

Medical Emergencies Update 2018



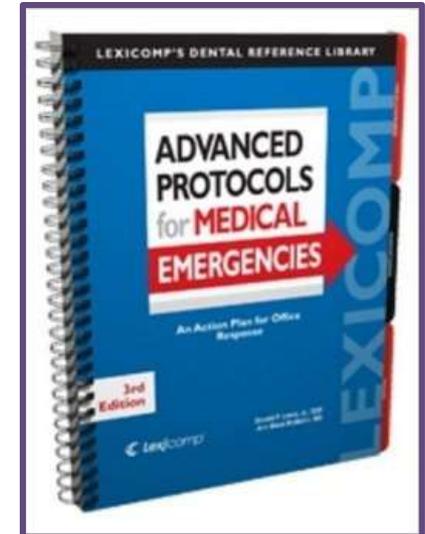
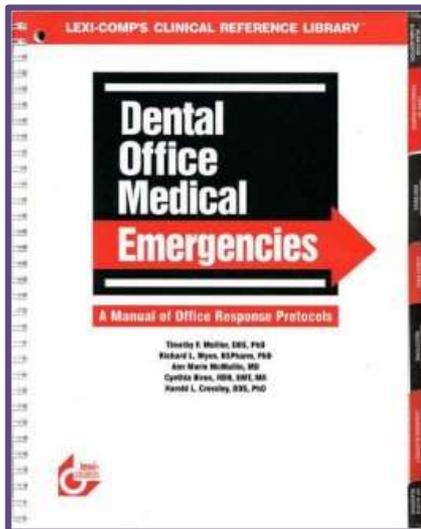
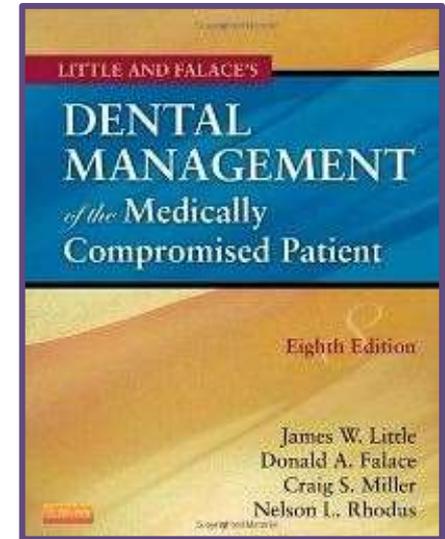
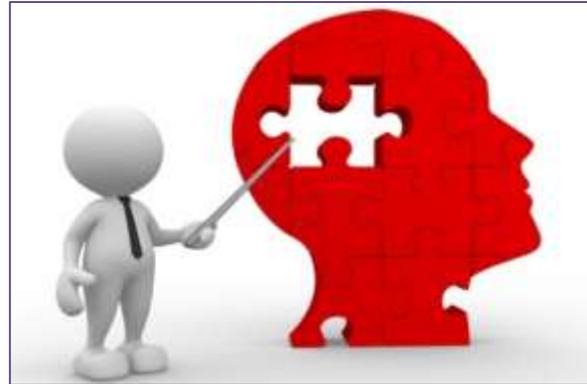
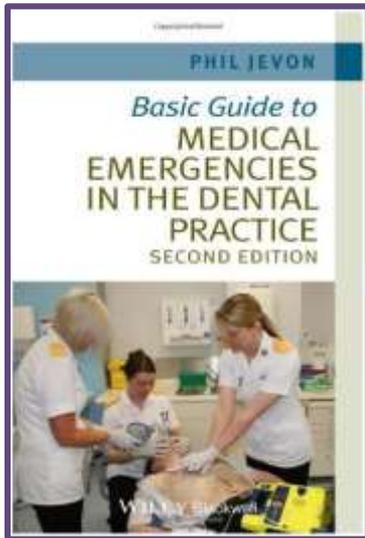
Professional Responsibility



- A moral or legal obligation to ensure the safety or well being of others.

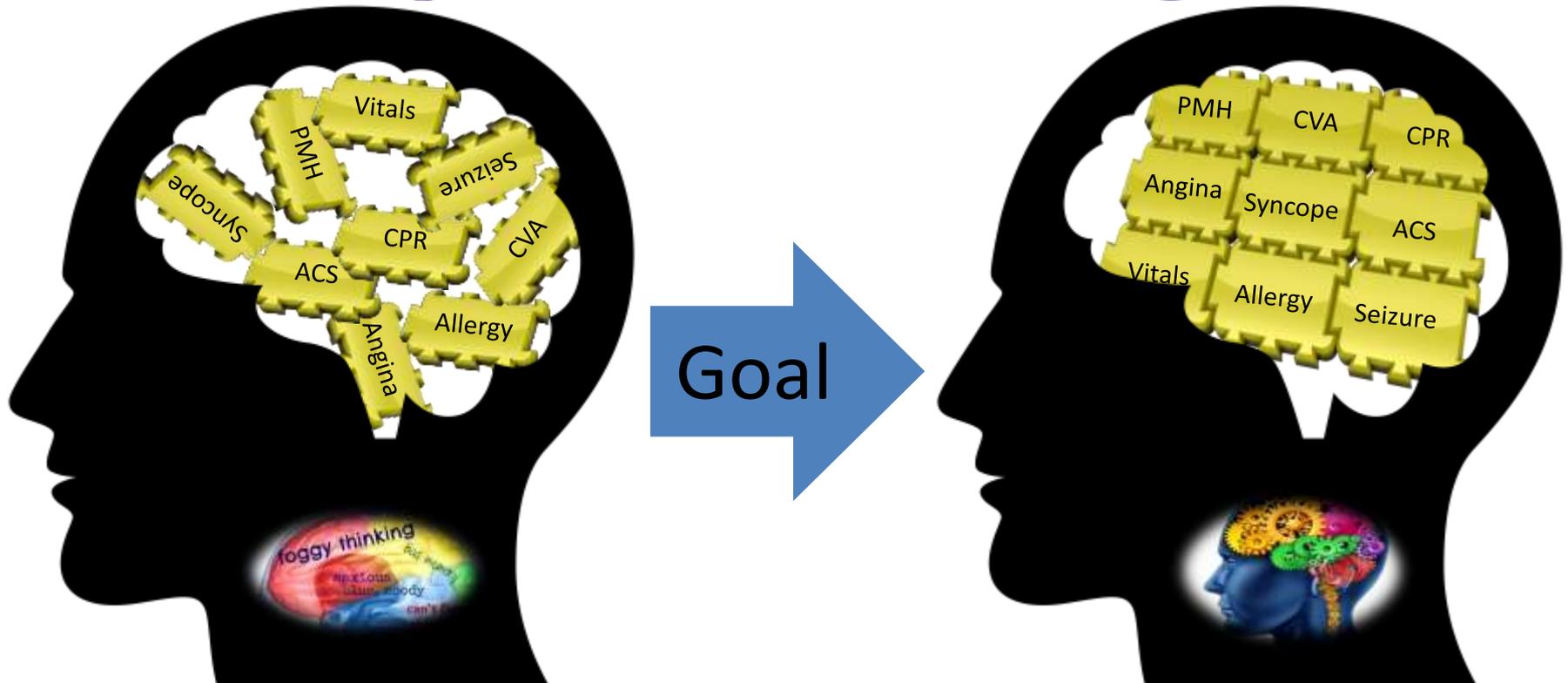


Medical Emergencies Update 2018



Medical Emergencies Update 2018

TRAIN THE BRAIN



Misconceptions about Med Emerg

The Five Deadly Misconceptions

- A medical emergency will not happen to me.
- A medical emergency will not happen in my office.
- Calling EMS/9-1-1 is the answer.
- My staff and I will not panic during a medical emergency.
- CPR is all we need to know



IMEP - Six Links of Survival



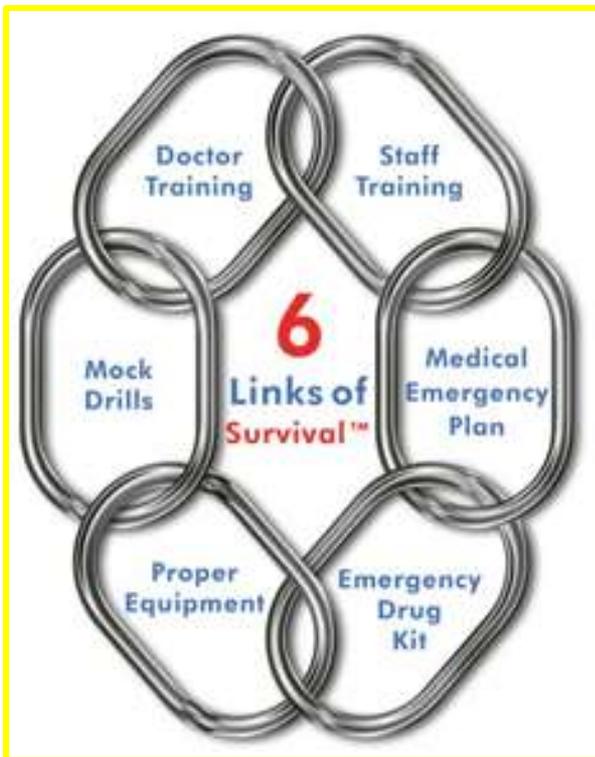
The average response time for medical emergency services (EMS) to respond to a 911 call can be **11 minutes** in an urban setting and **15 minutes** in a rural setting.



