Common medical emergencies in the dental office

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Risk factors

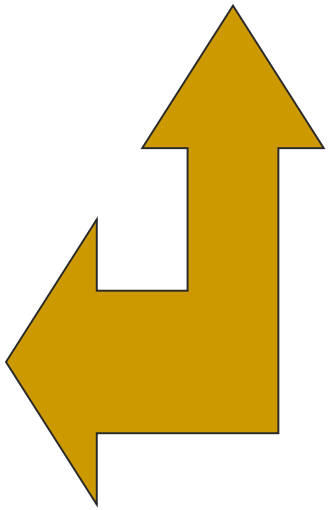
- Increased number of older patients
- The therapeutic advances in the medical profession
- The growing trend toward longer dental appointment
- The increasing use and administration of drug in dentistry

Common medical emergencies in dental office

- Unconsciousness
  - Vasodepressor syncope
  - Orthostatic hypotension
  - Acute adrenal insufficiency
- Respiratory distress
- Airway obstruction
- Hyperventilation
- Asthma (bronchospasm)
- Heart failure and acute pulmonary edema
- Altered consciousness
  - Diabetes mellitus: hyperglycemia and hypoglycemia
  - Thyroid gland dysfunction (hyperthyroidism and hypothyroidism)
  - Cerebrovascular accident
- Seizures
- Drug-related emergencies
  - Drug-overdose reactions
  - Allergy
- Chest pain
  - Angina pectoris
  - Acute myocardial infarction
- Cardiac arrest and cardiopulmonary resuscitation

EMERGENCY SITUATION	NUMBER REPORTED
Syncope	15,407
Mild allergic reaction	2,583
Angina pectoris	2,552
Postural hypotension	2,475
Seizures	1,595
Asthmatic attack (bronchospasm)	1,392
Hyperventilation	1,326
"Epinephrine reaction"	913
Insulin shock (hypoglycemia)	890
Cardiac arrest	331
Anaphylactic reaction	304
Myocardial infarction	289
Local anesthetic overdose	204
Acute pulmonary edema (heart failure)	141
Diabetic coma	109
Cerebrovascular accident	68
Adrenal insufficiency	25
Thyroid storm	4
TOTAL	30,608

Emergencies in private-practice dentistry



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EMERGENCY SITUATION	NUMBER REPORTED
Type	
Convulsive seizures	45
Vasodepressor syncope	41
Hyperventilation	39
Hypoglycemia	24
Postural hypotension	18
Mild allergic reaction	15
Angina pectoris	14
Acute asthmatic attacks	11
Acute myocardial infarction	1
Victim	
Patient (during treatment)	129
Patient (before or after treatment)	45
Dental personnel	24
Other persons in dental office	10

Emergencies at the university of southern California school of dentistry

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Goals of physical evaluation

1. Determine the patient's ability to **physically** tolerate the stress involved in the planned treatment.
2. Determine the patient's ability to **psychologically** tolerate the stress involved in the planned treatment.
3. Determine whether **treatment modifications** are required to enable the patient to better tolerate the stress involved in the planned treatment.
4. Determine whether the use of **psychosedation** is warranted.
   a. Determine which sedation technique is most appropriate.
   b. Determine whether contraindications exist to any of the drugs to be used in the planned treatment.

Changes in geriatric patient

Central Nervous System
Decreased number of brain cells
Cerebral arteriosclerosis
- CVA
- Decreased memory
- Emotional changes

Parkinsonism

Cardiovascular system
Coronary artery disease
- Angina pectoris
- Myocardial infarction
- Dysrhythmias
- Decreased contractility

High blood pressure
- Renovascular disease
- Cerebrovascular disease
- Cardiac disease

Respiratory System
Senile emphysema
Arthritic changes in thorax
Pulmonary problems related to pollutants
Interstitial fibrosis

Genitourinary system
Decreased renal blood flow
Decreased number of functioning glomeruli
Decreased tubular reabsorption
Benign prostatic hypertrophy

Endocrine system
Decreased response to stress
Type II-adult-onset diabetes mellitus

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Pulmonary changes in patients 65 years and older

FUNCTION	PERCENTAGE COMPARED WITH CAPACITY AT AGE 30
Total lung capacity	100
Vital capacity	58
O_2 uptake during exercise	50
Maximum breathing capacity	55

