

5TH EDITION

MEDICAL EMERGENCIES GUIDE FOR DENTAL AUXILIARIES



**MELISSA DAMATTA
VAISHALI SINGHAL
DEBRA JENNINGS**



Medical Emergencies Guide for Dental Auxiliaries

F I F T H E D I T I O N

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Preface

Introduction

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

The *Medical Emergencies Guide for Dental Auxiliaries* is designed to provide dental auxiliary students with the basic skills and knowledge necessary to function effectively as a member of the dental team. This text is also an effective refresher tool for dental auxiliaries who are already working in dentistry. The format of this textbook will help the reader master new information and will simplify review of previously learned materials.

Why We Wrote This Text

This text contains basic information in a format that allows the educator to use the content as written or increase the knowledge base as appropriate for the level of the students.

Chapter Organization

The fifth edition of *Medical Emergencies Guide for the Dental Auxiliary* has been updated to represent up-to-date information regarding the most common medical emergencies encountered in the dental office. The layout and order are a result of listening to our customers and designing a structure that makes sense to those who use this text on a regular basis. Creating sections and grouping chapters in a logical framework is what makes this textbook successful.

This edition of the textbook is organized into six sections containing a total of 14 chapters. The sections are arranged by type of emergency for easier reference and a more reader-friendly approach to various emergencies that can occur in a dental practice. For example, Section III: Respiratory Distress Emergencies contains chapters on respiratory emergencies that can happen in the dental setting. This organization will help the dental auxiliary student learn about related emergencies and the similarities and differences in how to handle them.

Because the guidelines for Cardiopulmonary Resuscitation (CPR) can change at any time, we found it best to remove the chapter on CPR to keep the textbook as up to date as possible. In addition, the dental auxiliary should be trained and certified in Basic Life Support, making the chapter an unnecessary addition.

The organization of this fifth edition is designed to ensure that those pursuing careers as dental professionals will have all the necessary skills and information to be prepared to effectively handle a medical emergency in the dental office with confidence.

Features

The fifth edition contains the following chapter elements:

Key Terms: Important terms are listed alphabetically at the beginning of each chapter and found in the Glossary at the end of the textbook.

Learning Outcomes: At the beginning of each chapter, these objectives address the concepts the reader should understand, and they allow immediate feedback on comprehension.

Test Your Knowledge: Short-answer questions are found throughout the chapters after core concepts have been introduced. These exercises are included to challenge the reader's knowledge and application of the material presented and to facilitate problem solving.

Emergency Basics: These boxed features, which facilitate understanding of important emergency protocols, warning signs and symptoms of an impending emergency, and more are presented succinctly for quick and easy reference.

Summary: Each chapter includes a summary section that synthesizes chapter content covered and highlights main points.

Review Questions: Each chapter includes multiple-choice and true/false questions to add another element of challenge for the reader, and to allow readers to double-check their progress and identify areas where further study is necessary.

Medical Emergency!: Engaging and thought-provoking case studies are located at the end of each chapter, after the review questions. These exercises inspire critical thinking and application of the material learned in the chapter to real-life emergency situations like those readers may face in the professional setting.

Glossary: The end of the textbook contains a complete listing of all key terms and their definitions for a quick and handy reference.

References: Found at the end of the textbook, this material provides students and instructors with resources that may be utilized for further inquiry.

New to the Fifth Edition

- Each chapter is revamped to include higher order of learning objectives to promote critical thinking.
- A new updated title better represents the content of the textbook.
- Chapter 1: Office Preparation, the roles and responsibilities during an emergency situation were merged to be more organized in one list.

- Chapter 2: Medical History, example in a digital format has been added to address the increasing use of dental technology software.
- The previous Chapter 12 was removed due to dental auxiliaries being certified in BLS/CPR.
- Chapter 13: (old Chapter 14), removed dental emergencies because this topic is separate from medical emergencies.
- The Test Your Knowledge feature has been updated to reinforce important concepts and to add another critical-thinking component to the chapters.
- In the Medical Emergency sections, case studies have been updated to reflect possible situations that a dental auxiliary may face. Each case is tailored to the type of emergency that is the focus of the chapter.
- Key Terms, Learning Outcomes, and Review Questions all have been enhanced and updated with the chapter content changes to provide accurate and relevant study components. Key terms have been removed from the margin to allow more room for content.
- Many new figures, tables, and color photographs provide visual illustrations of the content to help further comprehension of important procedures and equipment used during medical emergencies.
- A larger and darker font was used for readability.

Accompanying Teaching and Learning Resources

Spend less time planning and more time teaching with Delmar Cengage Learning's Instructor Resources to Accompany the *Emergency Guide for Dental Auxiliaries, fifth edition*. All Instructor Resources can be accessed by going to www.cengagebrain.com and creating a unique user log-in. The password-protected Instructor Resources include the following:

Online Instructor's Manual

An Instructor Manual accompanies this book. It includes answers to the Test Your Knowledge and Review Questions, as well as additional case studies and exercises for access at any time.

PowerPoint® Lecture Slides

These vibrant, customizable Microsoft® PowerPoint lecture slides for each chapter assist you with your lecture by providing concept coverage using images, figures, and tables directly from the textbook!

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About the Authors

Melissa Damatta began her career as a dental assistant at a young age. Her love of dentistry motivated her to return to school and pursue dental hygiene. Upon graduation, she immediately returned to school to pursue her second love: education. She began her education career at Rutgers School of Health Professions as an adjunct in the department of Allied Dental Education, where she taught both clinical and didactic courses. During that time she sought out her Certified Dental Assistant (CDA) certification. Melissa went on to teach in the dental hygiene program for Burlington County College in New Jersey. Currently, Ms. Damatta is an associate professor for the dental hygiene program at Community College of Philadelphia, where she serves as clinic coordinator for second-year students and teaches radiology and a preclinical course to first-year students. She has practiced dental hygiene for 18 years, with experiences in periodontal, pediatric, and general dentistry. A former president of Central New Jersey Dental Hygiene Association (CNDHA), she holds memberships in the American Dental Hygiene Association (ADHA) and the American Dental Education Association (ADEA). She continues to practice as a clinical dental hygienist for a private practice in New Jersey. Ms. Damatta completed her associate's degree in applied science in dental hygiene from Middlesex County College in New Jersey, her Bachelors of Science in Health Science–education track from The University of Medicine and Dentistry of New Jersey (now part of Rutgers University), and her Masters of Science in Dental Hygiene with an education concentration from the University of Bridgeport in Connecticut.

Vaishali Singhal is an associate professor at Rutgers University's School of Health Professions (SHP) and Rutgers School of Dental Medicine (RSDM) in Newark, New Jersey. Teaching at the university since 2001, she currently serves as program director of the Bachelor of Sciences in Health Sciences Program at SHP as well as course director for Practice Management and Ethics and Jurisprudence for the 3rd and 4th year dental predoctoral dental students at RSDM. At the faculty practice of RSDM, Dr. Singhal specializes in treating patients with serious mental illness. In 2019 she completed her doctoral thesis at SHP, evaluating ways to improve the oral health of patients with serious mental illness. She completed a Master of Science in Health Sciences at Rutgers University in 2011 and received her DMD from the Rutgers School of Dental Medicine in 1993. Her PhD and MS programs included specialized courses in education, which is Dr. Singhal's passion.

Dr. Debra Jennings obtained her DMD degree from the Medical University of South Carolina (MUSC) in Charleston, South Carolina, during the class of 1990. With a 21-year experience at Trident Technical College, she taught in the Dental Hygiene and Expanded Duty Dental Assistant programs. During this time she also taught a clinical course to the first-year dental students at MUSC to enhance their knowledge of four-handed dentistry. Before attending the Medical University of South Carolina, Dr. Jennings earned dual degrees from the University of South Carolina in Archeology/Criminal Justice and Biology/Chemistry. Her more than 30 years of practical experience in the dental field ran the gamut from dental hygiene to dentistry. Dr. Jennings's many years

of dental experience placed her in the unique position of being at the pulse of modern teaching and dental practices. In addition to teaching, she authored and edited various texts and articles for the dental community. When not in the academic arena, she volunteered with the Smiles For A Lifetime clinic that services low-income and immigrant populations. She was a South Carolina native and lived in the low county for more than 30 years.

Dedication

To my fiancé, who has believed in me and encouraged me to get where I am today. To my parents who have supported me undeniably. —Melissa Damatta

To my family who has supported me in all of my endeavors. —Vaishali Singhal

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SECTION ONE

Prevention

This section deals with assessing the patient and the preparation of the office staff.

CHAPTER 1: Office Preparation

CHAPTER 2: Medical History

CHAPTER 3: Vital Signs

CHAPTER 1

Office Preparation

LEARNING OUTCOMES

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

- Identify the role of the dental auxiliary during an office emergency
- Explain the importance of an office emergency routine
- Identify the protocol necessary in an emergency situation
- Describe the functions of the auxiliary in relation to the emergency kit
- Differentiate between a manufactured and homemade emergency kit
- Identify the attachments used with an oxygen tank
- Compare and contrast the demand-valve resuscitator with the Ambu bag
- Demonstrate the operation of the oxygen tank

KEY TERMS

adrenal insufficiency
albuterol
allergic
ammonia
ampule
anaphylactic
angina

benzodiazepines
bradycardia
bronchodilators
demand-valve resuscitator
emergency kit
epinephrine
flowmeter

histamine
hypoglycemia
naloxone
nasal cannula
nitroglycerine
opioid
oxygen mask

oxygen tank
regulator
sildenafil
tadalafil
vaporole
vasodilator
verdanafil

INTRODUCTION

Regardless of how much care is taken, not all dental office emergencies can be prevented. Therefore, should an emergency occur, the dental team must be prepared. To be prepared, the members of the dental team should have a well-planned and practiced emergency routine, have available all necessary equipment, and have appropriate emergency numbers posted at all phones. In addition, the entire staff, even those without direct patient contact, should maintain current credentials in basic life support (BLS) or cardiopulmonary resuscitation (CPR). This will allow for rapid recognition of a medical emergency, resulting in more efficient patient management.