IMEP - Six Links of Survival

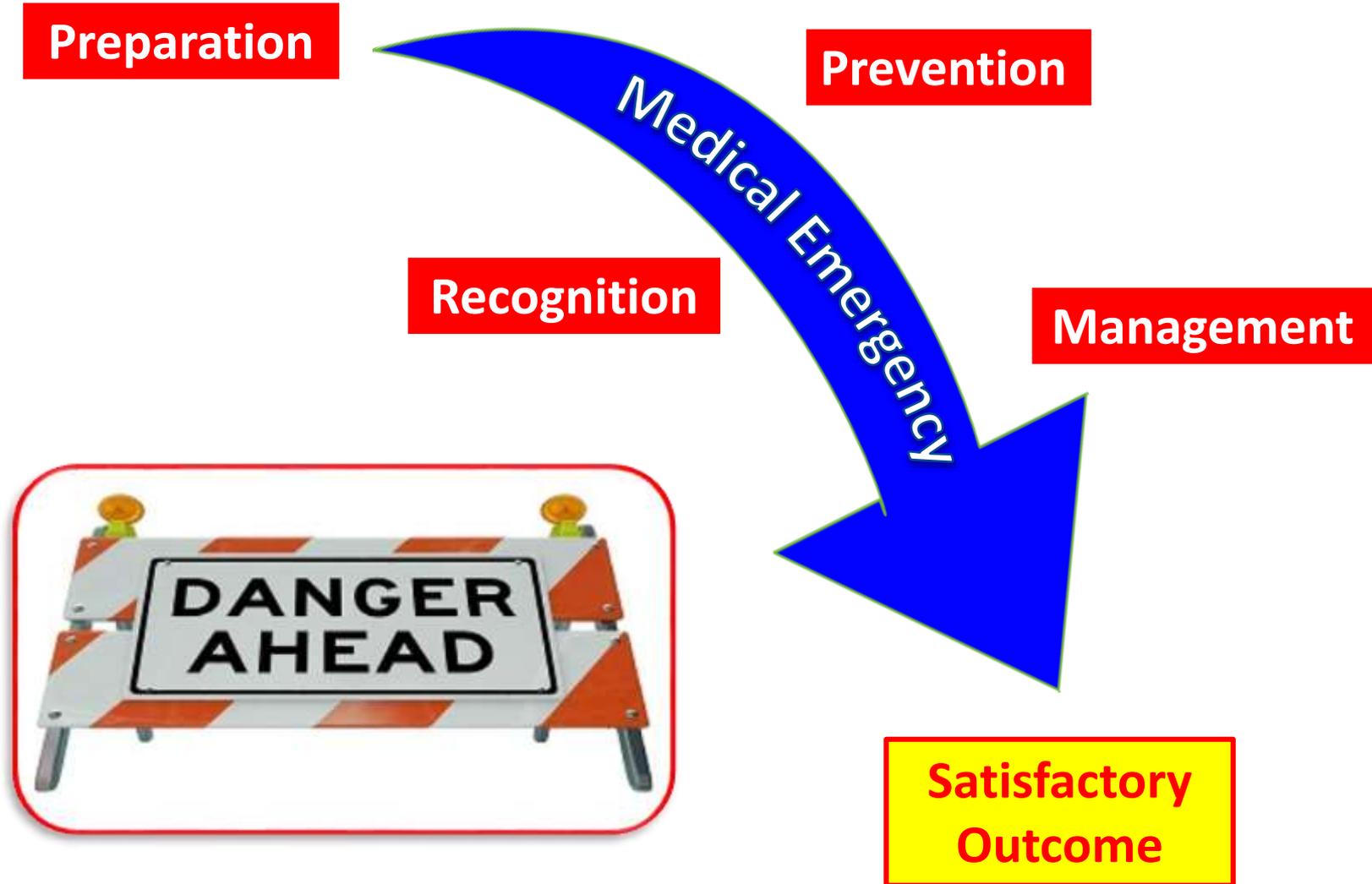


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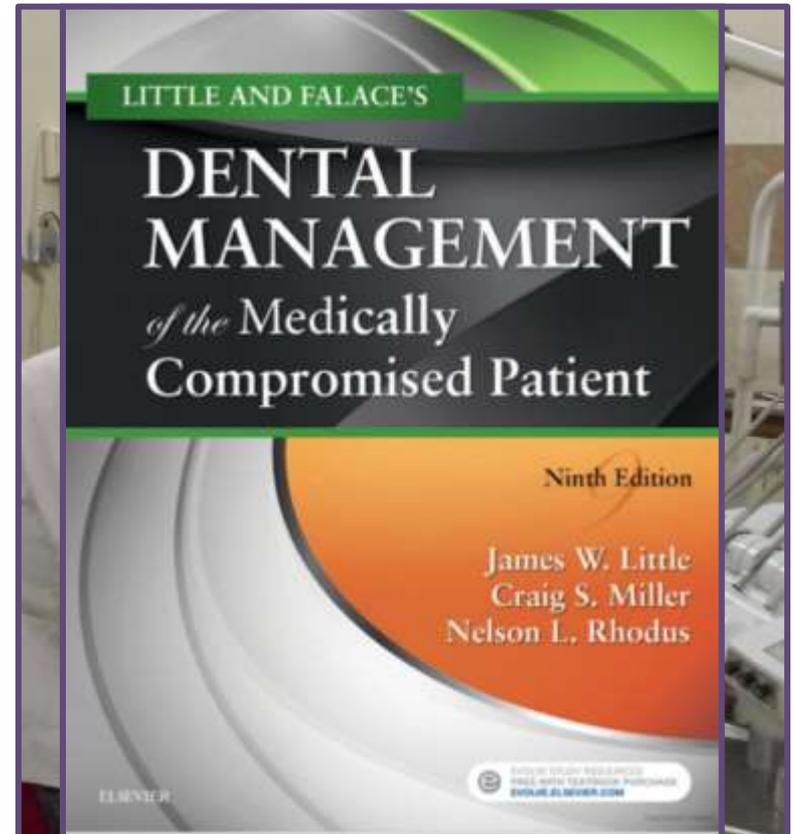
1. Doctor training
2. Staff training
3. Medical emergency plan
4. Emergency drug kit
5. Proper equipment
6. Mock drills

Basic Outline for Lecture



Medically Complicated Patients

- ✓ Cardiac Disease
- ✓ Diabetes Mellitus
- ✓ Renal Dialysis
- ✓ Organ Transplants
- ✓ Immune Disorders
- ✓ Liver Failure
- ✓ Anticoagulated Pt

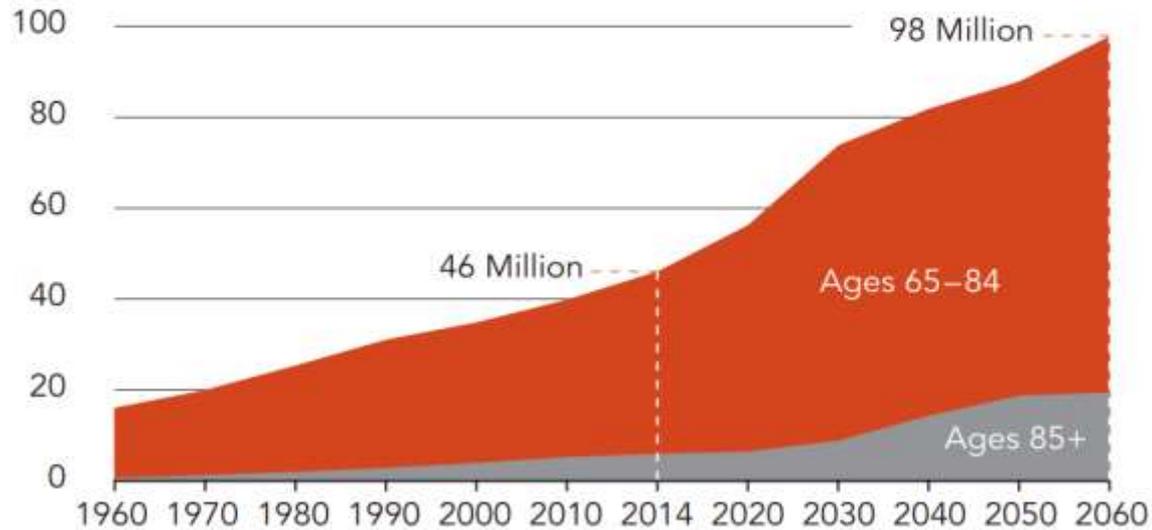


Here Come The Baby Boomers



The Number of Americans Ages 65 and Older Will More Than Double by 2060.

