

## **PATIENT ASSESSMENT: RED FLAGS IN THE MEDICAL RECORD**

All patients entering a dental practice should have filled in a medical questionnaire. This document is usually very brief but it should be the basis for the dentist to have a better feel for problems that may arise. Depending upon the nature of the dental practice, you would want to custom-prepare your own questionnaire in order to reflect the type of procedures you routinely do on your patients. Your questionnaire needs to be adjusted to accommodate the specific issues arising from sedation.

It is important to try and build in some guidelines when you review the medical history and try to have some ways of being able to raise a **Red Flag** when things are likely to pose a problem in the dental management of the patient.

The **health history form** should be used to:

1. Screen for medical problems,
2. Allow for risk assessment and stratification,
3. Allow for assessing and evaluating the need for modifications to dental care, and
4. Allow you to ask specific questions relevant to sedation.

Patients are getting older and are retaining their dentition longer. Their medical condition is also getting progressively more complicated. One out of three adults in this country has hypertension, one out of seven has hyperlipidemia and one out of eight adults has diabetes. It is therefore not unusual to have to carefully evaluate the medical needs of the patient prior to planned sedation.

### **AGE OF THE PATIENT**

The age of the patient would be the first thing that can raise a Red Flag. **Patients greater than the age of 65** should raise a **Red Flag**. They are more likely to have hypertension, hyperlipidemia, diabetes, heart disease and vascular disease.

They have compromised upper airway reflexes, making respiratory compromise much more of a concern

They metabolize and excrete drugs much more slowly and are more likely to develop adverse drug reactions. This is particularly important in sedation dentistry since the dose of benzodiazepines has to be reduced in

these patients: in general, we would recommend half the normal dose for sedation.

They are also more prone to having increase in incidence of postoperative delirium with increased sensitivity to anesthetics. Changes that we see with aging includes:

<p><b>Cardiovascular System</b></p> <ul style="list-style-type: none"> <li>↓ cardiac output</li> <li>↓ elasticity</li> <li>↑ incidence of ischemic heart dz</li> </ul>	<p><b>Central Nervous System</b></p> <ul style="list-style-type: none"> <li>↓ neurons and cerebral mass</li> <li>↑ incidence of postoperative delirium</li> <li>↑ sensitivity to anesthetics</li> </ul>
<p><b>Respiratory System</b></p> <ul style="list-style-type: none"> <li>↓ alveolar gas exchange surface</li> <li>↓ upper airway reflexes</li> <li>↓ response to hypoxia and hypercarbia</li> </ul>	<p><b>Renal System</b></p> <ul style="list-style-type: none"> <li>↓ renal blood flow</li> <li>↓ ability to conserve free water</li> <li>↓ ability to secrete acid and conserve sodium</li> </ul>
<p><b>Hepatic System</b></p> <ul style="list-style-type: none"> <li>↓ liver blood flow</li> <li>↓ drug clearance</li> </ul>	<p><b>Thermoregulation</b></p> <ul style="list-style-type: none"> <li>↓ temperature regulation</li> <li>↓ vasoconstriction and shivering</li> </ul>

It is important to stress that not everyone over the age of 65 will be problematic but it is clear that they are more likely to have multiple medical co-morbidities that would complicate dental treatment plans.

In patients above the age of 65, you need to reduce sedation medication by one half.

### DATE OF LAST MEDICAL EXAMINATION

It is important to pay attention to the last time a patient has had a medical evaluation. A patient who has never seen a physician would have no known medical problems at all!

Frequency of medical evaluation is dependent both upon the age of the patient and the complexity of the medical issues.

In general, young and healthy patients should have had a medical evaluation within the past two years.

Patients above the age of 50 should have had an evaluation within the past year.

Patients age 51 to 60 should have had an evaluation within the past 6 months

Patients above the age of 60 should have had a physical examination, a blood screen and an electrocardiogram done within the past 3 months.

Obviously, the frequency of medical follow-up is dependent upon the complexity of the medical issues the patient has and more frequent follow-up is necessary for the more complicated medical patient.

Any patient **above the age of 60** and any patient with **complex medical issues** who has not had a medical evaluation within the past 6 months should raise a **Red Flag**.

Complicated patients with kidney disease, liver disease, congestive heart failure and immunosuppression are much less likely to be lax in their medical follow-up. Depending upon the complexity of their illnesses, these patients are usually followed on at least a biannual basis. These patients should be referred back to their physician for a comprehensive medical evaluation if they have not been seen within the past 6 months.

## **COMMON MEDICAL CONDITIONS**

Hypertension, heart disease and diabetes mellitus are the most common conditions where patients may seek sedation. Some patients seeking dentistry may have a coronary stent.

In most of these conditions, the patients are generally believed to be safer sedated than not sedated because of their underlying medical conditions.