OFFICE EMERGENCY ROUTINE

Medical emergencies can be frightening. It is not uncommon to feel a sense of panic or uncertainty if and when an emergency arises. This is why it is important to have a plan of action, assigning specific functions and responsibilities to each team member. The action plan will help team members avoid confusion and prevent a minor medical emergency from becoming a serious or perhaps even a fatal event. Furthermore, it is essential that this plan be practiced so that if and when an emergency occurs, the established protocols and responsibilities can be carried out without hesitation. As these skills are not used often, review of the plan is needed periodically as a refresher. A great way to provide review of the medical emergency action plan is to perform mock emergencies where each team member can practice their role.

Roles and Responsibilities

Every dental office varies in how it designates responsibilities for each person. The following are roles that can be assigned to anyone in the office. The qualifications of each team member will determine how the roles are assigned. Normally, the dental auxiliary would be the person to retrieve the emergency kit and stay with the dentist during the emergency, while the receptionist would be the person to initiate emergency medical service (EMS). The important thing is that each person in the office has been informed about and understands exactly what their responsibilities involve during an emergency situation.

1. *Notify the dentist of the emergency.* The dentist is responsible for everything in their office and must be notified immediately.
2. *Notify EMS.* Have all emergency numbers updated and within easy reach. It is an excellent idea to always keep these numbers posted next to the telephone. When contacting the emergency medical service, report the nature of the emergency and give explicit directions to the office. Here is a checklist for calling in an emergency:
 - State that your need for the rescue unit is an emergency and explain the nature of the emergency, if known.
 - Give the name and age of the injured person.

- Specify the exact location.
 - Provide your name and telephone number.
 - Stay on the line until the operator instructs you to hang up.
3. *Administer BLS if necessary.* Until a trained professional arrives, it may be necessary for a certified team member to administer BLS. This consists of maintaining an open airway, providing rescue breathing, providing external cardiac compressions, and use of an automated external defibrillator (AED). All auxiliaries should be able certified to provide basic life support if needed.
 4. *Monitor vital signs.* Be prepared to take vital signs. This includes blood pressure, temperature, pulse, and respirations. This information is valuable for when the EMS technicians arrive.
 5. *Retrieve the emergency kit.* Once an emergency situation is identified, the emergency kit should be brought to the area immediately so that all the available equipment is ready for use. The emergency kit and its contents are discussed in detail later in this chapter.
 6. *Retrieve the oxygen tank.* Oxygen is useful in most emergency situations. Have it available even if the cause or type of emergency has yet to be diagnosed.
 7. *Retrieve a hard backboard.* CPR cannot be performed effectively on a patient who is in a soft dental chair; therefore, many offices keep available a piece of board that fits in the back of the dental chair underneath the patient. This board should be brought to the patient's operatory and placed near the chair in case CPR becomes necessary. If a backboard is not available, the patient should be placed on the floor of the operatory before CPR is performed.
 8. *Assist the dentist by preparing emergency drugs.* Although auxiliaries cannot legally administer drugs, in some states it is legal for them to prepare the drugs for the dentist to administer. Doing so, when allowed, is helpful in situations where several drugs must be given in succession.
 9. *Go outside to direct emergency personnel into the office.* This saves valuable time once the rescue unit arrives.
 10. *Keep patients in the waiting room calm.* If the emergency is serious, appointments for patients in the waiting room should be rescheduled. Depending on the circumstances, the receptionist can handle this while the patients are in the office or call them later. The patients who are waiting should be informed that there is an emergency situation but should not be given information concerning the patient's identity or the nature of the emergency.

Practice Routine

Once each person in the office understands their responsibilities, the emergency routine must be practiced on a regular basis. How often the routine is practiced is determined by the dentist and should be included in the office manual. An emergency situation should be simulated, with each person performing their assigned functions. A well-prepared staff handles an emergency much more efficiently than one that has not been prepared by performing practice drills.

TEST YOUR KNOWLEDGE

1. What are some roles and responsibilities during a dental office emergency?
2. When initiating EMS, what details should the person who calls for a rescue unit communicate to the emergency medical personnel?

EMERGENCY KIT

There are several types of **emergency kits**. One type that is gaining in popularity is the homemade emergency kit. The homemade kit is usually assembled by the dentist with the help of physicians, pharmacists, and other medical personnel. This type of kit may be stored in a large tackle box, on a set of instrument trays, or in a cart specifically designed by a dental company for that purpose. When the kit is homemade, the dentist knows exactly what is in the kit and is therefore more likely to be able to use each piece of equipment and each drug proficiently. The kit is designed by the dentist to meet their particular needs.

The second type of emergency kit is the manufactured kit (Figure 1-1). These kits, which are available from every major dental supply company, come in a variety of styles. The advantages of the manufactured kit are as follows:



Courtesy of Vaishali Singh

FIGURE 1-1 Sample emergency kit commonly found in dental settings

- It comes in a carrying case that has compartments specially designed for each item.
- It is designed specifically for dental office emergencies.
- The kit is color coded to match the equipment or drugs with particular types of emergencies.
- Some of these kits are available with prefilled syringes that allow for rapid emergency response.
- The kits often provide for automatic replacement of outdated medications.
- These kits may come with emergency training videos.

The main disadvantage of the manufactured kit is that it can be an elaborate kit containing some equipment and drugs with which the dentist is not completely familiar.

The key to selecting the correct type of emergency kit for any dental office is to make sure it meets the dentist’s needs. For example, in an office that is located a great distance from any medical facility, the dentist requires a fairly elaborate emergency kit, whereas a dentist whose office is located across the street from a hospital requires a minimal amount of emergency equipment.

Emergency Kit Contents

Each member of the team should be comfortable and familiar with all of the contents in the emergency kit. In addition to an oxygen delivery system with a positive-pressure capability, at the minimum the following items should be available in the emergency kit. Table 1-1 lists the recommended minimum contents of an emergency kit. Table 1-2 lists additional emergency kit supplies.

TABLE 1-1 Emergency Kit Contents	
ampule epinephrine or EpiPen®	<div>EpiPen</div> <div>Lenscap Photography/Shutterstock.com</div>
bronchodilator	<div></div> <div>shadan aljanabi/Shutterstock.com</div>

(Continued)

TABLE 1-1 Emergency Kit Contents

ammonia inhalants



Courtesy of Vaishali Singhal

nitroglycerin tablets or spray



Sheila Fitzgerald/Shutterstock.com



Tony Savino/Shutterstock.com

naloxone



PureRadiancePhoto/Shutterstock.com

TABLE 1-1 Emergency Kit Contents	
aspirin	<div></div> <div>Shane Maritch/Shutterstock.com</div>
sugar source (i.e., icing or glucose tablets)	<div></div> <div>Novikov Aleksey/Shutterstock.com</div>
histamine blocker	<div></div> <div>Courtesy of Melissa Damatta</div>
12-cc disposable syringe	<div></div> <div>Pavel Kapysiy/Shutterstock.com</div>

(Continued)

TABLE 1-1 Emergency Kit Contents (*Continued*)

3-cc disposable syringe



Surawit Klanliang/Shutterstock.com

TABLE 1-2 Additional Emergency Kit Contents

Bottle of atropine
Used to manage **bradycardia**



Novikov Aleksey/Shutterstock.com

hydrocortisone sodium succinate
Used to manage severe allergic reactions or **adrenal insufficiency**



Alexander Khonuzhenko/Shutterstock

Automated external defibrillator (AED)



Suzi44/Shutterstock.com

TABLE 1-2 Additional Emergency Kit Contents (Continued)	
flumazenil Used to reverse the effects of oversedation with benzodiazepines	 <div>Todorean-Gabriel/Shutterstock.com</div>
diazepam Used to treat static seizures	 <div>Michael Pervaz/Shutterstock.com</div>
tourniquet	 <div>Michael Pervaz/Shutterstock.com</div>
12-gauge cricothyrotomy needle	

(Continued)

TABLE 1-2 Additional Emergency Kit Contents

airway adjuncts



Matheus Kurniawan/Shutterstock.com

Epinephrine, injectable

Maintain a 1:1000 concentration of **epinephrine** in the emergency kit for intramuscular (IM) administration in case of an anaphylactic allergic reaction. Epinephrine is available as a preloaded syringe for rapid availability and use, and it is critical in reversing the hypotension and airway constriction that occurs during this severe allergic reaction. Epinephrine may also be used to manage an acute asthmatic reaction, which is nonresponsive to metered dose inhalers that contain a bronchodilating agent.

Bronchodilator

Bronchodilators are used to alleviate asthma symptoms and allergic reactions with symptoms of respiratory difficulty. (Epinephrine is the drug of choice for a severe anaphylactic reaction.) Bronchodilators such as **albuterol** (Proventil) relieve the constriction of asthma and allergic reactions. In asthma management, the use of bronchodilators is preferred over the use of epinephrine. The inhaler dispenses a metered dose of the bronchodilator medication upon use. Patients who have a history of asthma should bring their metered dose inhalers to their appointments. The inhaler should be kept in a readily available location in the dental operator in the event the need arises for use. Administration should be as directed by the patient's physician. In case the administration metered dose bronchodilator does not relieve the asthma, epinephrine in a 1:1000 concentration may be administered intramuscularly.