U.S. Population Ages 65 and Older, 1960 to 2060 (Millions)



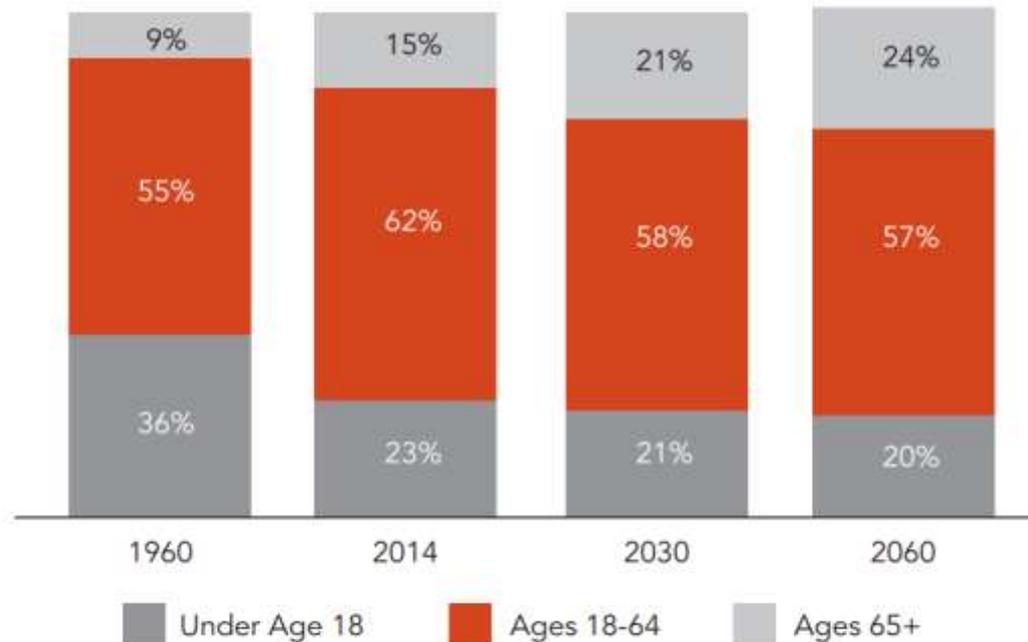
Source: PRB analysis of data from the U.S. Census Bureau.

Here Come The Baby Boomers



By 2060, Nearly One-Quarter of Americans Will Be Ages 65 and Older.

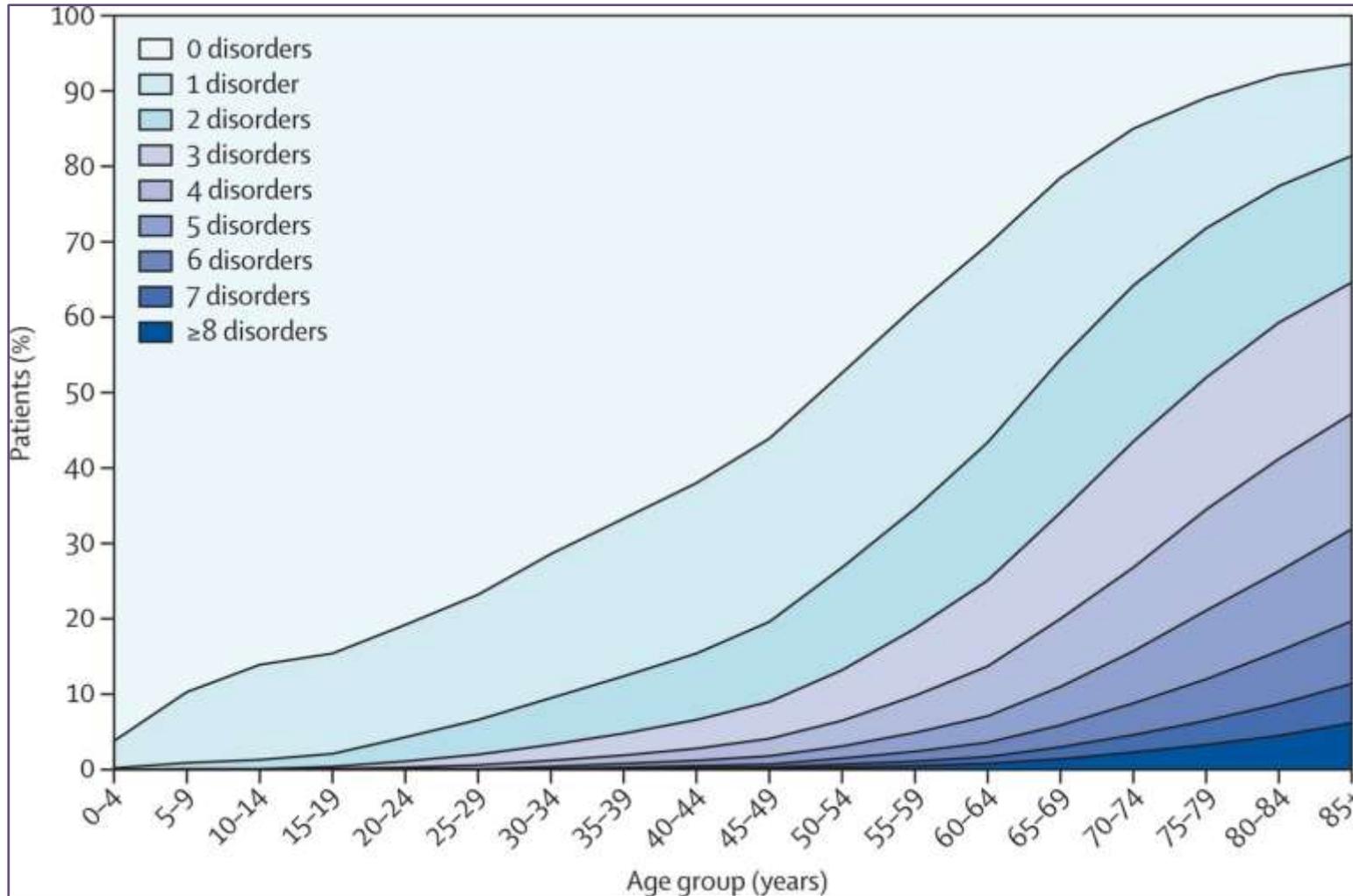
Percent of U.S. Population in Selected Age Groups, 1960 to 2060



Note: Numbers may not sum to 100 due to rounding.

Source: PRB analysis of data from the U.S. Census Bureau.