## **HYPERTENSION**

Hypertension affects 72 million patients in the United States (1 in 3 adults). It is further estimated that another 30% of the population has pre-hypertension. It is therefore a common medical condition that all dentists would encounter.

Hypertension can result in a number of target organ damages including:

Transient ischemic attacks and strokes  
 Left ventricular hypertrophy, coronary heart disease, and heart failure  
 Retinopathy  
 Renal failure  
 Peripheral vascular disease

JCI 7 in 2003 classified different categories of blood pressure as below:

BP Level (mm Hg)*		Category
Systolic	Diastolic	
< 120	and < 80	Normal
120-139	or 80-89	Pre-hypertension
140-159	or 90-99	Stage 1 Hypertension
≥ 160	or ≥ 100	Stage 2 Hypertension

\*Use higher value for classification.  
 Chobanian AV et al. JAMA. 2003;289:2560-2572.

This classification defines an exceedingly aggressive blood pressure goal.

Previously acceptable blood pressures (such as 135/85) is now listed in the pre-hypertensive range. This is the result of a number of epidemiological studies that have demonstrated that even in this range, there is an increase in cardiovascular mortality,

Patients who should raise a **RED FLAG** include:

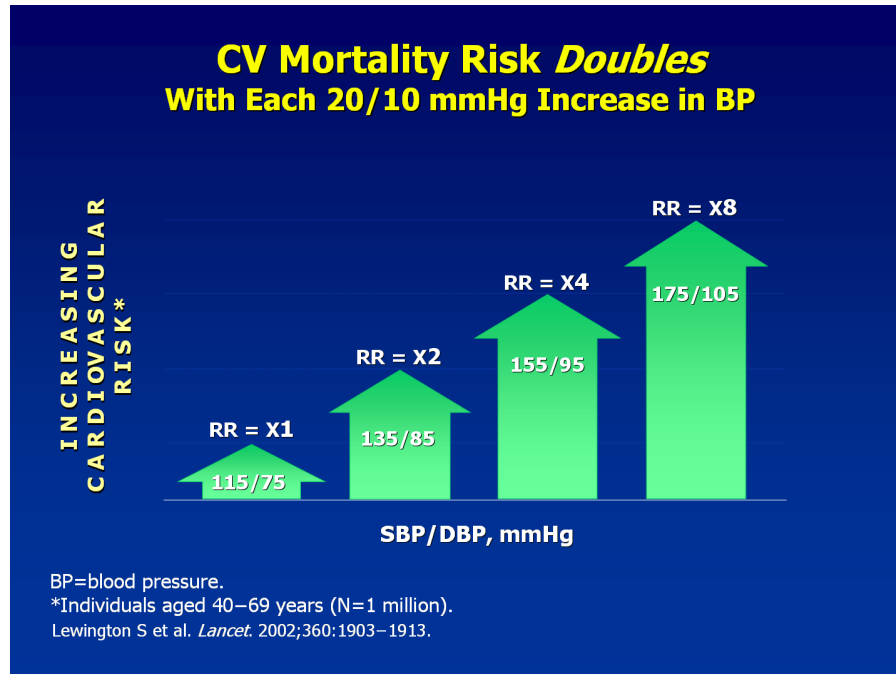
1. Patients with Stage 2 hypertension:
  - a. Systolic blood pressure greater than 160 mm Hg or
  - b. Diastolic blood pressure greater than 100 mm Hg
2. Patients with complicated hypertension:
 

Patients on 4 or more drugs for management of hypertension

These patients are at significantly elevated risk for adverse cardiovascular outcome.

If we define 120/80 as the normal blood pressure, for every 10 mm increase in diastolic blood pressure or 20 mm increase in systolic blood pressure, the risk for cardiac mortality doubles:

A patient with pre-hypertension has 2X the relative risk  
A patient with Stage 1 hypertension has 4X the relative risk and  
A patient with Stage 2 hypertension has 8X the relative risk.