Ammonia inhalants

Aromatic **ammonia** is available in a **vaporole** form and should be crushed and held under the patient's nose to stimulate respiration. It may be used in vasodepressor syncope.

Nitroglycerin tablets or spray

Nitroglycerine is a **vasodilator** used to manage the chest pain associated with **angina** or an acute myocardial infarction (MI) also known as heart attack. Request that patients with a history of angina bring their nitroglycerine with them. Nitroglycerine is available in a tablet form

and as a sublingual spray. Tablets are the most commonly used form and have a shelf life of approximately 12 weeks once the bottle has been opened and the tablets exposed to air. The tablets are available in a .3, .4, and .6 mg dose. The sublingual spray is available as a .4 mg and .8 mg metered dose spray and has a shelf life of 2 years. Unexpired nitroglycerine, when placed under the tongue, results in a slight stinging sensation and has a bitter taste. A tablet that does not have these characteristics when placed sublingually may be expired. In such a situation in the dental office setting, the sublingual spray from the dental office emergency kit can be used to help relieve anginal pain. Three doses of nitroglycerine may be administered within a 10-minute period. If the angina pain is not relieved after nitroglycerine administration, consider the occurrence of a MI and activate EMS. Nitroglycerine's potent vasodilating activity may also be used to relieve an episode of acute hypertension. The vasodilating activity of nitroglycerine results in several transient side effects such as facial flushing, headache, and hypotension.

As part of the medical history, question male patients on the use of phosphodiesterase type 5 inhibitor (PDE5) **sildenafil** (Viagra), **tadalafil** (Cialis), and **verdanafil** (Levitra). These recently introduced medications, used to treat erectile dysfunction, are also potent vasodilators. Administration of nitroglycerine within 24 hours of ingestion of any of these PDE5 inhibitors has resulted in severe hypotensive episodes. In some cases, this drug interaction can lead to a MI and death.

Naloxone

Naloxone is the reversal agent for **opioid** sedative agents. Opioids such as codeine, oxycodone, and morphine have the ability to produce central nervous system (CNS) depression and respiratory depression. Offices administering opioids for pain management should have naloxone available for intravenous administration. The intravenous route will allow a rapid reversal of the signs and symptoms of an overdose.

Aspirin

A patient suffering from a myocardial infarction may experience signs and symptoms of pain in the chest that radiates to the left arm and shoulder, neck, and jaw. The patient may also suffer from vomiting and perspiration. Aspirin's function as an anticoagulant can aid in the management of a suspected myocardial infarction. Administration of 325 mg of aspirin in a chewable form to a conscious patient suspected of suffering from a myocardial infarction can minimize damage to the heart muscle in the area of the infarct.

Sugar source (i.e., icing)

A patient suffering from **hypoglycemia** suffers from weakness, confusion, and trembling. In case of a hypoglycemic episode, be sure to have a sugar source available in the dental office. For the conscious patient, orange juice, apple juice, non-diet soda, or chocolate may be provided to the patient. Commercial glucose tablets are also available. The signs and symptoms of hypoglycemia should rapidly reverse.

If the patient is unconscious, a liquid sugar source should not be administered. For the unconscious hypoglycemic patient, decorative cake icing should be available in the emergency kit. Cake

icing may be placed in the mucobuccal fold for rapid absorption, quickly reducing the signs of hypoglycemia and producing consciousness in the patient.

Histamine blocker

An injectable **histamine** blocker such as chlorpheniramine (Chlortrimetron) or diphenhydramine (Benadryl) should be readily available in the dental emergency kit to reverse a mild to moderate **allergic** reaction. Administer these medications in liquid or dissolvable form for rapid effect. Histamine blockers do not have the ability to reverse the hypotension and airway constriction that occurs with an **anaphylactic** reaction.

It is important for the dental office to check with their state dental board for specific state requirements.

The Dental Auxiliary and the Emergency Kit

Even though it is illegal in most states for auxiliaries to use the majority of the items in the emergency kit, it is critical to be familiar with each piece of equipment and each drug in the emergency kit. The auxiliary can be of tremendous help during an emergency by promptly preparing, to the extent allowed, the correct drugs and equipment.

In addition, auxiliaries often are responsible for inspecting the emergency kit on a routine basis to check for broken equipment and expired or depleted drugs. This responsibility is assigned by the dentist as a part of the auxiliary's job description.

Drugs should always be kept updated. Administering an expired drug during an emergency can prove fatal. If the dentist wishes, arrangements can be made with certain pharmaceutical companies to replace the drugs automatically before they reach their expiration dates. If such an arrangement is made, the dates should still be double-checked by the auxiliary to prevent any errors.

The auxiliary should become familiar with the dental office's emergency kit. Kits ordered from manufacturers generally contain instructions. However, if the kit was assembled by the dentist, the auxiliary may need to obtain special instructions from other sources. If the emergency kit contains controlled substances, a method of recording the administration of these drugs should be included in the kit.

Most manufactured kits contain drugs in single-dose **ampules** (Figure 1-2). These ampules are designed to make it easy for the dental team to prepare an injection during an emergency situation. To open the ampule, hold the ampule with both hands and break it open at the color-coded line (Figure 1-3). Be careful to hold the ampule upright when breaking it open to prevent spillage. Once the ampule is open, discard the top portion and load the syringe from the remaining portion of the ampule. Some emergency drugs, for example, the EpiPen[®], come preloaded. The emergency kit should always be kept in one location that is known by everyone in the office, and it should be easily accessible to everyone in the office.



Vincenzafoto/Shutterstock.com

FIGURE 1-2 Ampules

Aleksashka/Shutterstock.com

FIGURE 1-3 Breaking open ampule

TEST YOUR KNOWLEDGE

1. What is an advantage of a homemade emergency kit?
2. Where should the emergency kit be located in a dental office?

OXYGEN TANK

Oxygen is one item that can be easily administered by anyone trained in its use. It is extremely useful in most emergency situations except hyperventilation.

The oxygen comes in a cylinder. In the United States, all **oxygen tanks** are green, which distinguishes oxygen from other gases. Cylinders range in size from very large to so small that they can be carried in the hand (see Figure 1-4). Letters of the alphabet have been chosen to specify certain

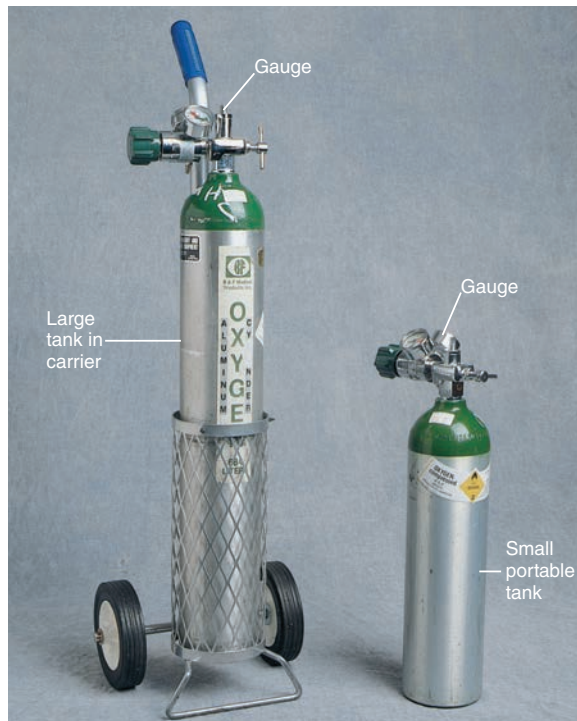


FIGURE 1-4 Oxygen tanks in varying sizes



Courtesy of Vaishali Singhal

FIGURE 1-5 E-size oxygen tank

sizes of oxygen tanks; the best size for the dental office is the E cylinder (Figure 1-5). This cylinder is portable, contains about 650 liters of oxygen, and provides 100 percent oxygen for 30 minutes of constant use.

Attachments

When the oxygen tank comes from the manufacturer, it consists of only the cylinder (Figure 1-6a). A device known as a **regulator** must be attached to the tank so oxygen can be administered to the patient. The regulator is placed onto the tank to allow the pressure to be released at a reduced rate (Figure 1-6a).

Once the regulator is in place, the flow of oxygen can be adjusted by using a **flowmeter** that controls the amount of oxygen given to the patient. Two main types of flowmeters are used: the bourdon gauge flowmeter and the pressure-compensated flowmeter. The bourdon gauge consists of a round dial that indicates the flow of oxygen in liters per minute. Although it is a pressure gauge and therefore may sometimes give inadequate readings when low amounts of oxygen are being administered, it is

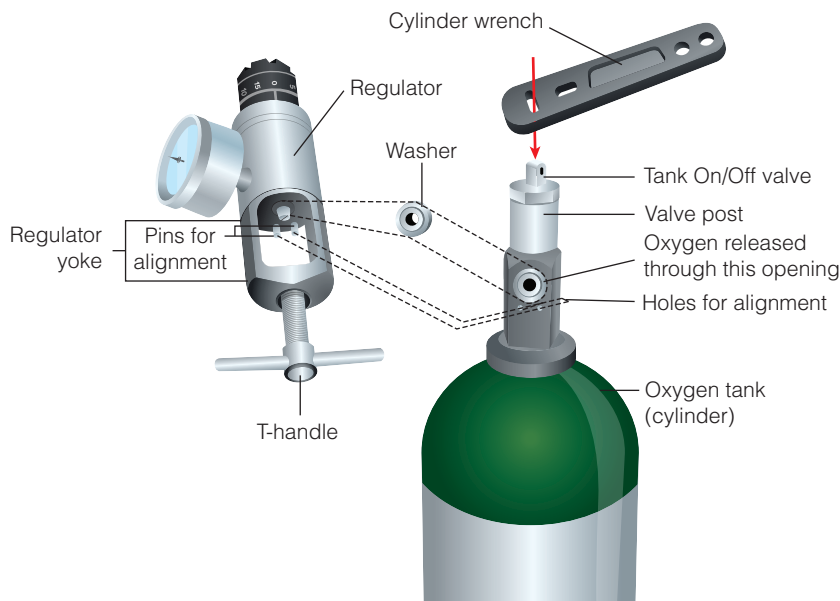


FIGURE 1-6a Oxygen tank with no regulator attached and regulator

found on a majority of tanks used in dental offices and can be functional. The pressure-compensated flowmeter consists of a vertical glass tube with a ball float that rises and falls with the flow of oxygen going through the tube (Figure 1-6b). This gauge indicates the actual flow at all times. Because it depends on the force of gravity, it must always be operated in an upright position.

