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# Chapter 1

## Health Status of the Dental Patient

by Robert R. Edwab, B.S., D.D.S.

*Dr. Smith has just finished his exam of Mrs. Jones. He has been her dentist for many years. Her signed health history reads "no" for all questions listed. Mrs. Jones requires deep periodontal scaling and preparation of a three-unit bridge. It all can be scheduled for one visit. At the front desk she is given an appointment in four weeks.*

*Two days later, Mrs. Jones has chest pains and shortness of breath. At the hospital, it is determined she needs a cardiac by-pass procedure and a mitral valve replacement. The procedures are performed, healing is uneventful, and Mrs. Jones is discharged and goes home in one week. During the second week, she is walking around her house, and in week three, she ventures outside. In week four, she attends to some of her easy errands, including her appointment with Dr. Smith.*

*Upon arrival at the dental office, she is greeted and taken to the operator, where Dr. Smith gives local anesthesia and completes the proposed scheduled treatments. Everything goes well, and Mrs. Jones is given future appointments to complete the work.*

*Weeks later, Mrs. Jones develops night sweats, fever, and flu-like symptoms. Diagnosis is endocarditis. Subsequent investigations show that at the dental office, she never received antibiotic prophylaxis for her cardiac situation.*

A scenario of what you just read could happen to any dentist. Between visits, patients can develop a myriad of medical conditions and have a plethora of treatments. One simple solution avoids a disaster like the earlier scenario. We must learn to perform a complete medical history and update it every time the patient visits our office. Knowing your patient's health status will help you avoid many acute medical emergencies that might occur in the private office setting.

We live in an extraordinary period of enlightened medical treatments. Many compromised patients who previously would have been confined to their homes, long-term care facilities, or hospitals are now functioning somewhat in society. Many of these patients seek care in our dental offices. All practitioners should develop a scenario so they can identify healthy patients who can receive routine dental treatment regimes and identify those who are medically compromised, requiring their treatments to be modified or delayed.

This chapter will teach the practitioner a six-step sequence, which assists him/her in identifying patients who might prove to be problematic. The sequence can be performed in a short and reasonable amount of time.

The six subject areas are:

- Health history
- Dialog or inquiry history
- Abbreviated vital signs
- Non-invasive physical examination
- American Society of Anesthesiologists physical status classification system
- Treatment modification if required

## Health History

The written portion of our patient's health history begins upon his/her arrival in our office. He/she is asked to complete a questionnaire (Fig. 1-1). The health history consists of a series of questions that includes all past and current medical conditions, regardless of whether the patient feels the questions are not related to the current dental visit. Included are current medical care, previous hospital admissions, surgical histories and any related complications, types of anesthetics and their related sequelae, current and past prescribed medications, over-the-counter additives, allergy history (including medications, foods, or environmental conditions), hospital emergency room visits, and any history of smoking (packs per day times how many years) and alcohol (daily quantity times how many years).

There are many variations of commercially-produced medical histories available. The practitioner can combine the attributes of these prepared forms with his/her own criteria and proceed to have the forms duplicated. All questions should have a "yes" or "no" box with a space provided for written answers when required.

Lastly, each medical history form should have a space where the patient places his/her signature and date. Every effort must be made to ensure that the patient completes the form and not his/her escort. The only exception would be a minor who requires a parental signature, someone mentally incapacitated, or someone requiring foreign language translation. In those specific instances, the person completing the form should also sign and state his/her relationship to the patient. A member of your front desk should witness the signing of the form and then sign and date the form in the designated witness area. A sample copy of an office health history follows (Fig. 1-1). It also includes a statement about fees, availability for questions, statement by patient concerning truthfulness, an informed consent statement, and a witness signature area and date. Included is a specialized consent for complications that could arise from local anesthesia and oral surgery.

### Patient Information and Health History

**Please read this document carefully; be sure to complete fully and sign.**

Fees are payable at the time of treatment. If you have any questions concerning this or any other matter, please do not hesitate to discuss them with us.