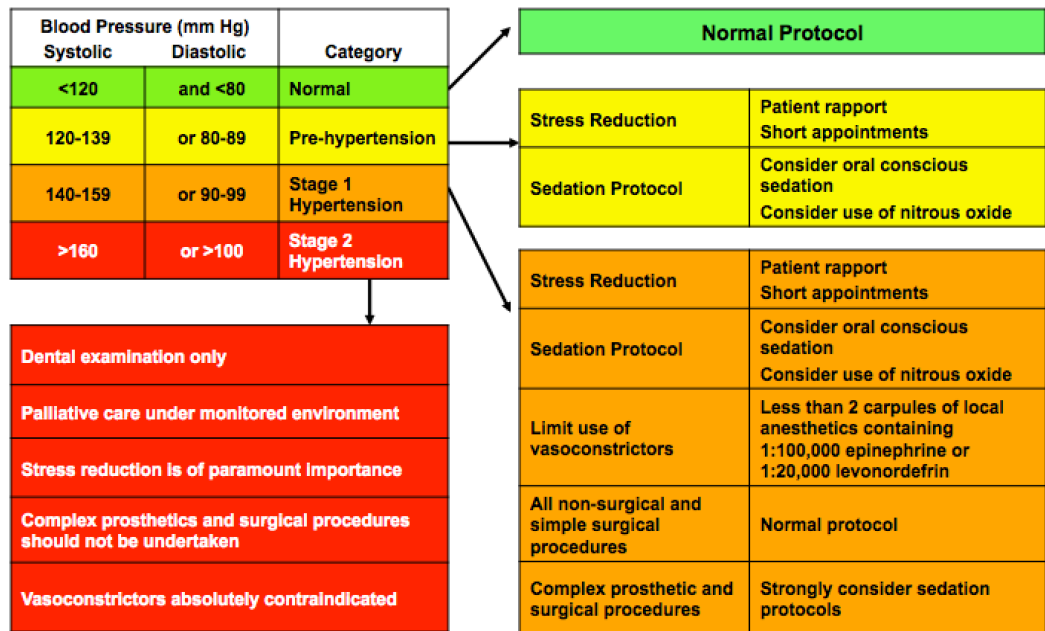


The good news is that there is good evidence that hypertension can be controlled, but it will take an intense and sustained effort.

Understanding the blood pressure guidelines and their implications would allow the clinician to assess risks and allow for an ASA categorization.

These algorithms can be used to guide dental management. This is the rationale for the development of the **Ultimate Cheat Sheets**.

## Dental Management of Patients with Hypertension



## DIABETES

Diabetes mellitus now affects one out of 12 Americans and is a rapidly growing problem. Diabetes mellitus now affects 190 million people worldwide and is estimated to affect 330 million by 2025. The disease is particularly problematic amongst urban African Americans, certain tribes of American Indians, urban Hispanic population and amongst population along the Gulf Coast. In a typical practice of 1,000 patients, a dentist would expect 80-90 patients with diabetes mellitus.

Diabetes is classified according to the etiology of the disease:

Patients with Type 1 diabetes mellitus has diabetes as the result of insulin deficiency.

Patients with Type 2 diabetes mellitus has insulin resistance and is treated with.

**Patients with Type 1 diabetes mellitus** deserves more scrutiny since they tend to have more of the metabolic and medical complications of the disease. They should raise a **Red Flag** in view of the complexity of managing a patient with Type 1 diabetes mellitus.

About 10-15% of diabetics have Type 1 diabetes mellitus and the remainder has Type 2 diabetes.

Patients with Type 1 diabetes mellitus are treated with insulin. Patients with Type 2 diabetes are started on life style modification, diet, exercise with the goal to lose weight. In many instances, they would need oral hypoglycemic agents to get blood sugar into reasonable range. In some instances, control cannot be established without the addition of insulin.

Diabetic patients are also much more prone to hypertension, hyperlipidemia, coronary artery disease, peripheral vascular disease, renal disease, peripheral neuropathy and retinopathy. They are also more prone to infections, including oral infections. Complications are particularly common in patients with Type 1 diabetes who may have extensive complications even at an early age. Patients with **diabetic triopathy** (renal disease, eye disease and peripheral neuropathy) should raise a **Red Flag** since they are much more likely to have problems with their dental management.

Diabetics are particularly prone to oral infection. This can lead to poor glucose control. In general, it is important to aggressively control oral infection and this may result in more liberal use of antibiotics in the diabetic patient.

Diabetic complications have made diabetes mellitus the sixth major reason for death in the United States. Diabetes is the leading cause of renal insufficiency, blindness, non-traumatic amputations and is a major risk factor for development of vascular events.

### **ADEQUACY OF DIABETIC CONTROL; HEMOGLOBIN A1C**

Patients whose diabetes is not under adequate control should raise a Red Flag since they are much more prone to having infection that is difficult to control. We now monitor adequacy of control by the determination of HbA1c, which provides an assessment of the average blood sugar level over a 90-day period.

All diabetics should have an HbA1c value from within the last 3-6 months. All **patients with a HbA1c of greater than 8.5%** should raise a **Red Flag**:

<b>Hemoglobin A1C</b>	<b>Level of Control</b>
6% (BS 120)	Perfect
< 6.5% (BS 135)	Good
6.5-8.5% (BS 150-200)	Fair
<b>&gt; 8.5% (BS &gt;210)</b>	<b>Poor (Red Flag)</b>

Ideal HbA1c is <6%. For every 1% decrease in HbA1c, there is a 21% decrease in mortality, 21% decrease in diabetic complications, 14% decrease in myocardial infarction and 37% decrease in microvascular complications.

The adequacy of control and the presence of diabetic complication can then be used to guide dental management, including significant changes in treatment protocols. These guidelines form the basis for recommendations in the **Ultimate Cheat Sheets**.