“↑Age => Multimorbidity”

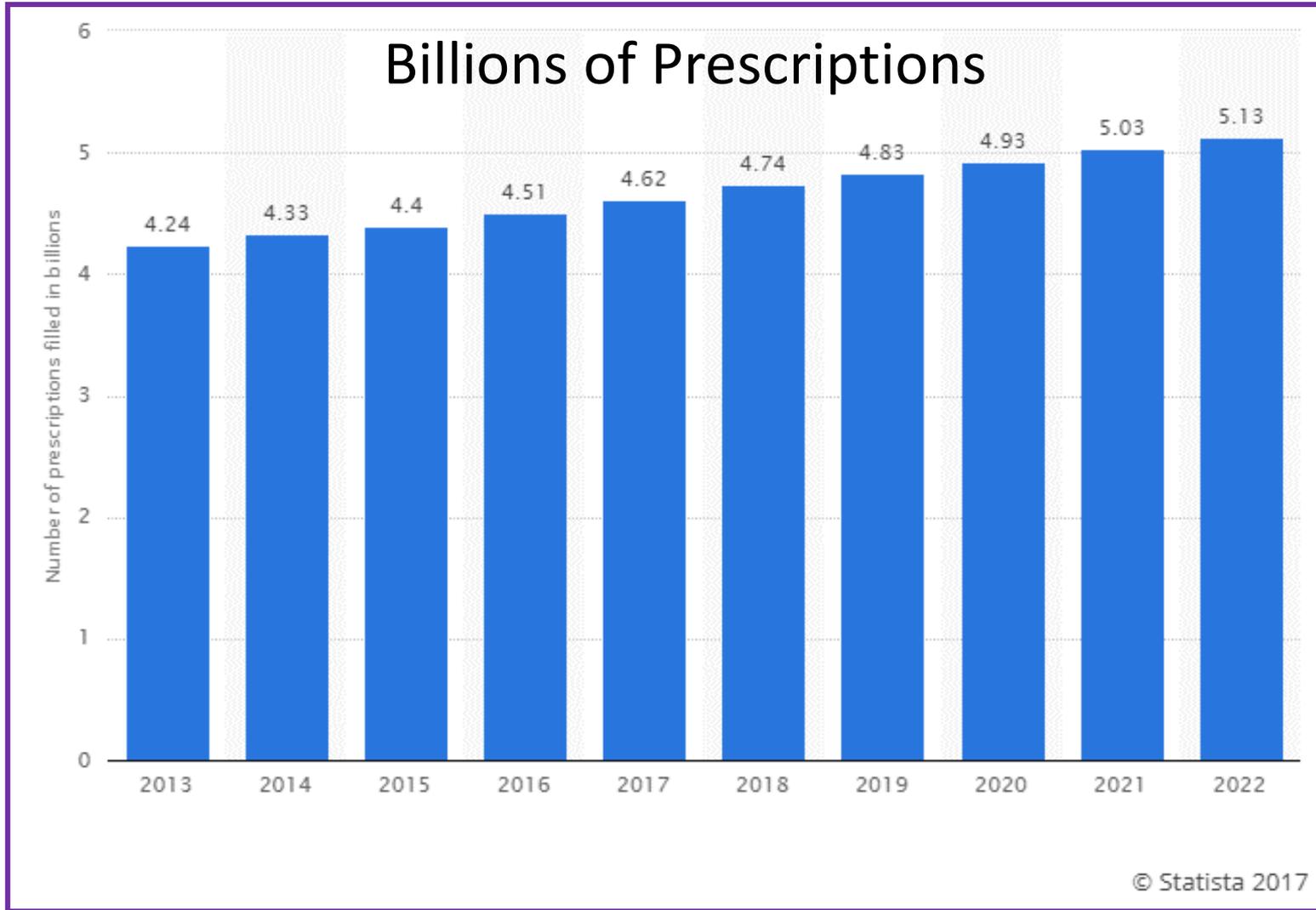


Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study. The Lancet 2012, 380:37-43

A Pill Cures All – The American Way

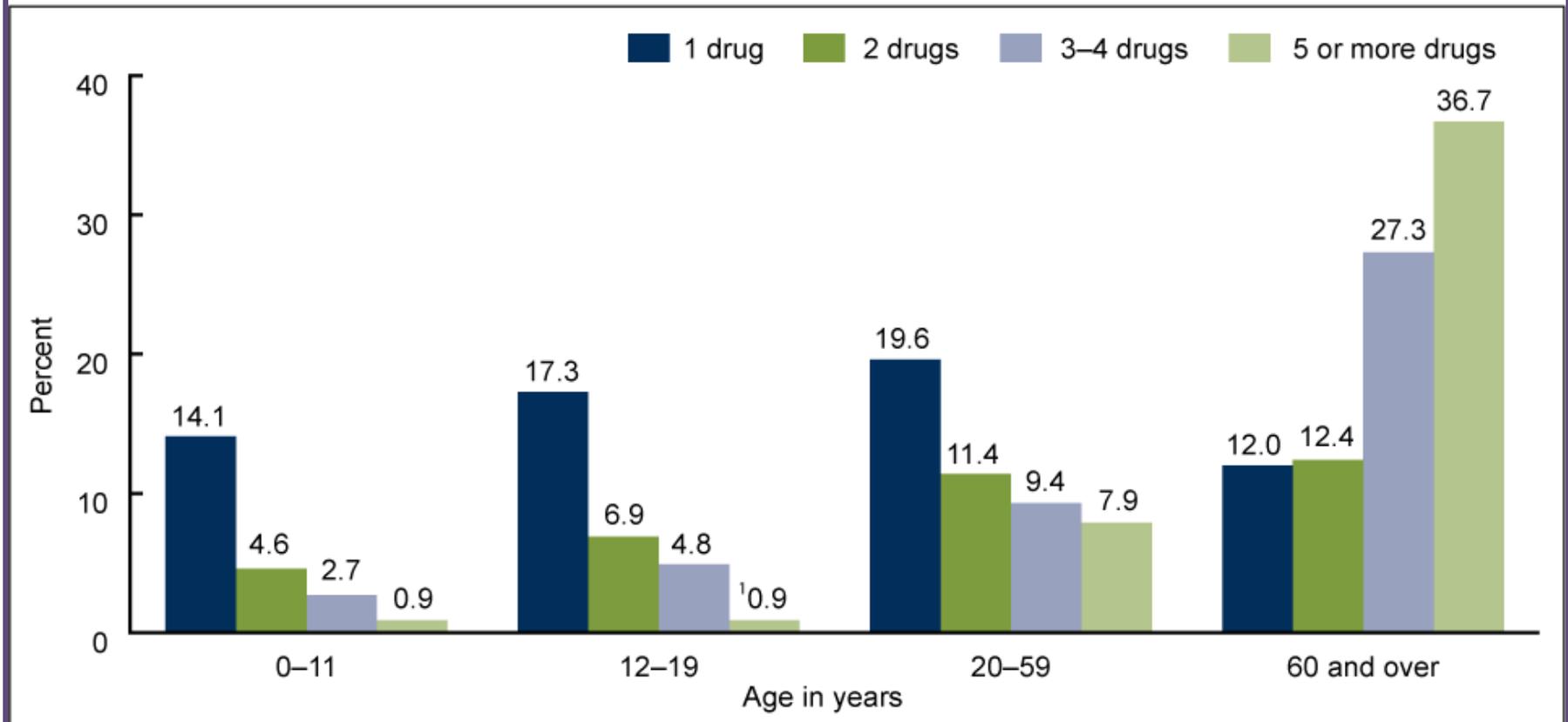


A Pill Cures All – The American Way



Polypharmacy

Figure 2. Percentage of prescription drugs used in the past month, by age: United States, 2007–2008



¹Estimate is unstable; the relative standard error is greater than 30%.
SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey.

Those older patients are also using more drugs !

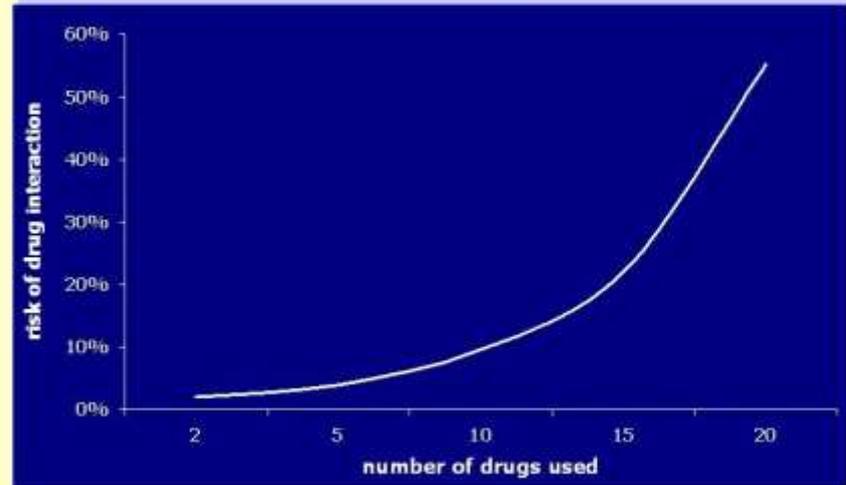
Polypharmacy



Polypharmacy leads to...