**Please Print**

Name _____	Date _____
Address _____	
City _____	State _____ Zip _____ Family Dentist _____
Home Tel# _____	Work Tel # _____
Occupation _____	Work Address _____
Date of Birth _____	Soc. Sec. # _____
Purpose of Visit _____	

**Medical History**

		<i>Circle Answer</i>		
1. Are you in good health?	Yes	No	If the answer to 4 is Yes, please add pertinent information: _____	
2. Are you receiving any medical treatments now?	Yes	No		
3. Are you taking any medications now?	Yes	No		
If the answer to 2 or 3 is Yes, please list treatments and/or medication(s): _____			5. Are you allergic to any medications? Yes No If Yes, please list: _____	
4. Has a physician ever informed you that you had:	Yes	No	6. Have you ever received radiation treatments to the head or neck? Yes No	
a. any heart ailment	Yes	No	7. Do you take aspirin daily? Yes No	
b. high blood pressure	Yes	No	8. Have you been ill or hospitalized recently? Yes No	
c. diabetes	Yes	No	9. Have you ever had a fractured jaw? Yes No	
d. lung disease or asthma	Yes	No	10. Are you pregnant or nursing? Yes No	
e. rheumatic fever	Yes	No	11. Please enter your physician's name and address: _____	
f. any blood disease	Yes	No		
g. hepatitis or liver disease	Yes	No		
h. kidney disease	Yes	No	12. When did you eat last? _____	
i. glaucoma or eye disease	Yes	No	13. Person to contact in an emergency: _____	
j. any bleeding tendencies	Yes	No	Name: _____	
k. tuberculosis	Yes	No	Telephone # _____	
l. any other medical problems or treatments not listed	Yes	No		

My medical history is accurate and complete.

Patient Signature (parent if minor) _____	Date _____
Witness _____	Date _____

We will gladly complete any pertinent insurance forms for you, but inasmuch as there are many differences in the benefits and in the services covered by various plans, office policy is to have any benefit payments sent directly from the insurance company to the patient.

**Informed Consent**

Occasional complications may arise from oral surgery; These include swelling, discomfort, bleeding, infection, chipped teeth or fillings, bone fracture, jaw joint discomfort, inability to open the mouth fully, and discoloration of the skin.

Some oral surgery procedures including the administration of local anesthesia can cause numbness to the lips, tongue, teeth, gums, or chin. In the vast majority of cases, this numbness is temporary. However, in rare cases, it can be permanent.

My medical history is accurate and complete.

Patient Signature (parent if minor) _____	Date _____
Witness _____	Date _____

*Fig. 1-1 Health history questionnaire*

## Dialog or Inquiry History

Patients don't intentionally lie about their medical history. The problem is that when they get to a question they don't quite understand, it is much easier for them to check "no." One goal is to then query the patient on all questions, especially the ones answered positively and to focus on those aspects of the medical history that might increase our index of suspicion. This helps the patient to recall any pertinent information and also helps him/her rectify any answers incorrectly indicated. A verbal review in question form of the major organ systems follows:

- *Cardiovascular system*—"Ever been told you have high blood pressure, a heart murmur, heart failure, heart disease, angina, rheumatic fever, mitral valve prolapse, or any heart defects? Did you ever have a heart attack, shortness of breath, easily fatigued, chest pains, heart surgery, insertion of a pacemaker or defibrillator, swollen ankles, or palpitations? Is your fatigue, shortness of breath, or chest pain getting worse? Have you ever been told to take antibiotics before dental or medical treatments?"
- *Respiratory system*—"Have you ever had difficulty breathing, sinus problems, or told you have emphysema, asthma, or TB exposure? Do you need more than one pillow to sleep on at night or do you wake up choking or gasping for air?"
- *Allergies*—"Are you allergic to any medicines, codeine, aspirins, local anesthetics in the dental office, or antibiotics? Ever have any past reactions while in the dental office like fainting, palpitations, or rashes, etc.?"
- *G.I and G.U.*—"Ever been told of liver problems, bleeding problems, kidney disease? Ever receive dialysis or told you had hepatitis (A, B, C, etc.) or were jaundiced?"
- *Endocrine and blood systems*—"Have you ever had any history of thyroid problems, diabetes (type 1 or type 2), hemophilia,

blood transfusions, bleeding problems, or complications after a previous dental extraction?”