### Dental Management of Patients with Diabetes Mellitus

Diabetes Mellitus: an absolute or relative insulin insufficiency caused either by a low output of insulin from the pancreas or resistance of peripheral tissue to insulin		<b>Time of appointment</b>	Morning appointment
		<b>Diet</b>	Normal breakfast; protect oral intake
		<b>Stress Reduction</b>	Patient rapport; short appointments
		<b>Sedation Protocol</b>	Consider oral conscious sedation Consider use of nitrous oxide
		<b>All non-surgical and simple surgical procedures</b>	Normal protocol Continue oral hypoglycemics or insulin
		<b>Complex prosthetic and surgical procedures</b>	Consider sedation protocol Continue oral hypoglycemics or insulin
		<b>Infection</b>	Aggressive treatment of infection
		<b>Morning appointment with normal breakfast</b>	
		<b>Continue oral hypoglycemics or insulin</b>	
		<b>Simple restorative and surgical procedures under monitored environment</b>	
		<b>Complex surgical procedures should be deferred</b>	
		<b>Stress reduction and sedation</b>	
		<b>Emergency Management of Hypoglycemia</b>	
		<b>Stop dental procedure</b>	
		<b>Give glucose (orange juice, Gluco-gel, Insta-glucose)</b>	

<b>Type of Diabetes</b>	
Type 1	Absolute insulin deficiency
Type 2	Peripheral insulin resistance

<b>Adequacy of Control</b>	
HgA1c < 6.5 %	Excellent control
HgA1c 6.5-8.5 %	Marginal control
HgA1c > 8.5 %	Poor control

<b>Presence of Complications</b>	
No	Low risk
Yes	High risk

<b>Types of Complications</b>	
Retinopathy	
Neuropathy	
Nephropathy	
Vasculopathy	
Oral infection	
Periodontitis	

### ANGINA

Angina is chest pain as a result of myocardial demand outstripping the oxygen supply to the heart.

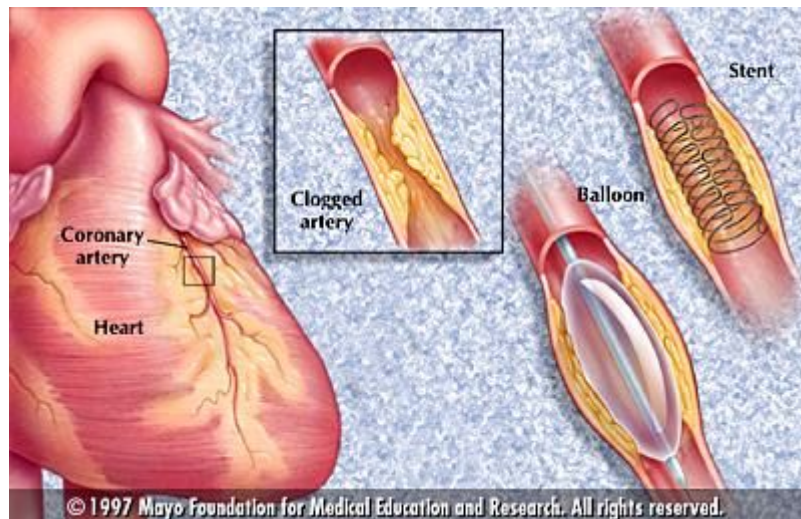
Symptoms of angina arise from cardiac ischemia secondary to imbalance between cardiac demand and oxygen supply. Patients who have angina have significant coronary artery disease and are at increased risk for angina, arrhythmia and myocardial infarction.



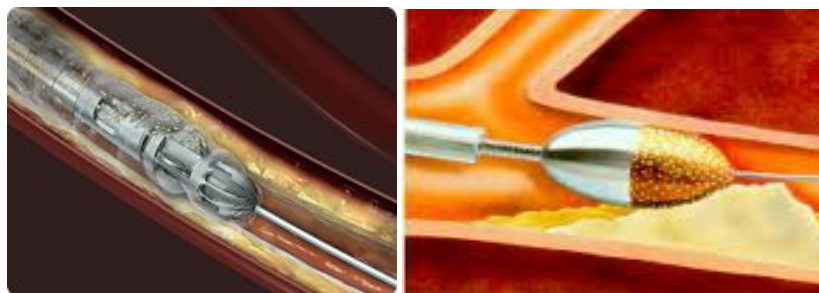
Because of the high morbidity of angina, many of the patients with angina are candidates for intervention such as angioplasty and placement of stents. Fewer patients are managed medically.

## CORONARY STENTS

Many patients with impending or evolving myocardial infarctions are now treated with balloon angioplasty with the placement of stents.



In patients with severe coronary artery disease, they may be candidates for atherectomy and stent placement. After atherectomy, stents are generally placed.



All patients with coronary stents are on aspirin and **Plavix** for 6 or more months after the placement of the stent. One should generally defer all complex elective dental procedures to beyond the 6-month period after stent placement, both because of the anti-platelet issue and because of the instability of the re-perfused myocardium.