While the valves and gauges on the regulator and flowmeter are necessary to release oxygen from the tank, extra attachments also are required to administer oxygen to the patient. A vast number of such attachments are available, ranging from **nasal cannulas** (see Figure 1-7) to full oxygen tents. A nasal cannula is used to deliver supplemental oxygen to a patient who needs respiratory help.



FIGURE 1-6b Flowmeter



S. Bonaime/Shutterstock.com

FIGURE 1-7 Nasal cannula

However, a basic **oxygen mask** (Figure 1-8) should be sufficient for administering oxygen during an emergency situation in a dental office. These attachments that allow for oxygen administration should be included in the emergency kit.

Oxygen masks are connected to the oxygen tank and are placed over the nose and mouth. They come in a variety of types and sizes designed for both adult and pediatric patients and should be available in every dental office. The mask must meet specific criteria to be effective. First, it must be the proper size and shape for the patient's face so as to provide a snug fit. Second, the mask should be made of a clear substance. It is imperative that the patient be monitored during oxygen administration to make sure they do not vomit into the mask and then aspirate the vomitus into the lungs;



morisfoto/Shutterstock.com

FIGURE 1-8 Clear face mask for oxygen administration; the mask should fit snugly to the patient's face for maximum effectiveness



narin phapnam/Shutterstock.com

FIGURE 1-9 Oxygen tank with demand-valve resuscitation device attachment

a clear mask makes this task easier. Furthermore, with a clear mask, the person administering the oxygen can tell when the patient has started to breathe on their own because the mask will fog.

Another extremely important attachment for the office oxygen tank is the **demand-valve resuscitator** (Figure 1-9). The regular office oxygen tank is of no use to a patient who is not breathing, because there is no way to force the oxygen into the lungs. This is the function of the demand-valve resuscitator. The demand valve consists of a push button, located on the face mask, that controls the flow of oxygen. When the button is pressed, oxygen goes through the mask with enough force to inflate the lungs and is continually forced into the lungs until the valve reaches a preset pressure, at which point the oxygen stops. The demand valve is beneficial during CPR because it provides 100 percent oxygen rather than the oxygen-carbon dioxide mix a human provides. Furthermore, once the patient starts breathing, the demand valve automatically provides oxygen when the person inhales and stops when the person exhales.

Other less-expensive items such as the Ambu bag valve mask (BVM) may be used in place of the demand valve (Figure 1-10). The most important consideration is to have some mechanism available to force oxygen into the lungs of a nonbreathing patient.

Operating the Tank

When operating an oxygen tank, follow these steps:

1. When opening a new tank, use the attached wrench to open the seal and release a little oxygen to clear dust and debris from the valves.
2. Attach the regulator and flowmeter, which are designed with specific grooves and holes that can attach only one way.



FIGURE 1-10 Ambu bag valve mask (BVM) resuscitation

3. Open the regulator valve all the way and then turn it back one turn. This prevents someone from thinking it is closed and damaging the equipment by turning it the wrong way.
4. Adjust the flowmeter to the point at which it is releasing 4 to 6 liters of oxygen.
5. Check the face mask hose to make sure it is not twisted or knotted.
6. Place the mask over the patient's face. Make sure the mask fits the patient with a tight seal.
7. When oxygen therapy is completed, remove the face mask, turn the flowmeter to zero, and close the tank valve. Be sure to disinfect or dispose of the mask, depending on the manufacturer's instructions.

Precautions

Although oxygen is a relatively safe gas to administer, a few precautions should be followed in the dental office:

- *Do not use oxygen near an open flame.* Oxygen is very flammable; although oxygen itself does not burn, it can cause a small flame to burn out of control.
- *Eliminate grease and oil from the area, as any kind of grease or oil can cause oxygen to combust.* Make sure you do not have oil on your hands when you operate the tank. Do not store the tank near dirty, oily rags.

SUMMARY

While not common, emergencies can occur in even the best-prepared dental office. However, a staff who knows the assigned responsibilities of each member, should have all the equipment available, should know the emergency procedures and how to use the emergency equipment often can prevent a minor emergency from becoming a major one. The dental assistant is a vital member of the team during a medical emergency.

REVIEW QUESTIONS

MULTIPLE CHOICE

1. During an office emergency, which of the following is not a function of the dental auxiliary?
 - a. notify the doctor
 - b. administer basic life support
 - c. administer necessary drugs
 - d. retrieve the emergency kit
2. All oxygen tanks are
 - a. green.
 - b. blue.
 - c. red.
 - d. yellow.
3. The amount of oxygen the patient receives is controlled by the
 - a. regulator.
 - b. demand valve.
 - c. cylinder.
 - d. flowmeter.
4. Grease or oil should not be used around oxygen because it may
 - a. contaminate the oxygen.
 - b. cause combustion.
 - c. block the valves.
 - d. none of the above
5. Which of the following is/are true concerning the face mask on the oxygen tank?
 - a. should be clear
 - b. should form a tight seal
 - c. should be made of metal
 - d. both a and b
6. All of the following are true of the demand-valve resuscitator except one. Which is the exception?
 - a. Can be used on a patient who is breathing
 - b. Uses enough force to inflate the lungs
 - c. Has a preset pressure
 - d. Delivers 100 percent oxygen

7. A dental office may choose to have a homemade emergency kit or a manufactured emergency kit. The homemade emergency kit is usually assembled by the dentist with the help of physicians, pharmacists, and other medical personnel.
- Both statements are true.
 - Both statements are false.
 - The first statement is true, the second statement is false.
 - The first statement is false, the second statement is true.

TRUE OR FALSE

- _____ 1. The emergency kit should be easily accessible to everyone in the office.
- _____ 2. Dental auxiliaries may administer oxygen if they are trained in its use.
- _____ 3. The expiration date on drugs found in the emergency kit can be checked only by the dentist.
- _____ 4. An E-cylinder oxygen tank should be used in the dental office.
- _____ 5. When administering oxygen, the flowmeter should be set on 4–6 liters.
- _____ 6. Since medical emergencies do not occur frequently in the dental office, it is not necessary for the dental team to carry out mock emergency drills.

MEDICAL EMERGENCY!

CASE STUDY 1-1

A 45-year-old male presents with a medical history on which he states that he has heart problems. As dental treatment begins, the patient loses consciousness and goes into cardiac arrest. The doctor sends the auxiliary to the front to call for help while the doctor goes to hook up the new oxygen cylinder that just arrived this morning. At the front desk, the assistant asks the receptionist to find the number for the emergency medical service. When the doctor and assistant return to the operator, they begin two-person CPR with the patient in the dental chair.

Questions

- List everything that was done incorrectly.

2. List the correct steps.

CASE STUDY 1-2

A 76-year-old female presents with a medical history on which she states that she has heart problems and diabetes. As the dental auxiliary begins to prepare the operator, the patient loses consciousness. The dental auxiliary retrieves the emergency kit and administers several drugs to the patient. The dentist enters the operator as the patient is regaining consciousness.

Questions

1. What did the dental auxiliary do incorrectly?
2. List the correct protocol.

CHAPTER 2

Medical History

LEARNING OUTCOMES

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

- List the basic components of a dental patient's medical history
- Explain the rules and regulations of HIPAA
- Explain the importance of having an accurate, updated medical history for each dental patient
- Explain the technique for completing and updating the health history
- Identify the ASA classification of a patient when given a medical condition
- Utilize a drug reference manual
- Compare and contrast sources for drug references that are available to the dental auxiliary

KEY TERMS

American Society of
Anesthesiologists
(ASA)

ASA Physical Status
Classification System
assessment
demographic

Health Insurance
Portability and
Accountability Act
(HIPAA)

medical history
protected health
information (PHI)

INTRODUCTION

Most dental office emergencies can be prevented through the use of information found on thorough medical histories. Dentists have found the easiest way to treat an emergency is to prevent it from occurring. This chapter discusses ways of gathering information from a **medical history** that may help prevent an emergency. In addition, the chapter will discuss the importance of maintaining confidentiality of information obtained from the patient.

There are a great variety of patient health history forms that are commercially available and can be purchased through various dental supply companies. Many dentists design their own forms to better suit the needs of their practice. In addition to a paper form, dental office management software companies also offer digital versions of medical histories. Some of these digital formats allow the practice to revise as they see fit. Figure 2-1a shows a sample paper medical history form and Figure 2-1b shows an example of a completed digital medical history form.