- *Medications*—“Have you in the last few years taken insulin, aspirin, non-prescription over-the-counter drugs, digitalis, antibiotics, blood thinners, antihistamines, high blood pressure or any other heart medicines, birth control pills, or steroids?”
- *Treatments*—“Have you ever received radiation treatments to the head, neck, or any region, cancer chemotherapy, operations, or insertion of something “fake” into your heart, arms, legs, or hips? Ever been treated for fainting spells, blurred vision, stroke, temporomandibular joint (TMJ) problems, endocarditis or an infection of your heart, arthritis, painful swollen joints, high or low blood pressure, or seizures? Are you pregnant, breast feeding, had a large weight loss or weight gain recently?”
- Do you have any conditions that were not mentioned on the health history or that we didn’t discuss?

Any positive responses could lead to a discussion and an undisclosed illness. It may also help the patient recall an incident from his/her past medical history that he/she may have forgotten. By mentioning symptoms, the patient might reveal a condition requiring a medical evaluation prior to treatment that could pose a possible problem if we initiated treatment.

## Abbreviated Vital Signs

If you do not know the patient’s blood pressure when he/she arrives at your office for treatment, you will have difficulty assessing his/her needs if emergency medical treatment is required. For example, if a patient goes into a syncopal (fainting) episode while in your office and you immediately take his/her blood pressure, are you concerned if it is 70 systolic over 50 diastolic? You should not be if he/she has a history of low

blood pressure and it is always around 100 systolic over 65 diastolic. But you should be quite concerned if he/she arrives at 210 systolic over 105 diastolic, and after you gave them a local anesthetic injection containing epinephrine he/she passed out and now has a recorded blood pressure of 70 over 50!

Other vital signs such as temperature (infection, etc.), heart rate and rhythm (regular or irregular, etc.), and respirations (number, depth, etc.) are also important, but unless you have specific advanced training, blood pressure should be your most important initial vital sign.

Technology has advanced to a level where you can purchase a reliable automatic blood pressure device for your office at a cost of about \$125.00. For accuracy, periodically it can be compared to a manual sphygmomanometer. It is recommended that you place one in your reception area and one in your treatment room.

When a patient arrives for an appointment, your receptionist welcomes and invites him/her into the reception area where, privately, his/her pressure is taken and recorded. As an alternative, the pressure could be taken and recorded upon being seated in the treatment room. This should be done in the dentist's treatment room as well as the hygienist's treatment room.

My personal classification of blood pressures is:

Normal – up to	$\frac{139}{89}$
Mild hypertension	$\frac{140-159}{90-94}$
Moderate hypertension	$\frac{160-199}{95-99}$

Patients who have blood pressures of 200/100 or greater (either a systolic pressure of 200 or greater, or a 100 diastolic pressure of 100 or greater) have their treatments deferred until we receive a medical consult and clearance. The recordings in each category are relative, since the dental office environment has a tendency to produce an increased blood

pressure in many patients. Blood pressures are repeated multiple times in cases where the patient is very nervous and the result is unusually high. But if either the systolic pressure is above 200 or the diastolic pressure is above 100, we defer treatment that day. We will refer to these values again in the “treatment modifications” section.

We also have thermometers in the office when patients have infections and are running temperatures. Odontogenic infections requiring emergency treatments should be referred to the oral surgeon when the temperature is above 101°F.