Factors increasing risk during dental treatment

- Increased number of older patients
- Medical advances
  - Drug therapy
  - Surgical techniques
- Longer appointments
- Increased drug use
  - Local anesthetics
  - Sedatives
  - Analgesics
  - Antibiotics

Occurrence of systemic complications

TIME OF COMPLICATION	%
Immediately before treatment	1.5
During or after local anesthesia	54.9
During treatment	22.0
After treatment	15.2
After leaving dental office	5.5

Treatment performed at time of complication

TREATMENT	%
Tooth extraction	38.9
Pulp extirpation	26.9
Unknown	12.3
Other treatment	9.0
Preparation	7.3
Filling	2.3
Incision	1.7
Apicoectomy	0.7
Removal of fillings	0.7
Alveolar plastics	0.3

MEDICAL HISTORY

CIRCLE

1. Are you having pain or discomfort at this time? ..... YES NO
2. Do you feel very nervous about having dental treatment? ..... YES NO
3. Have you ever had a bad experience in a dental office? ..... YES NO
4. Have you been hospitalized during the past 2 years? ..... YES NO
5. Have you been under the care of a medical doctor during the past 2 years? ..... YES NO
6. Have you taken any medicine or drugs during the past 2 years? ..... YES NO
7. Are you allergic to (that is, experience itching, rashes, swelling of the hands, feet, or eyes) or made sick by penicillin, aspirin, codeine, or any drugs or medications? ..... YES NO
8. Have you ever had any excessive bleeding requiring special treatment? ..... YES NO
9. Circle any of the following that you have had or have at present:

Heart Failure	Heart Surgery	Hay Fever	Glaucoma	Venereal Disease (Syphilis, Gonorrhea)
Heart Disease or Attack	Artificial Joint	Sinus Trouble	Pain in Jaw Joints	Cold Sores
Angina Pectoris	Anemia	Allergies or Hives	AIDS	Genital Herpes
High Blood Pressure	Stroke	Diabetes	Hepatitis A (infectious)	Epilepsy or Seizures
Heart Murmur	Kidney Trouble	Thyroid Disease	Hepatitis B (serum)	Fainting or Dizzy Spells
Rheumatic Fever	Ulcers	X-ray or Cobalt Treatment	Liver Disease	Nervousness
Congenital Heart Lesions	Emphysema	Chemotherapy (Cancer, Leukemia)	Yellow Jaundice	Psychiatric Treatment
Scarlet Fever	Cough	Arthritis	Blood Transfusion	Sickle Cell Disease
Artificial Heart Valve	Tuberculosis (TB)	Rheumatism	Drug Addiction	Bruise Easily
Heart Pacemaker	Asthma	Cortisone Medicine	Hemophilia	

Cont'd

10.	When you walk up stairs or take a walk, do you ever have to stop because of pain in your chest, shortness of breath, or extreme fatigue?	YES	NO
11.	Do your ankles swell during the day?	YES	NO
12.	Do you use more than two pillows to sleep?	YES	NO
13.	Have you lost or gained more than 10 pounds in the past year?	YES	NO
14.	Do you ever awaken short of breath?	YES	NO
15.	Are you on a special diet?	YES	NO
16.	Has your medical doctor ever said you have a cancer or tumor?	YES	NO
17.	Do you have any disease, condition, or problem not listed here?	YES	NO
18.	WOMEN: Are you pregnant now?	YES	NO
	Are you practicing birth control?	YES	NO
	Do you anticipate becoming pregnant?	YES	NO

To the best of my knowledge, all the preceding answers are true and correct. If I ever have any change in my health, or if my medicines change, I will inform the doctor of dentistry at the next appointment without fail.