It is important not to interrupt anti-platelet therapy even after the 6-month period since premature discontinuation has been associated with acute thrombosis of the stent, particularly the newer drug-eluting stents.

Patients on aspirin and Plavix therapy have significant platelet function abnormalities and are at risk for significant bleeding complications. In instances where double platelet inhibition is still on board beyond the initial 6-month period, it is reasonable to consult the patient's physician and see if the patient can discontinue aspirin for a week prior to the planned procedure and be maintained on Plavix therapy only during that time.

For every patient who identifies angina as a medical issue, you should ask the following questions:

1. How frequently do you have angina?
2. Has the pattern of your angina changed?
3. Have you had angina at rest?
4. Have you had recent changes in your medications for angina?

**ANY** positive answer to the above question is indicative of unstable angina. Patients with unstable angina would have increase in frequency or severity of angina. They may develop angina at rest and they may have breakthrough angina even on a maximal medical regimen.

Since **unstable angina** is the prodrome to myocardial infarction, it should raise a **Red Flag**. Similarly, patients with complicated angina who are on **four or more medications** for management of angina should raise a **Red Flag**.

Segregation of stable vs. unstable angina would provide a basis for changing dental management in the patient with coronary artery disease.

Stable vs unstable angina can then be used to guide dental management, including significant changes in treatment protocols. These guidelines form the basis for recommendations in the **Ultimate Cheat Sheets**.

## Dental Management of Patients with Angina

<b>Angina: chest pain as a result of myocardial demand outstripping the oxygen supply to the heart</b>			
<b>Stability of Angina</b>			
<b>Stable angina</b>	Infrequent episodes Precipitated by stress and/or exercise Relieved by rest Relieved by nitroglycerin Stable pattern		
<b>Unstable angina</b>	Increasing frequency of episodes Increasing severity Angina with minimal exertion or stress Angina at rest		
<b>Emergency Management of Angina</b>			
Stop dental procedure			
Administer nitroglycerin sublingually			
Administer oxygen			
Monitor blood pressure and pulse			
If pain is not relieved after 5 minutes, give a second nitroglycerin and transfer patient to ER			
		<b>Stress Reduction</b>	Patient rapport; short appointments
		Limit use of vasoconstrictors	2 carpules of local anesthetics containing 1:100,000 epinephrine or 1:20,000 levonordefrin
		All non-surgical and simple surgical procedures	Normal protocol
		Complex prosthetic and oral surgical procedures	Consider sedation protocol
		Sedation Protocol	Consider oral conscious sedation Consider use of nitrous oxide
		<b>Dental examination only; refer back to MD for management</b>	
		<b>Palliative care under monitored environment</b>	
		<b>Complex prosthetic and surgical procedures should not be undertaken</b>	
		<b>Stress reduction is of paramount importance</b>	
		<b>Use of vasoconstrictors absolutely contraindicated</b>	

## MYOCARDIAL INFARCTION

Myocardial infarction is the result of irreversible ischemia culminating in damage of myocardial tissue. This is usually a result of occlusive coronary artery disease secondary to plaque rupture. Patients who have had a **myocardial infarction or have had the placement of a coronary stent within the past 6 months** should raise a **Red Flag**. These patients are much more prone to developing rhythm disturbances, recurrent myocardial infarction and congestive heart failure.

In essence, all elective complex dental procedures should be deferred 6 months beyond the myocardial infarction. Emergent and palliative care can be done during the first 6 months, but it has to be done under full cardiac monitoring and use of vasoconstrictors are absolutely contraindicated.

The 6-month time point can then be used to guide dental management, including significant changes in treatment protocols. These guidelines form the basis for recommendations in the **Ultimate Cheat Sheets**. Although dental procedures may not be the same as complex surgery, it is still prudent to be aware of the concerns about doing **ANY** surgery within 6 months after a myocardial infarction.

## Dental Management of Patients with Prior Myocardial Infarction

Myocardial Infarction: result of injury incurred as a result of prolonged ischemia to the heart		<b>Stress Reduction</b>	Patient rapport; short appointments
<b>History of Myocardial Infarction</b>		<b>All non-surgical and simple surgical procedures</b>	Normal protocol
Beyond 12 months	At slightly increase risk	<b>Complex prosthetic and oral surgical procedures</b>	Consider sedation protocol
6 to 12 months	Modest increase in risk	<b>Sedation Protocol</b>	Consider oral conscious sedation Consider use of nitrous oxide
<b>Within past 6 months</b>	<b>At significant risk for arrhythmia, congestive heart failure and recurrent myocardial infarction</b>	<b>Limit use of vasoconstrictors</b>	2 carpules of local anesthetics containing 1:100,000 epinephrine or 1:20,000 levonordefrin
<b>Emergency Management of MI</b>		<b>Dental examination only; refer back to MD</b>	
Stop dental procedure		<b>Palliative care under monitored environment</b>	
Administer nitroglycerin sublingually		<b>Complex prosthetic and surgical procedures should not be undertaken</b>	
Administer oxygen		<b>Stress reduction is of paramount importance</b>	
Administer nitrous oxide, if available		<b>Use of vasoconstrictors absolutely contraindicated</b>	
Monitor blood pressure and pulse		<b>Medications with Dental Implications</b>	
Ask patient to chew an aspirin 325 mg		<b>Calcium channel blockers</b>	Gingival hyperplasia
If pain is not relieved after 5 minutes, give a second nitroglycerin and transfer patient to ER		<b>Non-selective beta blockers</b>	Epinephrine may accentuate hypertension; levonordefrin is the preferred vasoconstrictor