## Non-Invasive Physical Examination

In this section, we use our eyes to carefully observe the patient. Watch the patient walking towards your operatory. Is he/she walking briskly and strong, or does he/she appear weak, walking slowly with assistance? Does he/she need a walker or cane indicating a possible orthopedic, neurological, or circulatory problem? Shake hands and greet your patient. Are his/her hands firm and dry or weak and clammy, indicating a possible syncopal episode brewing? Is he/she out of breath from walking from the waiting room, indicating pulmonary or cardiac problems? If you found the patient already in your chair and ready for treatment, just consider what health problems you can miss.

Now that the patient is in your chair and you are reviewing the signed health history, supplementing it with your dialog/inquiry history and reviewing the patient’s abbreviated vital signs, simultaneously look at (examine) him/her carefully from “head to toe.” Look for signs of irregular hair loss from radiation treatments or anti-cancer medications. Observe facial asymmetries such as scars, muscle weaknesses, or involuntary movements. Are the pupils of his/her eyes equally round and reactive to the operatory light? Is a ptosis present in the lids? Are the eyes bulging and hands trembling as in hyperthyroid disorders? Are the eyes red, inflamed, and dry from a secretory disturbance? Is the skin pale, indicating anemia, or yellow and jaundiced, indicating hepatitis? Are the neck veins bulging and distended or the face red from hypertension? Is the

patient barrel-chested, indicating chronic obstructive pulmonary disease? Are his/her lips and nail beds blue, or is he/she breathing with difficulty, signaling cardiopulmonary dysfunction? Are the fingers deformed from severe arthritis indicating the patient might be on high doses of aspirin and has a potential for a bleeding complication? Are the ankles swollen from heart failure? Do you find bruises indicating the patient is taking blood thinners?

Many medical signs and associated symptoms can be observed if you take the time and effort to look at the patient while he/she is in your operatory chair before commencing treatment. Many of these findings can then be used to expand the discussion in the dialog/inquiry history.

## ASA Physical Status Classification System

In 1962, the American Society of Anesthesiologists (ASA) developed a physical classification system to categorize patients scheduled for surgery, according to their medical risk. The system has evolved into a way to classify a patient's risk regardless if he/she is having general anesthesia, IV sedation, or simply local anesthesia. The classifications can be modified and applied in dentistry as follows:

Classification	Description
ASA 1	A normal healthy patient with no positive findings on the health history, dialog/inquiry history, abbreviated vital signs, or chair side physical examination, blood pressure consisting of a systolic up to 139 and a diastolic up to 89
ASA 2	A patient with a mild to moderate systemic disease under control and not life threatening. Examples are mildly elevated blood pressure controlled with medication, 140-159 over 90-94; type 2 diabetes controlled with diet or oral medication; first two trimesters of pregnancy; asthmatic patient who uses an oral spray occasionally; seizure disorder patient under control with medica-

tion; a stable angina patient who has no symptoms unless subjected to a large exertion or emotional situation; extreme anxiety patient who has a history of syncope episodes in the dental office; patients who have suffered a heart attack more than six months ago but have no symptoms and have returned to normal activity; and, patients over the age of 65.

ASA 3

A patient with a severe systemic condition limiting his/her activity, but is not incapacitating. It could be life threatening if not given special consideration. Examples are type 1 diabetics who are insulin controlled; frequent angina attacks; shortness of breath, chest pain, or fatigue with minimal exertion or stress; blood pressure of 160-194 over 95-99; last trimester of pregnancy where the patient is compromised in certain positions and uncomfortable, hindering venous return; compromised patients with chronic obstructive pulmonary disease including chronic bronchitis or emphysema; swollen ankles; frequent asthmatic attacks or seizures; and patients who have suffered a heart attack more than six months ago, but still have symptoms, *i.e.*, angina, shortness of breath, fatigue, etc.