- Adverse drug reactions
- Drug-drug interactions
- Decreased medication compliance
- Poor quality of life
- Unnecessary drug expense

Probability of drug interaction



Probability of drug interaction rises with the number of drugs patient uses

Older patients
+ Multimorbidities
+ Polypharmacy
+ Longer appts
+ Invasive procedures
More Emergencies

Looking at the Road Ahead



Frequency of Med Emerg in Dental Office

Journal of Family & Community Medicine

Official publication of the Saudi Society of Family and Community Medicine

Medical emergencies encountered in dental clinics: A study from the Eastern Province of Saudi Arabia

[Mostafa Alhamad](#), [Talib Alnahwi](#), [Hassan Alshayeb](#), [Ali Alzayer](#), [Omran Aldawood](#), [Adeeb Almarzoug](#), and [Muhammad A. Nazir](#)

Medical emergencies encountered	N (%)
Vasovagal syncope	77 (53.1)
Orthostatic hypotension	31 (21.3)
Adverse drug reactions	11 (7.8)
Asthmatic attack	16 (11)
Hypoglycemia	65 (44.8)
Foreign body aspiration	8 (5.5)
Seizures	24 (16.6)
Heart-related problems	12 (8.3)
Other medical emergencies	10 (7)

Rating of CPR* courses	N (%)
Excellent	19 (13)
Very good	55 (38)
Fair	59 (40.7)
Poor	10 (6.9)
Very poor	2 (1.4)

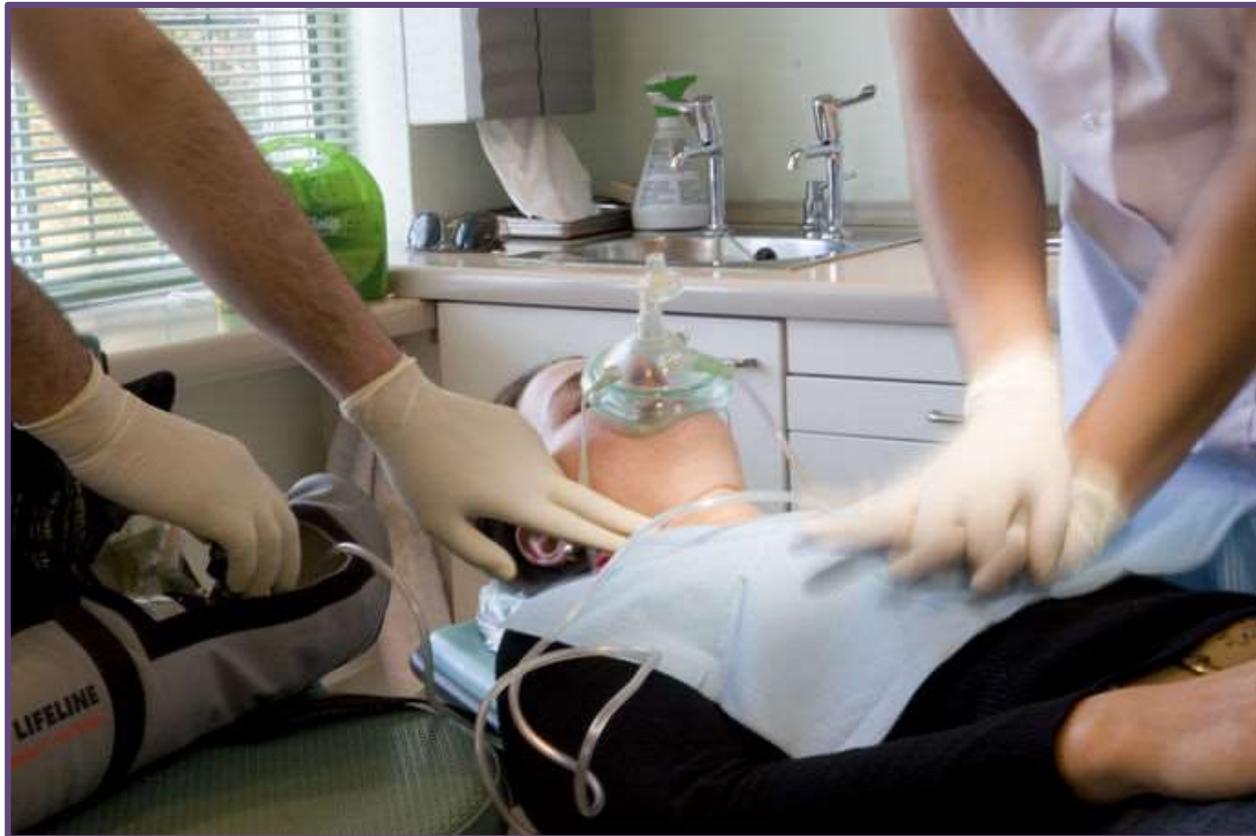
*CPR: Cardiopulmonary resuscitation

Frequency of Med Emerg in Dental Office

Medical Emergencies in Dental Practice - A Nepalese study

Dr Sandhya Joshi,¹ Dr Sudeep Acharya²

¹Lecturer, ²Associate Professor, Dept. of Oral & Maxillofacial Surgery, KIST Medical College,
Lalitpur, Nepal



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**Table 2: Distribution of responses regarding
'type of emergency event'**

Type of emergency situation (N=46)	Percentage (%)
Syncope	71.7
Hypoglycemia	6.5
Seizures	4.4
Allergic reaction	4.4
Not specified	13.0

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**Table 1: Distribution of responses regarding
'management of emergency situation'**

Can manage emergency situation in dental practice (N=124)	Percentage (%)
Extremely Well	1.6
Very Well	8.1
Well	34.7
Not Very well	50.0
Not at all	3.2
No response	2.4

Frequency of Med Emerg in Dental Office

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Table 3: Distribution of responses regarding 'type of procedure when emergency occurred'

Dental procedures when emergency occurred (N=46)	Percentage (%)
Extraction	69.6
Root canal treatment	8.7
Minor oral surgery	4.3
Restoration	2.2
Oral prophylaxis	2.2
Local anesthesia	2.2
Non-response	10.8

What precipitates the medical emergency

**Stress is a common etiologic factor
in emergency situations**



Frequency of Med Emerg in Dental Office

TABLE 1-7 Medical emergencies occurring among British dentists in a 12-month period

Emergency situation	Percentage of dentists reporting emergency	Number of cases reported
Vasovagal syncope	63	596
Angina pectoris	12	53
Hypoglycemia	10	54
Epileptic fit (seizure, convulsion)	10	42
Choking	5	27
Asthma	5	20
Cardiac arrest	0.3	1

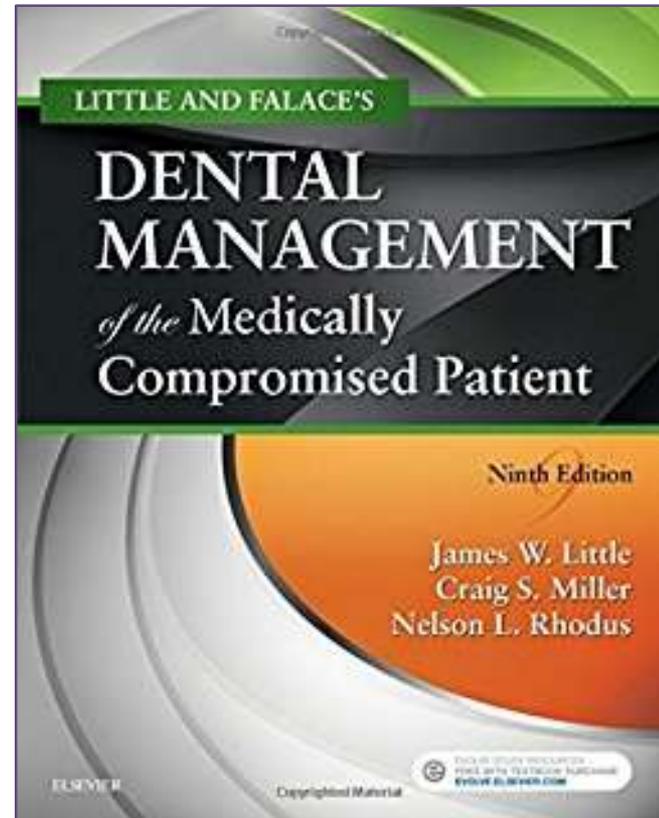
Data from Jevon P: Updated guidance on medical emergencies and resuscitation in the dental practice, *Br Dent J* 212:41–43, 2012.