Date _____ *Faculty Signature* _____ *Signature of Patient, Parent or Guardian* _____

MEDICAL HISTORY / PHYSICAL EVALUATION UPDATE

Date	*Addition*	*Student/Faculty Signatures*	

Child's Name: _____ Date of Birth: _____ Age _____ Date: _____

Address: _____ Telephone: ( ) _____

Physician's name (Medical Doctor): _____ Telephone: ( ) _____

Please circle the appropriate answer

1. Does your child have a health problem? ..... YES NO
2. Was your child a patient in a hospital? ..... YES NO
3. Date of last physical exam: _____
4. Is your child now under medical care? ..... YES NO
5. Is your child taking medication now? ..... YES NO
   If so, for what? _____
6. Has your child ever had a serious illness or operation? YES NO
7. If so, explain: _____
8. Does your child have (or ever had) any of the following diseases?
   a. Rheumatic fever or rheumatic heart disease ... YES NO
   b. Congenital heart disease ..... YES NO
   c. Cardiovascular disease (heart trouble, heart attack, coronary insufficiency, coronary occlusion, high blood pressure, arteriosclerosis, stroke) ..... YES NO
   d. Allergy? Food □, Medicine □, Other □ .. YES NO
   e. Asthma □ Hay Fever □ ..... YES NO
   f. Hives or a skin rash ..... YES NO
   g. Fainting spells or seizures ..... YES NO
   h. Hepatitis, jaundice or liver disease ..... YES NO
   i. Diabetes ..... YES NO
   j. Inflammatory rheumatism (painful or swollen joints) ..... YES NO
   k. Arthritis ..... YES NO
   l. Stomach ulcers ..... YES NO
   m. Kidney trouble ..... YES NO
   n. Tuberculosis (TB) ..... YES NO
   o. Persistent cough or cough up blood ..... YES NO
   p. Veneral disease ..... YES NO
   q. Epilepsy ..... YES NO
13. Has he/she ever required a blood transfusion? ..... YES NO
14. Does he/she have any blood disorders such as anemia, etc? ..... YES NO
15. Has he/she ever had surgery, x-ray or chemotherapy for a tumor, growth, or other condition? ..... YES NO
16. Does your child have a disability that prevents treatment in a dental office? ..... YES NO
17. Is he/she taking any of the following?
   a. Antibiotics or sulfa drugs ..... YES NO
   b. Anticoagulants (blood thinners) ..... YES NO
   c. Medicine for high blood pressure ..... YES NO
   d. Cortisone or steroids ..... YES NO
   e. Tranquilizers ..... YES NO
   f. Aspirin ..... YES NO
   g. Dilantin or other anticonvulsant ..... YES NO
   h. Insulin, tolbutamide, Orinase, or similar drug ... YES NO
   i. Any other? _____
18. Is he/she allergic to, or has he/she ever reacted adversely to, any of the following?
   a. Local anesthetics ..... YES NO
   b. Penicillin or other antibiotics ..... YES NO
   c. Sulfa drugs ..... YES NO
   d. Barbiturates, sedatives, or sleeping pills ..... YES NO
   e. Aspirin ..... YES NO
   f. Any other? _____
19. Has he/she any serious trouble associated with any previous dental treatment? ..... YES NO
   If so, please explain: _____
20. Has your child been in any situation which could expose

q. Epilepsy ..... YES NO
r. Sickle Cell disease ..... YES NO
s. Thyroid disease ..... YES NO
t. AIDS ..... YES NO
u. Emphysema ..... YES NO
v. Psychiatric treatment ..... YES NO
w. Cleft lip/palate ..... YES NO
x. Cerebral palsy ..... YES NO
y. Mental retardation ..... YES NO
z. Hearing disability ..... YES NO
aa. Developmental disability ..... YES NO
If yes, explain: _____
bb. Was your child premature? ..... YES NO
If yes, how many weeks _____
cc. Other: _____

9. Does your child have to urinate (pass water) more than six times a day? ..... YES NO
10. Is your child thirsty much of the time? ..... YES NO
11. Has your child had abnormal bleeding associated with previous surgery, extractions or accidents? .... YES NO
12. Does he/she bruise easily? ..... YES NO

20. Has your child been in any situation which could expose him/her to x-rays or other ionizing radiators? ..... YES NO
21. Last date of dental examination: _____
22. Has he/she ever had orthodontic treatment (worn braces)? ..... YES NO
23. Has he/she ever been treated for any gum diseases (gingivitis, periodontitis, trenchmouth, pyorrhea)? ..... YES NO
24. Does his/her gums bleed when brushing teeth? .... YES NO
25. Does he/she grind or clench teeth? ..... YES NO
26. Has he/she often had toothaches? ..... YES NO
27. Has he/she had frequent sores in his/her mouth? .. YES NO
28. Has he/she had any injuries to his/her mouth or jaws? YES NO
If yes, explain: _____
29. Does he/she have any sores or swellings of his/her mouth or jaws? ..... YES NO
30. Have you been satisfied with your child's previous dental care? ..... YES NO

ADOLESCENT WOMEN:

31. Are you pregnant now, or think you may be? ..... YES NO
32. Do you anticipate becoming pregnant? ..... YES NO
33. Are you taking the Pill? ..... YES NO

To the best of my knowledge, all of the preceding answers are true and correct. If my child ever has a change in his/her health or his/her medicines change, I will inform the doctor at the next appointment without fail.