## HIV INFECTION

It is estimated that the prevalence of HIV infection is about 1,185,000 in the United States (1 in 280 patients). 42,000 new cases are diagnosed annually. Unfortunately, one quarter of the patients with HIV is currently undiagnosed (252,000-312,000).

In September of 2006, CDC recommends routine testing of all patients between the ages of 13 to 64, as opposed to testing only patients with at risk behavior. This recommendation arises from the fact that new cases diagnosed annually have remained at the 40,000 level for the past 10 years. Patients with undiagnosed disease are far more likely to transmit the disease (9.8% vs. 1.2%) and late diagnosis carries a significantly worse prognosis (median survival of 4 months vs. 24.7 years).

The available screening tests are now accurate (99.7-100% sensitivity and specificity), quick (<20 minutes) and can be done in-office.

It is hoped that with routine HIV testing, it would decrease emergence on new cases by half and increase diagnosis of cases early where treatment is more efficacious.

With the practice of universal precautions, caring for the HIV patient does not pose a special problem.

However, patients with HIV infection pose a special concern for sedation dentistry. Many patients are on:

**Protease inhibitors**  
**Anti-fungal agents**

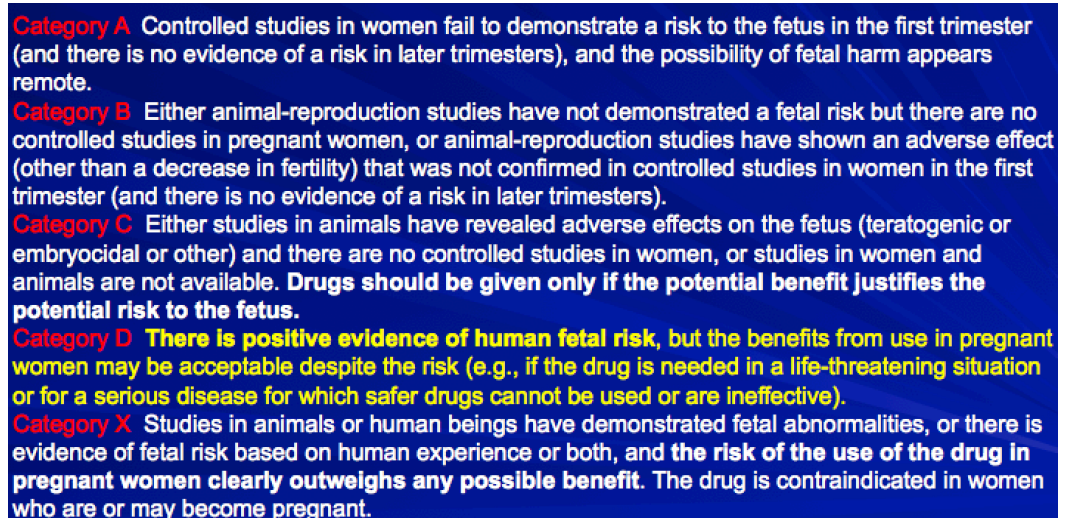
These should raise **Red Flags** since they will have significant interactions (category D drug-drug interactions) with many of the drugs that would be used for sedation dentistry. (to be covered in Pharmacology II).

Patients with HIV are not obligated to tell you of their disease but they are obligated to tell you all of the medications they are on.

## **PREGNANCY**

Since many of the drugs used in sedation dentistry are classified as Category D for the pregnant females: **There is positive evidence of human fetal risk**, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective). **Triazolam is classified at Category X, where the risk of the drug clearly outweighs the benefit.**

The following table explains the assignment of the various drug categories in the pregnant female:



**Category A** Controlled studies in women fail to demonstrate a risk to the fetus in the first trimester (and there is no evidence of a risk in later trimesters), and the possibility of fetal harm appears remote.

**Category B** Either animal-reproduction studies have not demonstrated a fetal risk but there are no controlled studies in pregnant women, or animal-reproduction studies have shown an adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the first trimester (and there is no evidence of a risk in later trimesters).