*Office
Preparation*

Office Preparation

The components of a sound medical emergency plan for the dental office should include:

- ✓ Medical emergency prevention



Office Preparation

The components of a sound medical emergency plan for the dental office should include:

- ✓ Medical emergency prevention
- ✓ Development of an action plan



Dental office emergency team

DUTIES OF TEAM MEMBER #1

- Provide BLS as indicated
- Remain with the victim
- Alert office staff members

DUTIES OF TEAM MEMBER #2

- Bring emergency drug kit, O₂, and AED to emergency site
- Check O₂ daily
- Check emergency kit weekly
- Check AED weekly

DUTIES OF TEAM MEMBER #3

- Assist with BLS
- Monitor vital signs
- Prepare emergency drugs for administration
- Activate EMS system
- Assist as needed
- Maintain records
- Meet rescue team at building entrance and escort to office

Office Preparation

The components of a sound medical emergency plan for the dental office should include:

- ✓ Medical emergency prevention
- ✓ Development of an action plan



1. State YOUR name, the name of The DOCTOR'S name, PRACTICE location and crossroads.

2. State the patients, SYMPTOMS, STATUS of the Patient, whether CONSCIOUS of UNCONSCIOUS, STABLE or UNSTABLE, ALERT, etc.

3. State the ENTRANCE into the practice. State whether the entrance is blocked, obstructed, etc.

4. State that someone will greet them.

5. Remember to stay on the phone until told to hang up!

6. Communicate to your team leader that EMS has been summoned and wait...

Office Preparation

- ✓ The components of a sound medical emergency plan for the dental office should include:
- ✓ Medical emergency prevention
- ✓ Development of an action plan
- ✓ Recognizing a patient's distress and management of medical emergencies

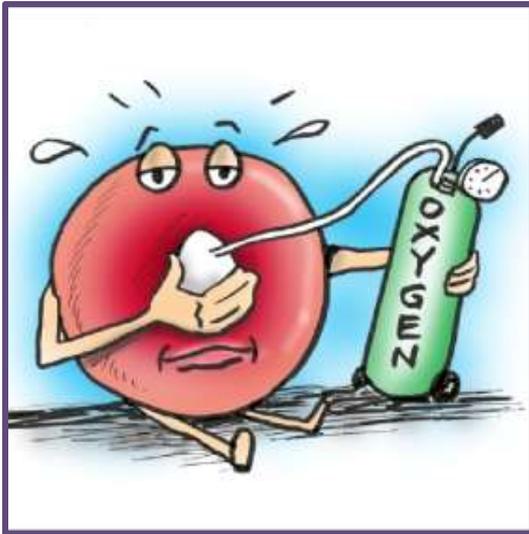


***Emergency
Equipment***

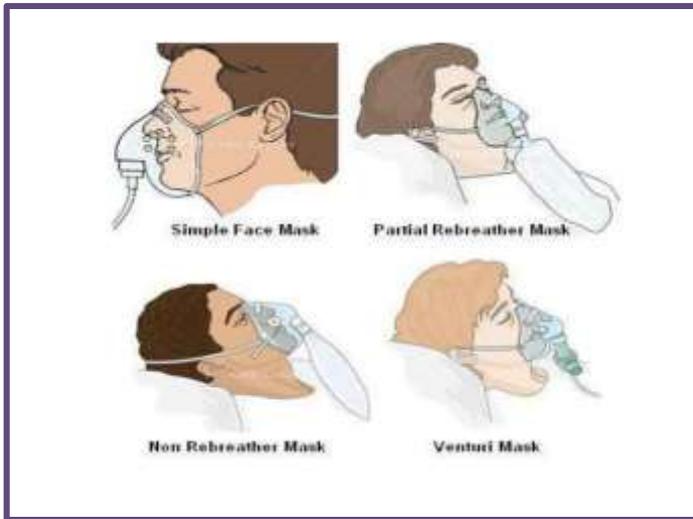
Critical Emergency Equipment

Equipment	Recommended	Alternative	Quantity
Oxygen delivery system	Positive pressure and demand valve	O ₂ delivery system with bag-valve-mask device	Minimum: 1 large adult, 1 child
	Pocket mask		1 per employee
Automated electronic defibrillator (AED)	Many		1 AED
Syringes for drug administration	Plastic disposable syringes with needles		3×2-mL syringes with needles for parenteral drug administration
Suction and suction tips	High-volume suction	Nonelectrical suction system	Office suction system
	Large-diameter, round-ended suction tips		Minimum 2
Tourniquets	Robber or Velcro tourniquet; rubber tubing	Sphygmomanometer	3 tourniquets and 1 sphygmomanometer
Magill intubation forceps	Magill intubation forceps		1 pediatric Magill intubation forceps

Basic Emergency Equipment

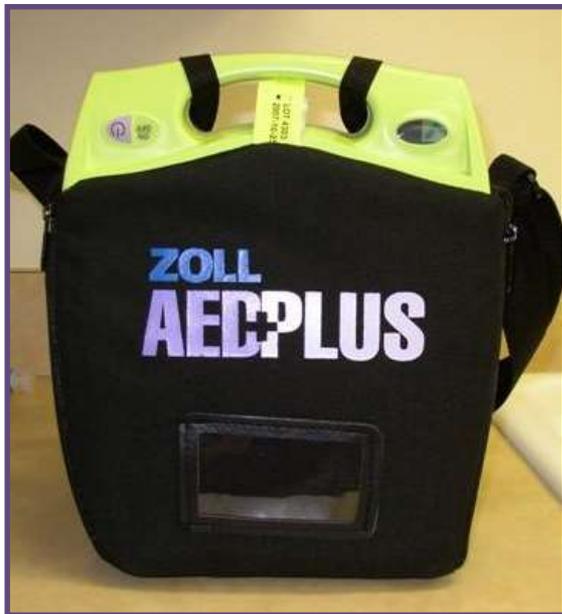


Technique	% oxygen delivered
Mouth-to-mouth	16
Mouth-to-mask	16
Bag-valve-mask	21
Bag-valve-mask + supplemental O ₂	>21 to <100
Positive pressure O ₂	100



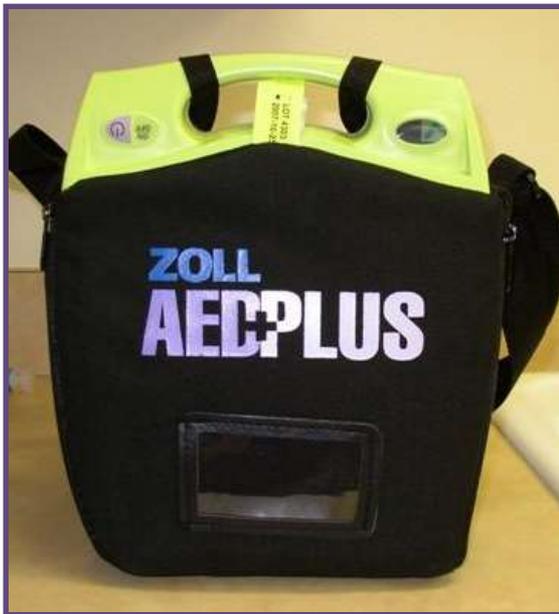
Basic Emergency Equipment

Automated External Defibrillator (AED)



Basic Emergency Equipment

Automated External Defibrillator (AED)



ZOLL AED Plus Value Package



This item qualifies for **FREE SHIPPING!**

7 YEAR Manufacturer's Warranty

\$1,699.00

Product Code: BUS-PKG-PLUS

Special Offer!

Choose your options:

Alarm Options:

Choose Display Option:

Choose SEMI or FULLY Automatic:

Additional Pads and Battery:

***Emergency
Drugs***

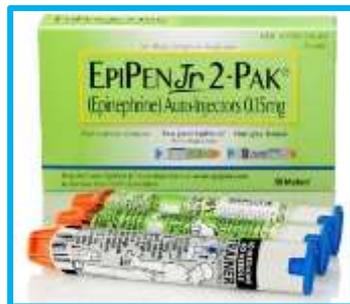
Critical Emergency Drugs

Category	Generic drug	Proprietary drug	Alternative	Quantity	Availability
INJECTABLE					
Allergy— anaphylaxis	Epinephrine	Adrenalin	None	1 preloaded syringe+3× 1-mL ampules	1:1000 (1 mg/mL)
Allergy—histamine blocker	Diphenhydramine	Benadryl	Chlorpheniramine (Chlor-Trimeton)	3×1-mL ampules	50 mg/mL
NONINJECTABLE					
Oxygen	Oxygen	Oxygen		1 “E” cylinder	
Vasodilator	Nitroglycerin	Nitroglycerin spray	NitroStat sublingual tablets	1 metered spray bottle	0.4 mg/metered dose
Bronchodilator	Albuterol	Proventil, Ventolin, Proair, Respirol, Volmax	Metaproterenol	1 metered-dose inhaler	Metered-dose aerosol inhaler
Antihypoglycemic	Sugar	Orange juice, nondiet soft drink	Insta-Glucose gel	1 bottle	
Inhibitor of platelet aggregation	Aspirin	Many	Clopidogrel (Plavix)	2 packets of powdered aspirin	325 mg/dose

EpiPen 2-Pak[®]



Category	Generic Drug	Proprietary Drug	Alternative	Quantity	Availability
Allergy - anaphylaxis - ADULT > 30 kg (66 lbs)	Epinephrine	Adrenalin	None	2 preloaded autoinjector syringes	0.3 mg/syringe
Allergy - anaphylaxis - PEDIATRIC 15-30 kg (33-66 lbs)	Epinephrine	Adrenalin	None	2 preloaded autoinjector syringes	0.15 mg/syringe



15 - 30 kg / 33-66 lbs

> 30 kg / > 66 lbs

Epinephrine Autoinjector Instructions

- 1** Form fist around **EpiPen®** and **PULL OFF BLUE SAFETY CAP.**



- 2** **POSITION ORANGE END** about 10cm away from outer mid-thigh*.