Parent's Signature: _____ Date _____

MEDICAL HISTORY / PHYSICAL EXAMINATION REVIEW

Date	Addition	Student/Faculty Signatures	
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Dental drug interactions

DENTAL DRUG	INTERACTING AGENTS	RESULTING EFFECT
Anesthetics, general	Antidepressants	Hypotension
	Antihypertensives	Hypotension
Antihistamines	Alcohol	CNS depression
	Phenothiaxine (Compazine, Thorazine)	Increased sedation
Anticholinergics (atropine)	Antihistamines	Increased anticholinergic effect
	Levodopa	Increased anticholinergic effect
	Phenothiazine (Compazine, Thorazine)	Increased anticholinergic effect
	Antidepressants, tricyclic (Vivactil, Surmontil, Tofranil)	
Barbiturates	Alcohol	Enhanced sedation, increased
	Anticoagulants, oral	Decreased anticoagulant effect
	Antidepressants, tricyclic (Vivactil, Surmontil, Tofranil)	Decreased antidepressant effect
	β-Adrenergic blockers (Lopressor, Inderal)	Decreased β-blocker effect
	Corticosteroids	Decreased steroid effect
	Digitoxin (digitalis)	Decreased digitoxin effect
	Doxycycline	Decreased doxycycline effect
	Griseofulvin (Fulvicin, Grisactin, Grifulvin, Grivate)	Decreased griseofulvin effect
	Phenothiazine	Decreased phenothiazine effect
	Quinidine	Decreased quinidine effect
	Rifampin	Decreased barbiturate effect
Benzodiazepines	Alcohol	Enhanced sedation
	Barbiturates	Enhanced sedation increased respiratory depression

Cont'd

Carbamazepine	Anticoagulants, oral	Decreased anticoagulant effect
	Doxycycline	Decreased doxycycline effect
	Propoxyphene	Increased carbamazepine effect
Cephalosporin antibiotics	Aminoglycoside antibiotics	Increased nephrotoxicity
	Ethacrynic acid	Increased nephrotoxicity
	Furosemide	Increased nephrotoxicity
Clindamycin	Curariform drugs	Neuromuscular blockade
	Lomotil	Increased diarrhea, colitis
Corticosteroids	Barbiturates	Decreased corticosteroid effect
	Ephedrine	Decreased dexamethasone effect
	Phenytoin	Decreased corticosteroid effect
	Rifampin	Decreased corticosteroid effect
Erythromycin	Lincomycin	Decreased antimicrobial effect
Fluoride	Aluminum hydroxide	Decreased fluoride absorption

Cont'd

DENTAL DRUG	INTERACTING AGENTS	RESULTING EFFECT
Lincomycin	Curariform drugs	Neuromuscular blockade
	Kaolin, pectin	Decreased lincomycin effect
	Diphenoxylate-atropine and similar products (Lomotil, Latropine)	Increased diarrhea, colitis
Meperidine	Barbiturates	Increased CNS depression
	Curariform drugs	Increased respiratory depression
Furoxone matulate	MAO inhibitors (Marplan, Nardil, Parnate)	Hypertension
Phenothiazine	Alcohol	Increased sedation (promethazine)
	Guanethidine	Decreased phenothiazine effect
	Levodopa	Decreased levodopa effect
	Lithium	Decreased phenothiazine effect
Propoxyphene	Alcohol	Increased respiratory depression
	Carbamazepine	Increased carbamazepine effect
	Curariform drugs	Increased respiratory depression