**Category C** Either studies in animals have revealed adverse effects on the fetus (teratogenic or embryocidal or other) and there are no controlled studies in women, or studies in women and animals are not available. **Drugs should be given only if the potential benefit justifies the potential risk to the fetus.**

**Category D** **There is positive evidence of human fetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective).**

**Category X** Studies in animals or human beings have demonstrated fetal abnormalities, or there is evidence of fetal risk based on human experience or both, and **the risk of the use of the drug in pregnant women clearly outweighs any possible benefit.** The drug is contraindicated in women who are or may become pregnant.

It is therefore extremely important to be sure that the patient is not pregnant before consideration of sedation dentistry. Any possibility that the patient might be pregnant should raise a **Red Flag**.



You should document in the medical records the many different ways that you have tried to be sure that the patient is not pregnant:

1. Are you pregnant?
2. If not:
  - a. Are you planning a pregnancy in the near future?
  - b. Are you on some form of birth control?
  - c. Is there a chance that you could be pregnant?

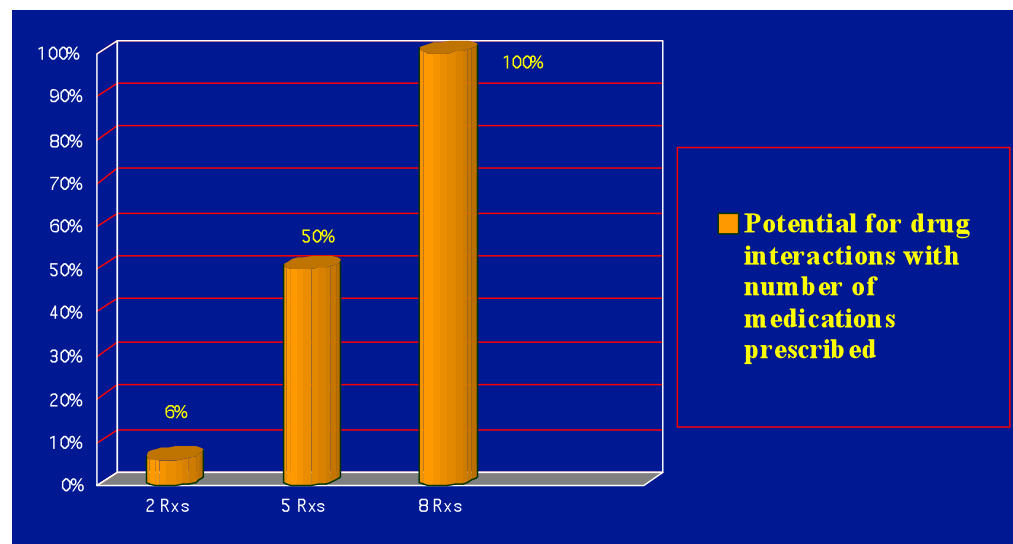
Clear documentation is your major protection in this instance.

### **POLYPHARMACY: PATIENTS ON MULTIPLE MEDICATIONS**

The number of drugs a patient is on is often a good indication of the severity of the disease. In many instances, the list of drugs that patient is on may tell you more than your patient tells you.

In general, we have designed a **Rule of 4** to define patients that should raise a **Red Flag**. We believe that any patient that needs four or more medications to control any disease condition needs special scrutiny.

It is also important to pay attention to the total number of medications a patient is on. Any patient who is on eight or more drugs should raise a **Red Flag (Rule of 8)**. Because of the prevalence of diseases such as hypertension, diabetes mellitus and depression, patients are often on multiple medications and it is not difficult for a patient to come in on 8 or more medications. This poses a special problem for sedation dentistry since drug-drug interactions are much more likely to occur as the number of medication the patient is on increases.