MEDICAL HISTORY FORMAT

Regardless of what type of form the dental office uses, several components are essential. First, the form should include a section for **demographic** information, including such items as name, date of birth, address, telephone number, social security number, insurance information, and person to contact in case of an emergency. The patient's primary physician should also be listed in case medical consultations are required. Next, include a detailed section pertaining to past and present medical conditions, such as surgeries, injuries, systemic diseases, current medications taken, and any known allergies. Any medical alerts, such as a known allergy to a medication or latex, should be flagged to ensure it is easily brought to the attention of the auxiliary. Figure 2-2 shows an alert that can be set up in an electronic record. The alert can be set to pop up anytime the patient record is accessed.

Last, a dental history should be included to determine any current conditions, including any chief complaints. It will also note any concerns the patient may have had with dental treatment in the past. A patient who presents with dental anxiety may be more likely to have a medical emergency than a patient who does not. Some offices may include a medical history questionnaire to help identify a patient who may have anxiety related to dental care (Table 2-1).

The section on medical conditions is very important. Each condition should be listed by its common name so it will be easily understood by the patient. The format of the medical history form should be one that allows the patient to answer questions with a yes or no and has room for follow-up questions by the auxiliary. In addition, the format should be available in multiple languages to accommodate a diverse population of patients. Medical and dental histories in various languages can be found at <https://www.irvinedentalcare.com/medical-dental-history-forms/>.

Completing the Medical History

The dental auxiliary or receptionist should always be available to help the patient complete the medical history. Some patients prefer to complete the forms by themselves; others may not understand

Date _____

PATIENT NAME	SOCIAL SECURITY NUMBER	HOME PHONE ()
Home Address	City, State, Zip	Birthdate / /
Marital Status <input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Separated	<input type="checkbox"/> M <input type="checkbox"/> F	Drivers License and State
Primary Insurance Company _____ Group _____ Subscriber _____		
Secondary Insurance Company _____ Group _____ Subscriber _____		

Responsible Party		
NAME	SOCIAL SECURITY NUMBER	HOME PHONE ()
Home Address	City, State, Zip	Birthdate / /
Marital Status <input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Separated	Relationship to Patient	Drivers License and State
Responsible Person's Employer	Occupation	Work Phone ()
Business Address	City	State Zip
Spouse's Name	Social Security Number	Birthdate / /
Spouse's Employer	Spouse's Occupation	Spouse's Work Phone ()
Spouse's Business Address	City	State Zip

How did you hear about our Office? (check only one)			
Who selected this Office? <input type="checkbox"/> Self <input type="checkbox"/> Spouse <input type="checkbox"/> Parent <input type="checkbox"/> Employer			
Where did you find the Phone Number to this Office? _____			
<input type="checkbox"/> Referred by a friend	<input type="checkbox"/> Yellow Pages	<input type="checkbox"/> Relative	<input type="checkbox"/> Insurance Plan
<input type="checkbox"/> Other _____	<input type="checkbox"/> TV/Radio Ad	<input type="checkbox"/> Newspaper Ad	<input type="checkbox"/> Direct Mailing
<input type="checkbox"/> Welcome Wagon			
<input type="checkbox"/> Sign by Building			
If you were referred, whom may we thank for referring you? _____			

CONSENT		
<p>• I will answer all health questions to the best of my knowledge _____ Initial</p> <p>After explanation by the doctor, I hereby authorize the performance of dental services upon the above named patients and whatever procedures that the judgements of the doctor may decide in order to carry out these procedures. I also authorize and request the administration of any anesthetics and x-rays as may be deemed necessary and advisable by the doctor.</p>		
Signature	Date	Relationship to Patient

TERMS AND CONDITIONS	
<p>This office depends upon reimbursement from the patient for the costs incurred in their case. The financial responsibility of each patient must be determined before treatment. As a condition of treatment by this office, I understand financial arrangements must be made in advance. All emergency dental services, or any dental service performed without prior financial arrangements, must be paid for at the time the services are performed.</p> <p>I understand that dental services furnished to me are charged directly to me and that I am personally responsible for payment. If I carry insurance, I understand that this office will help prepare my insurance forms to assist to amount owed by me for services rendered, the prevailing party in such proceedings shall be entitled to recover all costs incurred including reasonable attorney's fees. I grant my permission to you, or your assignee, to telephone me at home or at my work to discuss matters related to this form. I have read the above conditions and agree to their content.</p>	
Signed _____	Date _____
There may be a charge for any missed appointments or appointments not cancelled 48 hours before the appointment time.	

FIGURE 2-1a A sample paper medical history form

PATIENTS DENTAL HEALTH

Why have you come in to see us today? (e.g.: pain, checkup, etc.) _____

Previous Dentist _____ Last Visit _____ Date of last cleaning _____

Reasons for changing dentists: _____

What problems have you had with past dental treatment? _____

Are you nervous about seeing a dentist? ☐ Yes! ☐ No If yes, please tell us why: _____

How often do you brush? _____ Do you floss? ☐ Yes ☐ No How often? _____

(please circle each)

Y N I clench or grind my teeth during the day or while sleeping.	Y N My gums feel tender or swollen
Y N My gums bleed while brushing or flossing.	Y N I have problems eating.
Y N I like my smile.	Y N I have had orthodontics.
Y N I prefer tooth-colored fillings.	Y N I have had a facial or jaw injury.
Y N I avoid brushing part of my mouth due to pain.	Y N I want my teeth straight.
	Y N I want my teeth whiter.

What are your dental priorities? _____
(e.g.: apprentice, dental health, financial considerations, etc.)

PATIENTS MEDICAL HISTORY

I consider my health to be (please check one) ☐ Excellent ☐ Good ☐ Fair ☐ Poor
Do you or have you had any of the following? please circle Y for yes or N for no.

1. Y N Heart Disease	22. Y N Liver Disease
2. Y N Heart Murmur/Mitral Valve Prolapse	23. Y N Jaundice
3. Y N Stroke	24. Y N Hepatitis Type _____
4. Y N Congenital Heart Lesions	25. Y N Diabetes
5. Y N Rheumatic Fever	26. Y N Excessive Urination and/or Thirst
6. Y N Abnormal Blood Pressure	27. Y N Infectious Mononucleosis (Mono)
7. Y N Anemia	28. Y N Herpes
8. Y N Prolonged Bleeding Disorder	29. Y N Arthritis
9. Y N Tuberculosis or Lung Disease	30. Y N Sexually Transmitted/Venereal Disease
10. Y N Asthma	31. Y N Kidney Disease
11. Y N Hay Fever	32. Y N Tumor or Malignancy
12. Y N Sinus Trouble	33. Y N Cancer/Chemotherapy
13. Y N Epilepsy/Seizures	34. Y N Radiation Treatment
14. Y N Ulcers	35. Y N History of Drug Addiction
15. Y N Implants/Artificial Joints: <input type="checkbox"/> Hip <input type="checkbox"/> Knee <input type="checkbox"/> Other	
16. Y N I smoke or use tobacco. If yes, how much per day? _____	How many years? _____
17. Y N I have consumed alcohol within the last 24 hours.	
18. Y N I usually take an antibiotic prior to dental treatment.	
19. Y N Have you ever taken Fen-Phen or Redux?	
20. Y N I have had major surgery: Year _____ Type of operation: _____	Year _____ Type of operation: _____
21. Y N Do you have any other medical problem or medical history NOT listed on this form?	

Doctor Notes Only:

WOMEN

42. Y N Are you taking birth control medication?

43. Y N Are you or could you be pregnant or nursing?

Are you allergic to any of the following?
Please circle Y for yes or N for no

44. Y N Aspirin

45. Y N Ibuprofen

46. Y N Sulfa Drugs/Sulfites/Sulfides

47. Y N Penicillin

48. Y N Codeine

49. Y N Latex, Metals, Plastics

50. Y N Local Anesthetics (Novocaine)

51. Y N Other Medications - Which ones? _____

Please list all medications you are currently taking:

Medicine _____ Condition _____

Medicine _____ Condition _____

Medicine _____ Condition _____

Medicine _____ Condition _____

Physician's Name _____ Phone _____

Address _____ Fax _____

In the event of an emergency please contact:

Name _____ Relationship _____ Phone _____

Name _____ Relationship _____ Phone _____

Initial medical/dental health reviewed by:

X _____ / _____ / _____ X _____ / _____ / _____

Doctor's Signature Date Patient's Signature Date

Periodic medical/dental health reviewed by:

X _____ / _____ / _____ X _____ / _____ / _____

Doctor's Signature Date If patient is a minor: Parent/Guardian's Signature Date

FIGURE 2-1a (Continued)

some of the terminology and may require assistance. Once the patient is seated in the operatory, the medical history form may be reviewed with the patient. The dental auxiliary should verbally question the patient about any positive responses as well as any conflicting answers or any unanswered questions. Positive responses are those that indicate there is a medical history problem. If there are any positive answers, the dental auxiliary will make a note next to the response on the

Time 2:39 PM PTC_Associates Date 3/23/2017

Eaglesoft Medical History

Patient Name: 21 Charles Abbott (Chip) Birth Date: 1/15/1978 Date Created: 8/14/2012

Although dental personnel primarily treat the area in and around your mouth, your mouth is a part of your entire body. Health problems that you may have, or medication that you may be taking, could have an important interrelationship with the dentistry you will receive. Thank you for answering the following questions.