* Either clothed, or unclothed, avoiding seams and pocket areas.



- 3** **SWING AND JAB ORANGE TIP** into thigh at 90° angle and hold in place for 10 seconds.



- 4** **REMOVE EpiPen®** Massage injection site for 10 seconds*.

*After use the orange needle cover automatically extends to cover the injection needle.



“Non-Critical” Emergency Drugs

Category	Generic drug	Proprietary drug	Alternative	Quantity	Availability
INJECTABLE					
Anticonvulsant	Midazolam	Midazolam	Diazepam	1×5-mL or 10-mL vial	5 mg/mL
Analgesic	Morphine sulfate	Generic	N ₂ O-O ₂	3×1-mL ampules	10 mg/mL
Vasopressor	Ephedrine	Generic		3×1-mL ampules	50 mg/mL
Antihypoglycemic	50% dextrose		Glucagon	1 vial	50-mL ampule
Corticosteroid	Hydrocortisone sodium succinate	Solu-Cortef	Dexamethasone	2×2-mL mix-o-vial	50 mg/mL
Antihypertensive	Esmolol	Brevibloc	Labetalol	2×100-mg/mL vial	100 mg/mL
Anticholinergic	Atropine	Generic	Scopolamine	3×1-mL ampules	0.5 mg/mL
NONINJECTABLE					
Respiratory stimulant	Aromatic ammonia	Generic		2 boxes	0.3 mL/Vaporole
Antihypertensive	Hydralazine		Nitroglycerin	1 bottle	25 mg tablets

“Antidotal” Emergency Drugs

These drugs should be maintained in the emergency drug kit only as warranted by the nature of the dental practice.

Category	Generic drug	Proprietary drug	Alternative	Quantity	Availability
INJECTABLE					
Opioid antagonist	Naloxone	Narcan	Nalbuphine	2×1-mL ampules	0.4 mg/mL
Benzodiazepine antagonist	Flumazenil	Romazicon		1×10-mL vial	0.1 mg/mL
Anticholinergic toxicity Antiemergence delirium	Physostigmine	Antilirium		3×2-mL ampules	1 mg/mL
Vasodilator	Phentolamine	Regitine	Procaine	2×1-mL ampules	5 mg/mL

***Prevention of
Medical
Emergencies***

Prevention of Med Emerg

Recognition of risk

HEALTH HISTORY

To our patients: Although we suggest primarily that the area is addressed prior to visit, your health is part of your entire body. Health problems that you may have, or medications that you may be taking, could have an important relationship with the care that you will be receiving. Please fill in answering the following questions. Your answers are for our records only and will be considered confidential.

Reason for today's office visit:

1. **Height** _____ **Weight** _____ Are you in good health? Yes No

2. Have there been any changes in your general health in the past year? Yes No

3. Are you under the care of a physician? Yes No **Date of last visit** _____

If so, for what are you being treated?

4. How you feel (breast, abdomen or lower back) in the past five years? Yes No

If so, describe:

5. Do you have diabetes / recurrent sores or inflamed areas, growths or sore spots in or around your mouth? Yes No

If so, describe where:

6. Do you have a sensitive joint (ankle)? Yes No **If so, describe where:**

7. How you feel a heart valve replacement or aortic graft? Yes No

8. How you or a family member had any unusual or unusual reactions to general anesthesia? Yes No

9. Has a physician or previous dentist recommended that you take antibiotics prior to any dental treatment? Yes No

DATE YOU HAD, OR DO YOU CURRENTLY HAVE, (YES, NO)	NOTES	DATE YOU HAD, OR DO YOU CURRENTLY HAVE, (YES, NO)	NOTES
10. Pneumonia?		38. Stroke?	
11. Damaged heart valves / mitral valve prolapse?		39. Thyroid disease?	
12. Heart murmur?		40. Osteoarthritis?	
13. High blood pressure?		41. Seen blood sugar?	
14. Low blood pressure?		42. Kidney trouble?	
15. Chest pain / angina?		43. High cholesterol?	
16. Heart attack?		44. Are you an asthmatic?	
17. Irregular heart beat?		45. Swollen ankles / edema / limb disease?	
18. Cardiac pacemaker?		46. Osteoporosis / osteopenia?	
19. Heart surgery?		47. Osteoarthritis?	
20. Pneumonia, bronchitis, chronic cough?		48. Stomach ulcers / acid reflux?	
21. Asthma?		49. Orthopedic disease?	
22. Hay fever / sinus problems?		50. Sexually transmitted diseases?	
23. Strain / heavy lifting?		51. Problems with circulatory system? Possibly from medication / surgery, etc.	
24. Difficulty breathing / other lung trouble?		52. Osteoarthritis?	
25. Tuberculosis?		53. A tumor or growth?	
26. Emphysema?		54. Open / infection history / chemotherapy?	
27. Do you smoke?		55. Chronic fatigue / night sweats?	
If so, number of packs a day _____		56. Are you on a diet?	
28. Do you use chewing tobacco?		57. A history of alcohol abuse?	
29. Blood transfusion?		58. A history of drug abuse?	
30. Blood clots / clot as a result?		59. Central nervous?	
31. Bruise easily?		60. Eye disease / glaucoma?	
32. Bleeding tendency / abnormal bleed?		61. Mental health problems (depression / depression)?	
33. Head to, dizziness, or low vision?		62. A convulsive disorder (epilepsy)?	
34. Ineffective menstruation?		63. Pain or swelling of jaw when eating?	
35. Gynecologic trouble?			
36. Fertility problem?			
37. Cervical / uterine?			

WOMEN ONLY: OBSTETRICS AND GYN

34. Is there a possibility of pregnancy? Yes No

35. Expected delivery date? _____

36. Are you taking birth control pills? Yes No

37. Are you taking birth control pills? Yes No

Note: Antibiotics such as penicillins may alter the effectiveness of birth control pills. Consult your physician / gynecologist for assistance regarding other methods of birth control.

ARE YOU NOW TAKING	FIG. NO.	NOTES	ARE YOU ALLERGIC TO, OR HAD A REACTION TO, (YES, NO)	NOTES
72. Any kind of medication, drug, pills?				
73. Blood thinners (Coumadin), Pains, Aspirin, Vitamin E, Ginkgo biloba, Aggravax, Plavix, Full asil?				
74. How have you been doing lately?				
75. Any natural product, herbal supplement or nutraceuticals, seriously?				
76. Are you taking, or have you ever taken, any drugs, herbs, or nutraceuticals such as Fenofibrate, Biotin, Aspirin, H-2 Blockers, Acetaminophen or NSAIDs in the past 12 weeks?				
77. Transfusion, sleeping pills, and depressants, and/or benzodiazepines on a regular basis? If so, please list:				
78. Please list any medications you are currently taking:				
Medication: _____				
Dose/Frequency: _____				
79. Local anesthetic numbing meds, if:				
80. Penicillin?				
81. Other antibiotics?				
82. Barbiturates?				
83. Sodium pentothal / Valium / other transfusions?				
84. Anesthetics?				
85. Anesthetics?				
86. Codeine or other narcotics?				
87. Other medications?				
88. Laxatives?				
89. Soap?				
90. Eggs / yolk?				
91. Sulfa?				
92. Do you have any known allergies?				
93. Please list any allergies other than drug allergies:				

To share a family history of:

Cancer Diabetes Heart disease Anesthesia problems

Is this visit related to an accident? Yes No

If Yes, what type of accident? Automobile Work related Other

Date of injury: _____

Insurance company handling the claim: _____

Claim number: _____

Name of attorney / calculator: _____

Telephone number: _____

I certify that I have read and understood the questions above. I acknowledge that the questions, if any, about the procedures on this form above have been answered to my satisfaction. I will not hold the doctor, or any other member of his / her staff, responsible for the results or outcomes that I have made in the completion of this form.