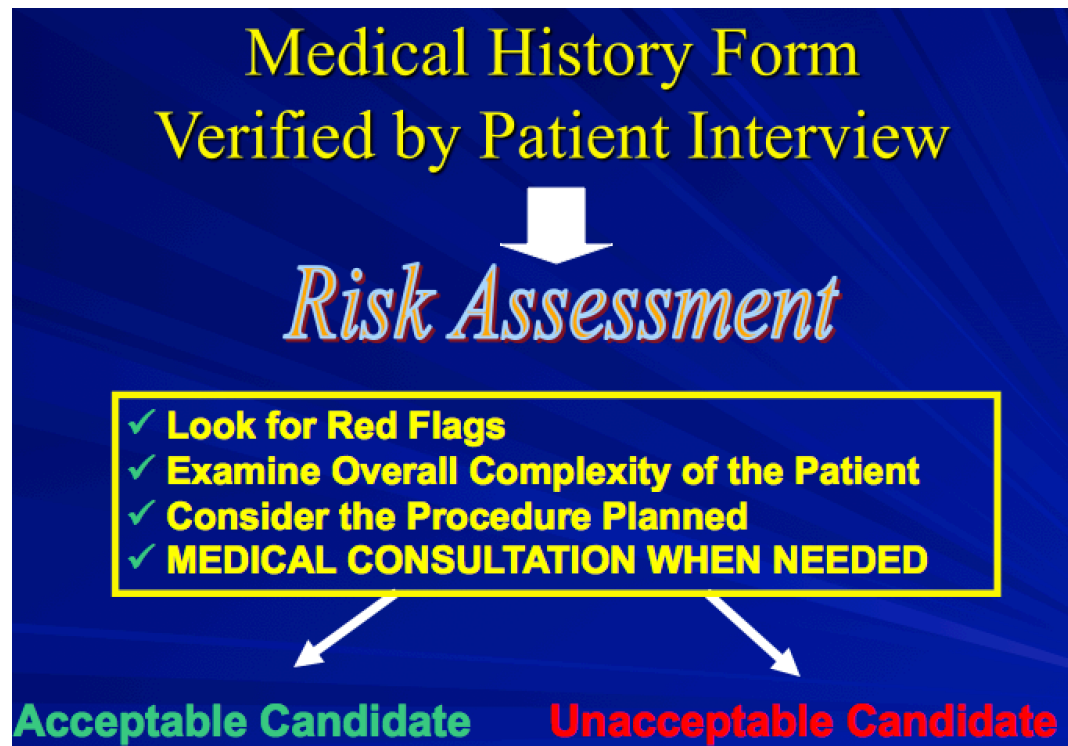


It is therefore crucial to have a good handle on drug-drug interactions and avoid complications from undue adverse drug reactions.

All of these drugs have potent interactions with enzymes in the **cytochrome p450 system** and would significantly change the pharmacokinetics of drugs used for sedation.

We will be going into considerably more detail in Pharmacology II on drug-drug interactions, particularly with regard to use of benzodiazepines and other sedation drugs.

In conclusion, based on the medical history form, confirmed by patient interview, we would be able to look for red flags, examine the overall complexity of the patient, consider the procedure planned, consult medicine when appropriate, we would be able to determine the appropriate candidate for sedation.



## **APPENDIX:**

### **RISK ASSESSMENT: ASA CLASSIFICATION**

After consideration of the medical issues a given patient has, it is then possible to stratify the risk of a specific procedure for the patient. The most commonly used scale for risk assessment is the ASA Physical Status Classification widely used by anesthesiologists and surgeons in the risk stratification of patients about to undergo a surgical procedure.

The original classification of Physical Status was developed by the ASA in 1941 and very little has changed in the intervening decades:

#### **New Classification of Physical Status**

The Classification of Physical Status was amended by the 1962 House of Delegates of the American Society of Anesthesiologists, Inc. The new Classification is given below for the information of the membership.

##### **CLASSIFICATION OF PHYSICAL STATUS**

- 1 A normal healthy patient.
- 2 A patient with a mild systemic disease.
- 3 A patient with a severe systemic disease that limits activity, but is not incapacitating.
- 4 A patient with an incapacitating systemic disease that is a constant threat to life.
- 5 A moribund patient not expected to survive 24 hours with or without operation.

In the event of emergency operation, precede the number with an E.

**ASA I:** patient without systemic disease; a normal, healthy patient

**ASA II:** patient with mild systemic disease

- Controlled hypertension
- Hyperlipidemia
- Type II diabetes, under good control
- Hypothyroidism, under good control

**ASA III:** patient with severe systemic disease that limits activity but is non-incapacitating

- Stable angina
- Remote history of myocardial infarction (>6 mos)
- Type 1 diabetes mellitus



- Hypertension, under marginal control
- History of congestive heart failure

**ASA IV:** patient with an incapacitating systemic disease that is a constant threat to life

- Unstable angina
- Myocardial infarction (<6 mos)
- Stage 2 hypertension
- Diabetes mellitus under poor control

**ASA V:** Moribund patient who is not expected to survive 24 hours with or without an operation

- Ruptured aortic aneurysm
- Saddle pulmonary embolus

**ASA VI:** A patient declared brain-dead

An “E” can be assigned to any classification to denote emergency status

It is important to understand that the ASA classification is designed to provide a convenient framework to predict risk of anesthesia for general surgery. Oral conscious sedation and dental procedures are in general less intrusive. The ASA classification therefore provides a reasonable safety buffer for sedation.

In general, patients with ASA I and II classification are good candidates for sedation dentistry.

Patients with ASA III classification are sometimes reasonable candidates, but until you have gained significant experiences with oral conscious sedation, it is important to avoid ASA III patients.

In the advanced course, Sedation Solutions, we will be using interactive case management to address patients with ASA III and ASA IV classification.

Based upon the information we are able to derive from the medical history, verified by the patient, we should be able to do a reasonable risk assessment. We should be on the lookout for Red Flags in the Medical History Form, examine the overall complexity of the patient, consider the dental procedure planned and then make the decision with respect to acceptability of the candidate for oral conscious sedation.