Are you under a physician's care now? ☐ Yes ☒ No If yes

Have you ever been hospitalized or had a major operation? ☐ Yes ☒ No If yes

Have you ever had a serious head or neck injury? ☐ Yes ☒ No If yes

Are you taking any medications, pills, or drugs? ☐ Yes ☒ No If yes

Do you take, or have you taken, Phen-Fen or Redux? ☐ Yes ☒ No If yes

Have you ever taken Fosamax, Boniva, Actonel or any other medications containing bisphosphonates? ☐ Yes ☒ No If yes

Are you on a special diet? ☐ Yes ☒ No

Do you use tobacco? ☐ Yes ☒ No

Do you use controlled substances? ☐ Yes ☒ No If yes

Women: Are you... ☐ Pregnant/Trying to get pregnant? ☐ Nursing? ☐ Taking oral contraceptives?

Are you allergic to any of the following?

☐ Aspirin ☒ Penicillin ☒ Codeine ☐ Acrylic
☐ Metal ☐ Latex ☐ Sulfa Drugs ☐ Local Anesthetics

Other? ☐ If yes

Do you have, or have you had, any of the following?


AIDS/HIV Positive <input type="radio"/> Yes <input checked="" type="radio"/> No	Cortisone Medicine <input type="radio"/> Yes <input checked="" type="radio"/> No	Hemophilia <input type="radio"/> Yes <input checked="" type="radio"/> No	Radiation Treatments <input type="radio"/> Yes <input checked="" type="radio"/> No
Alzheimer's Disease <input type="radio"/> Yes <input checked="" type="radio"/> No	Diabetes <input type="radio"/> Yes <input checked="" type="radio"/> No	Hepatitis A <input type="radio"/> Yes <input checked="" type="radio"/> No	Recent Weight Loss <input type="radio"/> Yes <input checked="" type="radio"/> No
Anaphylaxis <input type="radio"/> Yes <input checked="" type="radio"/> No	Drug Addiction <input type="radio"/> Yes <input checked="" type="radio"/> No	Hepatitis B or C <input type="radio"/> Yes <input checked="" type="radio"/> No	Renal Dialysis <input type="radio"/> Yes <input checked="" type="radio"/> No
Anemia <input type="radio"/> Yes <input checked="" type="radio"/> No	<u>Easily Winded</u> <input checked="" type="radio"/> Yes <input type="radio"/> No	Herpes <input type="radio"/> Yes <input checked="" type="radio"/> No	Rheumatic Fever <input type="radio"/> Yes <input checked="" type="radio"/> No
Angina <input type="radio"/> Yes <input checked="" type="radio"/> No	Emphysema <input type="radio"/> Yes <input checked="" type="radio"/> No	High Blood Pressure <input type="radio"/> Yes <input checked="" type="radio"/> No	Rheumatism <input type="radio"/> Yes <input checked="" type="radio"/> No
Arthritis/Gout <input type="radio"/> Yes <input checked="" type="radio"/> No	Epilepsy or Seizures <input type="radio"/> Yes <input checked="" type="radio"/> No	High Cholesterol <input type="radio"/> Yes <input checked="" type="radio"/> No	Scarlet Fever <input type="radio"/> Yes <input checked="" type="radio"/> No
Artificial Heart Valve <input type="radio"/> Yes <input checked="" type="radio"/> No	Excessive Bleeding <input type="radio"/> Yes <input checked="" type="radio"/> No	Hives or Rash <input type="radio"/> Yes <input checked="" type="radio"/> No	Shingles <input type="radio"/> Yes <input checked="" type="radio"/> No
Artificial Joint <input type="radio"/> Yes <input checked="" type="radio"/> No	Excessive Thirst <input type="radio"/> Yes <input checked="" type="radio"/> No	Hypoglycemia <input type="radio"/> Yes <input checked="" type="radio"/> No	Sickle Cell Disease <input type="radio"/> Yes <input checked="" type="radio"/> No
<u>Asthma</u> <input checked="" type="radio"/> Yes <input type="radio"/> No	Fainting Spells/Dizziness <input type="radio"/> Yes <input checked="" type="radio"/> No	Irregular Heartbeat <input type="radio"/> Yes <input checked="" type="radio"/> No	Sinus Trouble <input type="radio"/> Yes <input checked="" type="radio"/> No
Blood Disease <input type="radio"/> Yes <input checked="" type="radio"/> No	Frequent Cough <input type="radio"/> Yes <input checked="" type="radio"/> No	Kidney Problems <input type="radio"/> Yes <input checked="" type="radio"/> No	Spina Bifida <input type="radio"/> Yes <input checked="" type="radio"/> No
Blood Transfusion <input type="radio"/> Yes <input checked="" type="radio"/> No	Frequent Diarrhea <input type="radio"/> Yes <input checked="" type="radio"/> No	Leukemia <input type="radio"/> Yes <input checked="" type="radio"/> No	Stomach/Intestinal Disease <input type="radio"/> Yes <input checked="" type="radio"/> No
Breathing Problems <input type="radio"/> Yes <input checked="" type="radio"/> No	Frequent Headaches <input type="radio"/> Yes <input checked="" type="radio"/> No	Liver Disease <input type="radio"/> Yes <input checked="" type="radio"/> No	Stroke <input type="radio"/> Yes <input checked="" type="radio"/> No
Bruise Easily <input type="radio"/> Yes <input checked="" type="radio"/> No	Genital Herpes <input type="radio"/> Yes <input checked="" type="radio"/> No	Low Blood Pressure <input type="radio"/> Yes <input checked="" type="radio"/> No	Swelling of Limbs <input type="radio"/> Yes <input checked="" type="radio"/> No
Cancer <input type="radio"/> Yes <input checked="" type="radio"/> No	Glaucoma <input type="radio"/> Yes <input checked="" type="radio"/> No	Lung Disease <input type="radio"/> Yes <input checked="" type="radio"/> No	Thyroid Disease <input type="radio"/> Yes <input checked="" type="radio"/> No
Chemotherapy <input type="radio"/> Yes <input checked="" type="radio"/> No	<u>Hay Fever</u> <input checked="" type="radio"/> Yes <input type="radio"/> No	Mitral Valve Prolapse <input type="radio"/> Yes <input checked="" type="radio"/> No	Tonsillitis <input type="radio"/> Yes <input checked="" type="radio"/> No
Chest Pains <input type="radio"/> Yes <input checked="" type="radio"/> No	Heart Attack/Failure <input type="radio"/> Yes <input checked="" type="radio"/> No	Osteoporosis <input type="radio"/> Yes <input checked="" type="radio"/> No	Tuberculosis <input type="radio"/> Yes <input checked="" type="radio"/> No
Cold Sores/Fever Blisters <input type="radio"/> Yes <input checked="" type="radio"/> No	Heart Murmur <input type="radio"/> Yes <input checked="" type="radio"/> No	Pain in Jaw Joints <input type="radio"/> Yes <input checked="" type="radio"/> No	Tumors or Growths <input type="radio"/> Yes <input checked="" type="radio"/> No
Congenital Heart Disorder <input type="radio"/> Yes <input checked="" type="radio"/> No	Heart Pacemaker <input type="radio"/> Yes <input checked="" type="radio"/> No	Parathyroid Disease <input type="radio"/> Yes <input checked="" type="radio"/> No	Ulcers <input type="radio"/> Yes <input checked="" type="radio"/> No
Convulsions <input type="radio"/> Yes <input checked="" type="radio"/> No	Heart Trouble/Disease <input type="radio"/> Yes <input checked="" type="radio"/> No	Psychiatric Care <input type="radio"/> Yes <input checked="" type="radio"/> No	Venereal Disease <input type="radio"/> Yes <input checked="" type="radio"/> No
			Yellow Jaundice <input type="radio"/> Yes <input checked="" type="radio"/> No

Have you ever had any serious illness not listed above? ☐ Yes ☒ No If yes

Comments:

To the best of my knowledge, the questions on this form have been accurately answered. I understand that providing incorrect information can be dangerous to my (or patient's) health. It is my responsibility to inform the dental office of any changes in medical status.

Signature of Patient, Parent or Guardian:

X  Date: 8/14/2012

Patterson Dental

FIGURE 2-1b A sample electronic medical history form. Note any positive answers are highlighted in red for easy identification, with response boxes to enter additional information through patient dialogue.

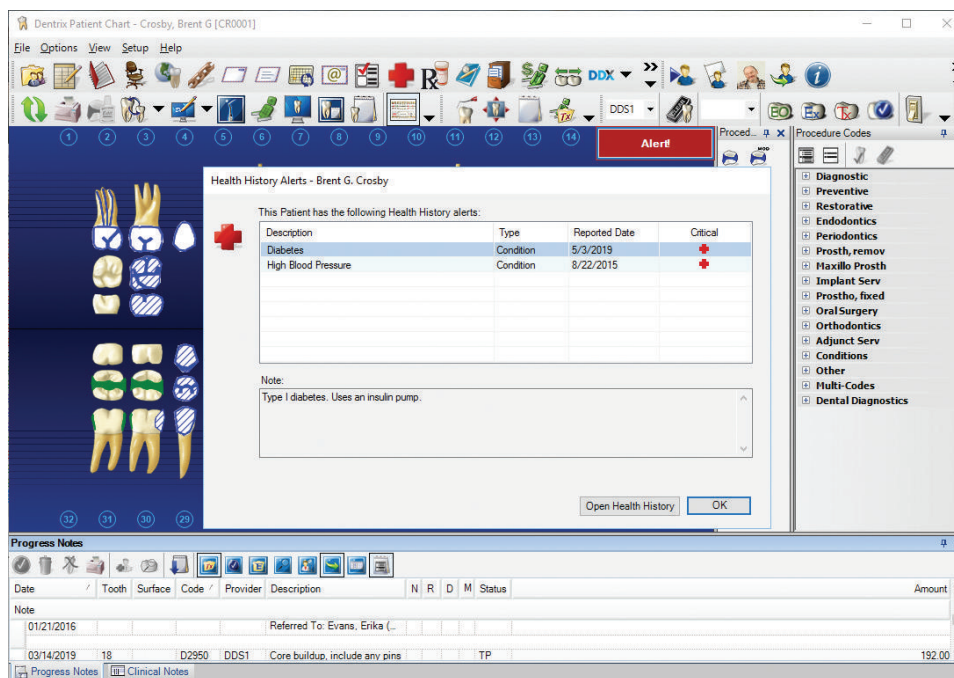


FIGURE 2-2 Electronic record alert

Source: Dentrix Dental Systems, Inc.

form if any additional information is needed. For example, if a patient gives a positive response to a history of heart disease, the dental auxiliary will ask the patient the history of the disease, if they are taking any medications and if they are under care of a cardiologist. Detailed notes should be recorded in the patient's history. Sometimes a patient will share more information regarding their medical history through conversation rather than on the medical history form. Another concern is when a patient circles an entire column of no responses. It is possible the patient did not read each selection fully. In this case, the dental auxiliary should ask the patient each question and re-circle the response, noting that it was verbally reviewed and initialed by both the dental auxiliary and patient. Figure 2-3a shows a medical history form that is improperly filled out by the patient, while Figure 2-3b shows a properly filled out medical history form.

