be measured at the carotid artery when it is not palpable at the radial artery (the radial artery is peripheral, and blood flow usually ceases in that area first).

## Technique

To record the pulse correctly, use the first and middle fingers. Place the two fingers firmly over the artery. Placing the fingers too lightly causes the beat of the

## 6 Emergency Guide for Dental Auxiliaries

pulse to be missed, but pressing too tightly cuts off the blood supply, eliminating the pulse altogether.

Once the artery has been located, count each beat of the pulse for a full minute. Observing the second hand of a watch is mandatory. Although the rate or speed of the pulse is important, attention must also be paid to the rhythm (regular or irregular) and to the quality (bounding or thready). Each of these readings is very important to the dentist in diagnosing the problem during an emergency. Although normal pulse readings vary among patients, for an adult the average range is 60 to 72 beats per minute.

## Respiration

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The measurement of respirations involves counting the number of times the patient breathes in one minute. An unusual *respiration rate* is a signal of possible emergency situations such as hyperventilation or certain cardiac problems.

To record the patient's respirations accurately, the patient should be unaware that someone is watching him breathe. Continue holding the patient's wrist as if the pulse is still being measured while actually watching and counting the rise and fall of the chest. As with the pulse, respirations should be measured for 60 seconds.

During cool weather when patients have on several layers of clothing, it is helpful to have the patient place one arm over the chest; the rise and fall of the arm then indicates the respirations. A normal range for respirations is 12 to 20 per minute, although this can be dramatically different among certain groups of people such as athletes.

## Temperature

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A patient's body temperature is not usually measured in the dental office on a routine basis. However, if the dental team suspects the patient may be ill, or if extensive surgery is to be performed, the dentist may request that the patient's body temperature be measured.

Use a thermometer to measure a patient's body temperature. A glass thermometer is most often used in a dental office. However, there are a variety of other types of thermometers, such as an electronic thermometer, a disposable paper thermometer, and a temperature-sensitive strip. The dental staff should select a thermometer that best meets their needs.

## Technique

The oral route is recommended for routine temperature measurement in the dental office. The technique described below is for use with a glass ther-



### Ranges for Normal Vital Signs

	BLOOD PRESSURE	PULSE	RESPIRATIONS	TEMP.
Infant	74–100/50–70	80–160	30–60	99.4–99.7
Preschool	82–110/50–78	80–120	22–34	98.6–99
School age	84–120/54–80	75–110	18–30	98–98.6
Adolescent	94–140/62–88	60–90	12–20	97–99
Adult	90–140/60–90	60–100	12–20	97–99
Geriatric (+70)	90–140/60–90	60–100	12–20	96–99

mometer. If other methods are utilized, follow the manufacturer's instructions.

1. Remove the thermometer from the storage container and rinse in cold water. Wipe dry with a tissue.
2. Check the reading on the thermometer. If it is not below 96 degrees F, shake the thermometer down until the mercury level is below that number.
3. Place the thermometer in the patient's mouth sublingually.
4. Instruct the patient to close the mouth and hold the thermometer in the mouth with the lips. Always caution the patient not to bite the glass thermometer.
5. Remove the thermometer from the patient's mouth and record the reading.
6. Clean the thermometer according to manufacturer's instructions.

### Normal Readings

The normal reading for a child is 97–99, an adult is 97–99, and a geriatric patient (over 70 years old) is 96–99.

## Health History

When a new patient enters the dental office, the staff and dentist seldom have any idea what types of medical problems he may have, and if an emergency arose, there would be no point of reference on which to base a probable diagnosis. The health history informs the staff of some possible problems to be prepared for as well as some drugs or treatments to avoid.

There is a great variety of patient health history forms, and most dental supply companies produce them. In addition, many dentists design their own forms (Figure 1-7).