ASA 4

A patient with a severe systemic disease limiting his/her daily activity and is a constant threat to his/her life. It includes the patient who has chest pains or shortness of breath while sitting in a chair with no activity; the patient who awakes during the night with chest pains or shortness of breath; patients with angina that is getting worse and requires increased doses of medications; patients brought to your office wearing a nose piece and receiving oxygen indicating no cardiac reserve; a patient who has had a heart attack or cerebral vascular accident (stroke) within the last six months, and a blood pressure where the systolic pressure is over 200 or the diastolic pressure is over 100.

## Treatment Modifications

After collecting all of the data on your patient, one must decide if the patient is healthy enough to withstand dental treatment. Are there any questions concerning the patient's medical condition that you don't understand? Are you familiar with all of his/her medications and their intended use? Do you need additional information? Will the patient require antibiotic premedication as suggested by the American Heart Association and the American Dental Association recommendations? Calling the patient's physician usually answers most of your questions and also provides suggestions that aid in your treatment. The physician is consulted to aid in determining if a patient can tolerate specific dental procedures, learn any new information about the patient, and assist in determining what treatment modifications are necessary, including premedications. The dentist must be able to evaluate all of the available information, as the chance of a medical emergency occurring in the dental office increases as the quantity and severity of the patient's medical conditions increase. All information gleaned from this conversation is then entered on your chart with the physician's name, date, telephone number, and suggestions offered. The end result of this exercise should be to decrease the risk of the patient having an acute episode in the office while under your care.

The ASA categories add additional information to your decisions. ASA 1 patients are healthy and require no modifications to their treatment plan. The ASA 2 patient is under control and if he/she follows a prescribed regimen usually requires no additional modifications. The ASA 3 patient routinely requires consultation, review, and treatment modifications. He/she is moderately medically compromised and cannot withstand many of the dental office stresses.

The ASA 4 patient is so severely medically compromised that he/she should only be treated in a controlled environment of a hospital dental setting. His/her cardiac and systemic reserve is so depleted that you cannot provide dentistry and be prepared for any unusual occurrence that has a good chance of happening. It is not that the quality of dentistry per-

formed in the hospital setting will be improved. This environment ensures that your patient will be adequately attended to if he/she has a medical emergency during dental treatment. An entire department of emergency physicians is available and can provide the immediate assistance needed to treat any unexpected event. Prior consultation and preparation also add solutions to any liability problems should they arise.

Treatment is also deferred for six months following a heart attack or coronary bypass operation. A high percentage of patients who have suffered a heart attack have a second one within six months without even going to the dental office. Coronary bypass patients have occurrences of arrhythmias for six months following their surgical procedures that could prove disastrous with the use of local anesthetics and the stress of the dental office.

The American Dental Association in 1997 published new guidelines for the prevention of bacterial endocarditis.<sup>3</sup> After consultation with the patient's physician and determining the cardiac problem, the dentist should be able to dispense oral medications as recommended. Dentists are referred to this important publication to learn the cardiac conditions described and medications and doses recommended. In addition, the American Dental Association in 1997 published guidelines for the antibiotic recommendations for the dental patient with a total joint replacement. Both references are included for additional information.<sup>4</sup>

Some treatment modifications suggested include short appointments, oral sedation, nitrous oxide and oxygen analgesia supplementation, decreased vasoconstrictor in their local anesthetics, early morning appointments before the patient becomes fatigued, premedication with his/her own emergency medications, positioning the patient to avoid syncope, and lastly, most important, profound local anesthesia to ensure that the patient is not stimulated with any painful stimuli.<sup>5</sup> Drugs used by the patient (asthma inhaler, nitroglycerine, etc.) are placed on the bracket table in full view, which tends to offer confidence to the patient worried about a medical emergency being precipitated. This helps to decrease the amount of stress we place on our patients so we can treat them and accomplish our care with minimal risk of a medical emergency.