When reviewing current medications, it is important to gather all medications including prescription, over-the-counter, and supplements/herbs. If the patient is unsure of a medication they are taking, they can bring in the prescription bottles so the proper information needed can be recorded in the patient record. Since medications can be taken for more than one condition, it may be necessary to ask the patient for what condition they are taking the medication and record it on the medical history form.

Any medical conditions that the patient reports on the medical history should be reported to the treating dentist. Furthermore, the dental auxiliary should note any medical conditions

that may result in a potential medical emergency. The dental auxiliary should maintain a professional and caring manner when questioning a dental patient about current and past medical circumstances.

TABLE 2-1 Sample questionnaire to identify a patient with dental anxiety

1. How do you feel about an upcoming dental appointment?
 - a. I enjoy the appointment.
 - b. I am neutral about the appointment.
 - c. I am somewhat anxious about the appointment.
 - d. I am afraid of going to the dental office.
 - e. I am extremely fearful of going to the dental office.
2. How do you feel when you are in the waiting room of the dental office?
 - a. calm and relaxed
 - b. slightly anxious
 - c. very anxious
 - d. frightened
3. How do you feel when you are in the dental chair?
 - a. calm and relaxed
 - b. slightly anxious
 - c. very anxious
 - d. frightened
4. How do you feel about the sound of the drill and other instruments?
 - a. calm and relaxed
 - b. slightly anxious
 - c. very anxious
 - d. frightened

TEST YOUR KNOWLEDGE

1. What components should be present in the medical history?
2. If a patient circles an entire column of no responses, what should the dental auxiliary do?

PATIENT'S MEDICAL HISTORY

I consider my health to be (please check one) ☒ Excellent ☐ Good ☐ Fair ☐ Poor
 Do you or have you had any of the following? please circle Y for yes or N for no.

1. Y <u>N</u> Heart Disease	22. Y <u>N</u> Liver Disease	Doctor Notes Only:
2. Y <u>N</u> Heart Murmur/Mitral Valve Prolapse	23. Y <u>N</u> Jaundice	
3. Y <u>N</u> Stroke	24. Y <u>N</u> Hepatitis Type _____	
4. Y <u>N</u> Congenital Heart Lesions	25. Y <u>N</u> Diabetes	
5. Y <u>N</u> Rheumatic Fever	26. Y <u>N</u> Excessive Urination and/or Thirst	
6. Y <u>N</u> Abnormal Blood Pressure	27. Y <u>N</u> Infectious Mononucleosis (Mono)	
7. Y <u>N</u> Anemia	28. Y <u>N</u> Herpes	
8. Y <u>N</u> Prolonged Bleeding Disorder	29. Y <u>N</u> Arthritis	
9. Y <u>N</u> Tuberculosis or Lung Disease	30. Y <u>N</u> Sexually Transmitted/Venereal Disease	
10. Y <u>N</u> Asthma	31. Y <u>N</u> Kidney Disease	
11. Y <u>N</u> Hay Fever	32. Y <u>N</u> Tumor or Malignancy	37. Y <u>N</u> Immune Suppressed Disorder
12. Y <u>N</u> Sinus Trouble	33. Y <u>N</u> Cancer/Chemotherapy	38. Y <u>N</u> Hearing Loss
13. Y <u>N</u> Epilepsy/Seizures	34. Y <u>N</u> Radiation Treatment	39. Y <u>N</u> Fainting Spells
14. Y <u>N</u> Ulcers	35. Y <u>N</u> History of Drug Addiction	40. Y <u>N</u> Glaucoma
15. Y <u>N</u> Implants/Artificial Joints: <input type="checkbox"/> Hip <input type="checkbox"/> Knee <input type="checkbox"/> Other _____		41. Y <u>N</u> History of Emotional or Nervous Disorders
16. Y <u>N</u> I smoke or use tobacco. If yes, how much per day? _____ How many years? _____		WOMEN:
17. Y <u>N</u> I have consumed alcohol within the last 24 hours.		42. Y <u>N</u> Are you taking birth control medication?
18. Y <u>N</u> I usually take an antibiotic prior to dental treatment.		43. Y <u>N</u> Are you or could you be pregnant or nursing?
19. Y <u>N</u> Have you ever taken Fen-Phen or Redux?		
20. Y <u>N</u> I have had major surgery: Year _____ Type of operation: _____ Year _____ Type of operation: _____		
21. Y <u>N</u> Do you have any other medical problem or medical history NOT listed on this form?		

(A)

PATIENT'S MEDICAL HISTORY

I consider my health to be (please check one) ☒ Excellent ☐ Good ☐ Fair ☐ Poor
 Do you or have you had any of the following? please circle Y for yes or N for no.

1. Y <u>N</u> Heart Disease	22. Y <u>N</u> Liver Disease	Doctor Notes Only:
2. Y <u>N</u> Heart Murmur/Mitral Valve Prolapse	23. Y <u>N</u> Jaundice	
3. Y <u>N</u> Stroke	24. Y <u>N</u> Hepatitis Type _____	
4. Y <u>N</u> Congenital Heart Lesions	25. Y <u>N</u> Diabetes	
5. Y <u>N</u> Rheumatic Fever	26. Y <u>N</u> Excessive Urination and/or Thirst	
6. Y <u>N</u> Abnormal Blood Pressure	27. Y <u>N</u> Infectious Mononucleosis (Mono)	
7. Y <u>N</u> Anemia	28. Y <u>N</u> Herpes	
8. Y <u>N</u> Prolonged Bleeding Disorder	29. Y <u>N</u> Arthritis	
9. Y <u>N</u> Tuberculosis or Lung Disease	30. Y <u>N</u> Sexually Transmitted/Venereal Disease	
10. Y <u>N</u> Asthma	31. Y <u>N</u> Kidney Disease	
11. Y <u>N</u> Hay Fever	32. Y <u>N</u> Tumor or Malignancy	37. Y <u>N</u> Immune Suppressed Disorder
12. Y <u>N</u> Sinus Trouble	33. Y <u>N</u> Cancer/Chemotherapy	38. Y <u>N</u> Hearing Loss
13. Y <u>N</u> Epilepsy/Seizures	34. Y <u>N</u> Radiation Treatment	39. Y <u>N</u> Fainting Spells
14. Y <u>N</u> Ulcers	35. Y <u>N</u> History of Drug Addiction	40. Y <u>N</u> Glaucoma
15. Y <u>N</u> Implants/Artificial Joints: <input type="checkbox"/> Hip <input type="checkbox"/> Knee <input type="checkbox"/> Other _____		41. Y <u>N</u> History of Emotional or Nervous Disorders
16. Y <u>N</u> I smoke or use tobacco. If yes, how much per day? _____ How many years? _____		WOMEN:
17. Y <u>N</u> I have consumed alcohol within the last 24 hours.		42. Y <u>N</u> Are you taking birth control medication?
18. Y <u>N</u> I usually take an antibiotic prior to dental treatment.		43. Y <u>N</u> Are you or could you be pregnant or nursing?
19. Y <u>N</u> Have you ever taken Fen-Phen or Redux?		
20. Y <u>N</u> I have had major surgery: Year _____ Type of operation: _____ Year _____ Type of operation: _____		
21. Y <u>N</u> Do you have any other medical problem or medical history NOT listed on this form?		

(B)

FIGURE 2-3 Medical histories filled out by the patient. (a) Medical history improperly filled out and (b) Medical history properly filled out

Confidentiality of the Medical History

As with any other information obtained in the dental office, the information on medical history is confidential. The information obtained on the medical history should be made available only to authorized users with the patient's full consent. In 1996, the **Health Insurance Portability and Accountability Act (HIPAA)** was signed into federal law. The rules and regulations of HIPAA define how sensitive information obtained from the patient can be circulated and to whom the

information can be distributed with the patient's written consent and knowledge. A portion of HIPAA, known as the privacy rules, establishes rules and regulations for the protection of **protected health information (PHI)**. Today, more providers are moving toward electronic dental records. To allow practices to adopt these new technologies while still ensuring the safety of the transmission of these records, the security rule was developed. The security rule sets standards on how to protect patient private health information that is transferred through electronic forms.