Cont'd

Salicylates (aspirin)	Acetazolamide	Increased salicylate CNS toxicity
	Antacids	Decreased salicylate levels
	Anticoagulants, oral	Increased bleeding risk
	Dipyridamole	Increased effect on platelet function
	Hypoglycemics	Increased hypoglycemia
	Methotrexate	Increased methotrexate toxicity
	Probenecid	Decreased uricosuric effect
Sympathomimetic amines (epinephrine, phenylephrine, nordefrin)	Antidepressants, tricyclic (Vivactil, Surmontil, Tofranil)	Hypertension, hypertensive crisis
	Antihypertensive drugs	Decreased hypertensive effect
	β-Adrenergic blockers (Lopressor, Inderal)	Hypertension with epinephrine
	Halogenated anesthetics	Cardiac dysrhythmias
	Digitalis drugs	Tendency for cardiac dysrhythmias
	Indomethacin	Severe hypertension
	MAO inhibitors (Marplan, Nardil, Parnate)	Hypertensive crisis
Tetracycline	Antacids	Decreased tetracycline effect
	Barbiturates	Decreased doxycycline effect
	Bismuth subsalicylate	Decreased tetracycline effect
	Carbamazepine	Decreased doxycycline effect
	Iron, oral	Decreased tetracycline effect
	Methoxyflurane	Increased nephrotoxicity
	Milk and dairy products	Decreased tetracycline effect
	Phenytoin	Decreased doxycycline effect
	Zinc sulfate	Decreased tetracycline effect

Anxiety questionnaire

1. If you had to go to the dentist tomorrow, how would you feel about it?
   a. I would look forward to it as a reasonably enjoyable experience.
   b. I would not care one way or the other.
   c. I would be very uneasy about it.
   d. I would be afraid that it would be unpleasant and painful.
   e. I would be very frightened of what the dentist might do.
2. When you are waiting in the dentist's office for your turn in the chair, how do you feel?
   a. Relaxed
   b. A little uneasy
   c. Tense
   d. Anxious
   e. So anxious that I almost break out in a sweat or almost feel physically sick
3. When you are in the dentist's chair waiting for him or her to get the drill ready and begin working on your teeth, how do you feel?
   a. Relaxed
   b. A little uneasy
   c. Tense
   d. Anxious
   e. So anxious that I almost break out in a sweat or almost feel physically sick
4. You are in the dentist's chair to have your teeth cleaned. While you are waiting and the dentist is getting out the instruments with which to scrape your teeth around the gums, how do you feel?
   a. Relaxed
   b. A little uneasy
   c. Tense
   d. Anxious
   e. So anxious that I almost break out in a sweat or almost feel physically sick
5. In general, do you feel uncomfortable or nervous about receiving dental treatment?
   a. Yes
   b. No

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Clinical signs of moderate anxiety

Reception area

Questions to receptionist regarding injections or use of sedation
Nervous conversations with other patients in waiting room
History of emergency dental care only
History of canceled appointments for nonemergency treatment
Cold, sweaty palms

In dental chair

Unnaturally stiff posture
Nervous play with tissue or handkerchief
White-knuckle syndrome
Perspiration on forehead and hands
Overwillingness to cooperate with doctor
Quick answers

ASA physical status classification system

- **ASA I**: A normal, healthy patient without systemic disease
- **ASA II**: A patient with mild systemic disease
- **ASA III**: A patient with severe systemic disease that limits activity but is not incapacitating
- **ASA IV**: A patient with incapacitating systemic disease that is a constant threat to life
- **ASA V**: A morbid patient not expected to survive 24hour with or without an operation
- **ASA E**: emergency operation of any variety, with E preceding the number to indicate the patient's physical status (e.g.:ASA E-III)

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Dental referral letter

Dear Doctor:

The patient who bears this note is undergoing long-term chronic hemodialysis treatment because of chronic kidney disease. In providing dental care to this patient, please observe the following precautions:

1. Dental treatment is most safely done 1 day after the last dialysis treatment or at least 8 hours thereafter. Residual heparin may make hemostasis difficult. (Some patients are on long-term anticoagulant therapy.)
2. We are concerned about bacteremic seeding of the arteriovenous shunt devices and heart valves. We recommend prophylactic antibiotics before and after dental treatment. Antibiotic selection and dosage can be tricky in renal failure.

We recommend 3 g of amoxicillin 1 hour before the procedure and 1.5 g 6 hours later. For patients with penicillin allergies, 1 g of erythromycin 1 hour before the procedure and 500 mg 6 hours later is recommended.

Sincerely,