The amount of written material tends to increase rapidly in a patient's chart. Repeated health forms, procedural documentation, x-rays, pictures, consultations, dental laboratory orders, insurance forms, etc. increase with every visit. Going through all of this material every time the patient seeks treatment can be quite time consuming. Figure 1-2 is an example of a fictitious patient. All of the pertinent medical problems, allergies, premedications, ASA classification, etc., are written on the front of the chart. This serves many purposes. When a patient calls the office for an appointment, your front desk person can identify the special needs of the patient and immediately ask you for special instructions for the patient. When the patient reports for hygiene care, your hygienist can identify and make any appropriate changes to the normal treatment plan. It also allows the practitioner to immediately be aware of the patient's pertinent medical conditions, discuss any changes when he/she arrives in the office, and then make any appropriate changes for treatment. This allows for immediate identification of potential problems and attending to possible solutions to avoid any precipitated emergencies. With the medical information on the front of the chart, the staff must be aware of the confidentiality and sensitivity of the information and the need to ensure that all of the information is protected.

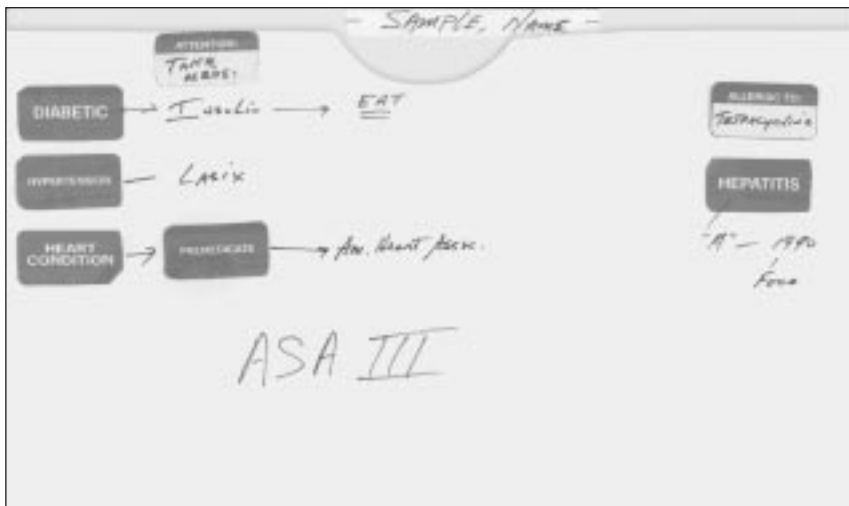


Fig. 1-2 Sample of patient's chart cover

These six steps enable the dental practitioner to decide who to treat, who needs a medical consultation before treatment, who needs a modified appointment, and who should be treated in a controlled hospital environment. More detailed information is available in textbooks and articles, specifically focusing on the treatment of the medically compromised patient.

## Notes

- <sup>1</sup> Donoff, R.B. *Massachusetts General Hospital Manual of Oral and Maxillofacial Surgery*, 3<sup>rd</sup> ed., St. Louis: Mosby, 1996
- <sup>2</sup> Malamed, S.F., et al. *Medical Emergencies in the Dental Office*, 5<sup>th</sup> ed., St. Louis: Mosby, 1999
- <sup>3</sup> DaJani, A.S., et al. Prevention of Bacterial Endocarditis; Recommendations by the American Heart Association, *JADA* 128(8), 1997, pp. 1,142-1,151
- <sup>4</sup> American Dental Association, American Academy of Orthopaedic Surgeons: Advisory Statement; Antibiotic Prophylaxis for Dental Patients with Total Joint Replacement, *JADA* 128(7), 1997, pp. 1,004-1,008
- <sup>5</sup> Edwab, R.R. When to Modify Treatment Plans, *Dentistry Today* 17(11), 1998, pp. 106-107
- <sup>6</sup> Chestnutt, I.G. and Gibson, J., eds. *Churchill's Pocketbook of Clinical Dentistry*, 1<sup>st</sup> ed., London: Churchill Livingstone, 1998