Updating the Health History

The health history should be updated at each visit to the office. A person's medications and medical condition can change between visits, and it is extremely important to keep this information current. The dental auxiliary will verbally update the health history with the patient and document the patient's response with the date in the patient's record.

TEST YOUR KNOWLEDGE

1. When should a medical history be updated?
2. What is PHI?

ASSESSMENT OF THE DENTAL PATIENT

To prevent an emergency from occurring, it is important for the dental auxiliary to take into account the dental patient's general health status. An **assessment** of the dental patient consists of reviewing the medical history and the likely side effects of any prescribed medications. After this information is evaluated, the patient can be placed into a physical classification based on the **American Society of Anesthesiologists (ASA)** classification system shown in Table 2-2. This helps the dentist evaluate possible risks and outcomes pertaining to the treatment to be provided. When evaluating a patient's risk, the dental team is usually dealing with only the first four ASA classifications in the **ASA Physical Status Classification System**. However, if the patient is a Class IV ASA status, any elective procedures should be postponed until the patient can be classified as a Class III. If an emergency presents, a Class IV may be treated conservatively and in the most noninvasive way. Management is based on the type of emergency taking place. Each emergency and its management will be discussed in subsequent chapters of this text.

TABLE 2-2 ASA Physical Status Classifications

ASA Class	Description	Examples (including but not limited to)
I	Healthy patient	None
II	Patient with well-controlled mild systemic disease	Well-controlled diabetes and well-controlled hypertension, mild stable angina
III	Patient with severe systemic disease	Poorly controlled diabetes and hypertension, COPD, morbidly obese (BMI >40), on regular dialysis, history of myocardial infarction or cerebrovascular accident (>3 months), stable angina
IV	Patient with severe systemic disease that is a constant threat to life	Recent myocardial infarction or cerebrovascular accident (<3 months), severe valve dysfunction, unstable angina
V	Moribund patient who is not expected to survive more than 24 hours	End stage renal disease, end stage cancer, end stage AIDS

Source: American Society of Anesthesiologists "https://www.asahq.org/~media/sites/asahq/files/public/resources/standards-guidelines/asa-physical-status-classification-system.pdf

USING DRUG REFERENCES

The dental auxiliary should research and record any information about the medications that are prescribed by the patient's physician or other health care provider. The dental auxiliary should note what medical condition each medication is prescribed for, and specifically call attention to any side effects of the medications, especially ones that have dental implications. Reviewing the medical history is extremely valuable to the entire dental team in understanding existing medical conditions, preventing the use of medications that may be contraindicated, and determining if there are restrictions on the type of treatment that may be provided to the patient.

All information determined by reviewing the patient's medical history should be described to the dentist so that they can ultimately determine how the patient's treatment will be accomplished to minimize the potential for emergencies. As a result of obtaining the information, it is sometimes necessary to consult the patient's physician or specialist to determine possible medical risks with any dental treatment.

Several sources may be used to obtain medication information. The dentist and staff should decide which source best meets the needs of their office.

TABLE 2-3 PDR Sections	
Section	Description
I	Manufacturer’s index. Useful to use if the need to contact a manufacturer should arise
II	Page numbers for medications listed by generic and brand names
III	Lists therapeutic class and sub-classes, action of the drug (i.e., blood thinner)
IV	Photo identification in color
V	Detailed medication information (i.e., dosage, side effects); information commonly seen on a package insert
VI	Diagnostic product information

Using the *Physician’s Desk Reference*

One drug reference source is the *Physician’s Desk Reference (PDR)*. The *PDR* is compiled annually and contains information provided by the drug manufacturers about a large variety of medications. There are six sections that are color coded and may be of value to the auxiliary. Table 2-3 lists the six sections with their descriptions included in the *PDR*. Complete instructions on how to use the *PDR* are provided at the beginning of each section. See Figure 2-4.

The product identification section provides pictures of a wide variety of medications. Often patients come to the office with pill boxes containing a variety of medications, but they do not know the names of the medications or the conditions for which the medications have been prescribed. This section of the *PDR* allows the auxiliary to visually identify the medication.

The *PDR* is not the only general medication reference book. Another great resource to use for drug identification is the *Delmar Healthcare Drug Handbook*, which is updated annually as well.

Other drug reference sources are published for specific specialties in medicine, such as dentistry. One such example is the *Dental Drug Reference with Clinical Implications*. These guides place emphasis on dental considerations during treatment as well as common oral side effect of the medications. This becomes quite valuable as it allows for a rapid response when reviewing the patient’s medication history that could have implications for dental care. See Figure 2-5.

Finally, electronic versions of drug reference manuals are available through online resources, CD/DVD sources, and applications. Caution should be used to determine the accuracy as well as the completeness of the information.

Even though it is ultimately the dentist’s responsibility to make all decisions regarding the patient’s medications, it is important for the auxiliary to know as much as possible about the patient to assist in providing proper treatment. The auxiliary should become familiar with the contents of the drug reference source selected and should use it regularly. It is extremely important to have an up-to-date resource, because medications change at such a rapid pace.

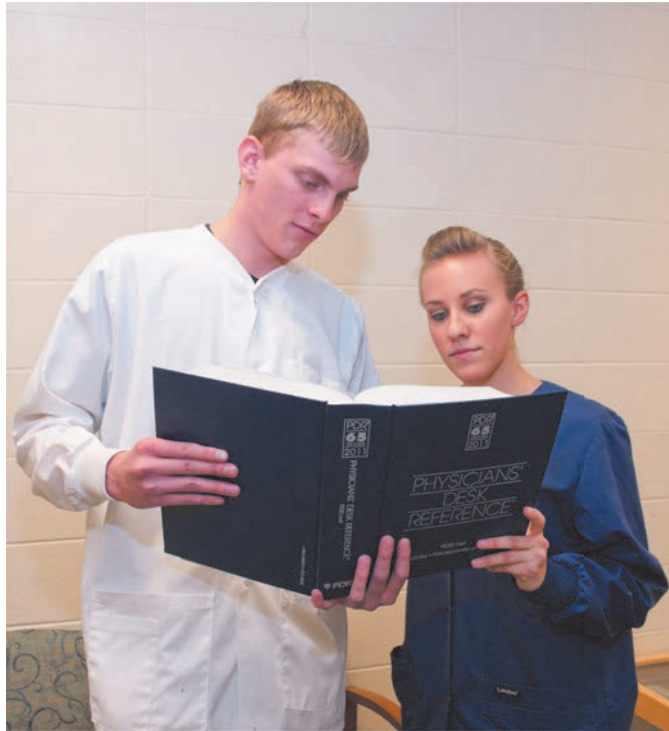


FIGURE 2-4 Dental auxiliaries reviewing the Physicians Desk Reference.

After the dental auxiliary has reviewed the medical history and the list of prescribed medications, a determination of whether the patient's medical history is positive or negative is needed. A positive medical history would be one in which the patient presents with single or multiple medical conditions along with accompanying prescribed medications. A negative medical history would be one in which the patient presents with a no history of medical conditions and no prescribed medications.

TEST YOUR KNOWLEDGE

1. What ASA classifications would not allow for elective dental treatment?
2. What are examples of electronic drug reference sources?

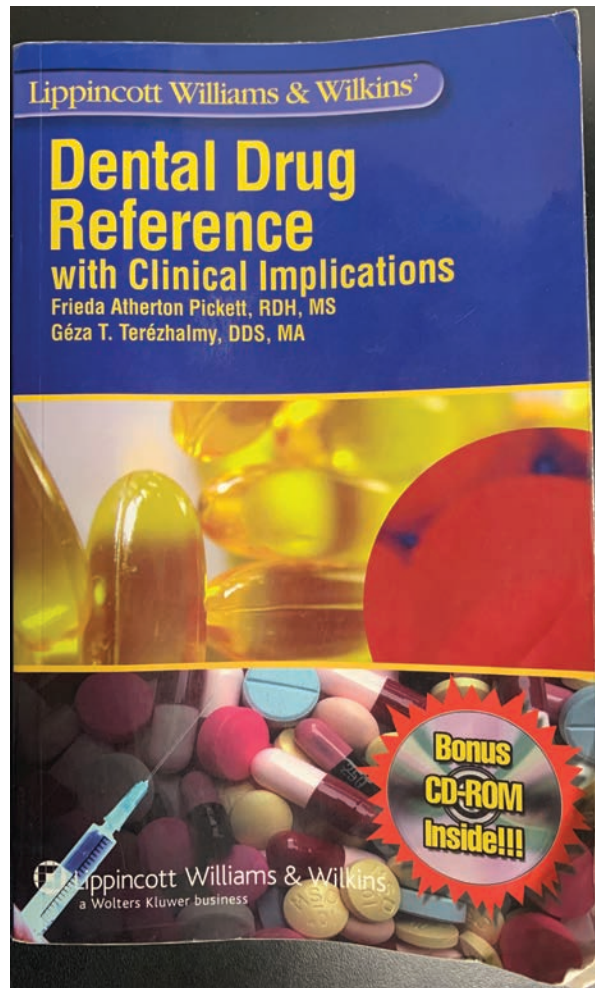


FIGURE 2-5 Dental drug reference guide
Source: Lippincott, Williams & Wilkins

SUMMARY

When a new patient enters the dental office, the staff and dentist do not know the types of medical problems the patient has. When we think of treating the patient, we want to employ the idea to never treat a stranger. If a thorough health history is not obtained and an emergency were to arise, there would be no point of reference on which to base a probable diagnosis on the emergency at hand. The medical history informs the staff about possible problems for which to prepare as well as which medications and treatments to avoid. When the dental team has all this information available, the doctor and staff have taken the first step toward preventing a serious dental office emergency.