Signature of patient / Patient or Guardian if Minor Reviewed by Date

FEES & PAYMENTS

We make every effort to keep down the cost of your care. You may help by paying your portion of your bill. Other arrangements can be made with our office manager depending upon special circumstances. An estimate of the charge for a procedure or surgery you may require will be given to you upon request. If you have any dental or other health insurance we will be glad to bill the proper forms. But please complete the identifying information on this form.

Please remember that insurance is considered a benefit of an employer. The patient is fully responsible for any bill paid to the doctor and is not a substitute for payment. Some companies pay first allowance for certain procedures and others pay a percentage of the charge. **It is your responsibility to pay any deductible amount, co-insurance or any other balance not paid for by your insurance company.** You will be responsible for all co-payments, deductibles, fees, and out-of-pocket.

Signature of patient / Patient or Guardian if Minor Date

This signature on this form authorizes the release of information necessary to process my claim. I hereby authorize payment to the doctor named on the benefits certificate payable to me.

Signature of patient / Patient or Guardian if Minor Date

AUTHORIZATION

I authorize my doctor and his / her designated staff, to perform an oral and medical examination for the purpose of diagnosis and treatment planning. Furthermore, I authorize the giving of all x-rays required as a necessary part of this examination. In addition, if and only necessary, I authorize the release of any information acquired in the course of my examination and treatment to my other doctors under their care.

Signature of patient / Patient or Guardian if Minor Where Date Date

I hereby acknowledge that a copy of this office's Notice of Privacy Practices has been made available to me. I have been given the opportunity to see any questions I may have regarding this notice.

Signature of patient / Patient or Guardian if Minor Date

Comprehensive Medical History

✓ **Past Medical History**

✓ **Review of Systems**

✓ **Current Medications**

✓ **Past Hospitalizations**

✓ **Medication Allergies**

Vital Signs – BP & Pulse



Blood Pressure – “Hypertension” JNC-8

Hypertension Today: JNC-8 Evidence-Based Guidelines



December 5, 2017

The New 2017 ACC/AHA Guidelines “Up the Pressure” on Diagnosis and Treatment of Hypertension

Philip Greenland, MD^{1,2}; Eric Peterson, MD, MPH^{3,4}

Blood Pressure – “Hypertension” JNC-8

Hypertension Today: JNC-8 Evidence-Based Guidelines

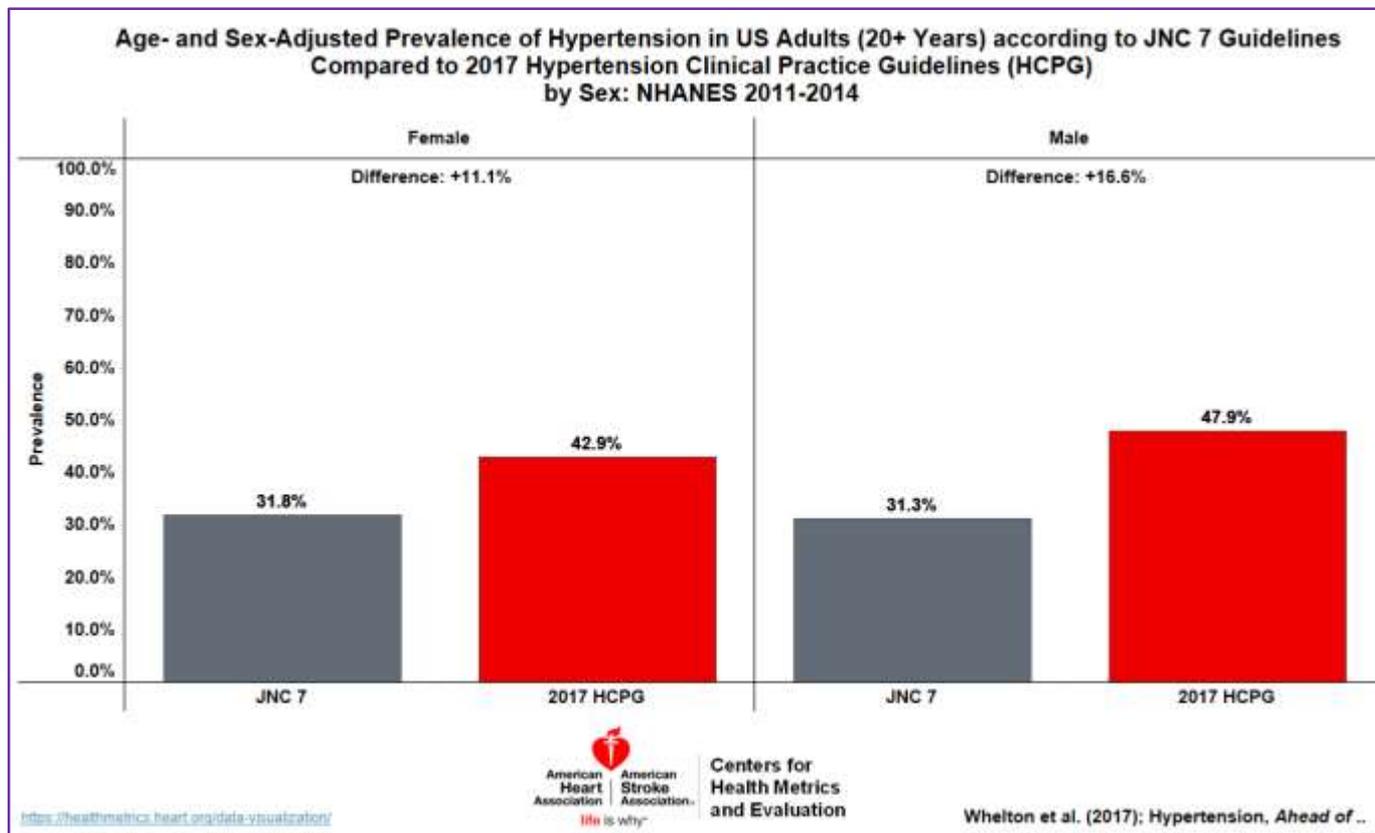
Blood Pressure Categories



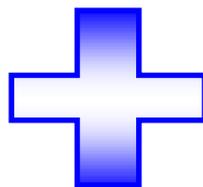
BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

Blood Pressure – “Hypertension” JNC-8

Hypertension Today: JNC-8 Evidence-Based Guidelines



Hypertension in the Dental Office



Is it safe
to treat
you
today ?

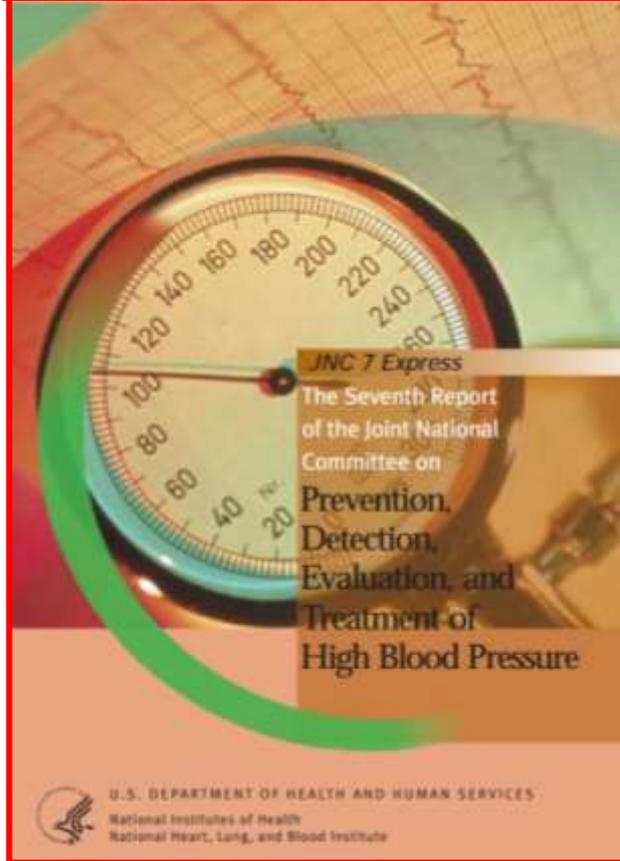
**BP = 178/96 – Should
we treat the patient?**

Hypertension in the Dental Office

JNC 7

Medical Risk Factors (MRF)

- ✓ **Prior Myocardial Infarction**
- ✓ **IHD – Angina**
- ✓ **High coronary disease risk**
- ✓ **Recurrent stroke prevention**
- ✓ **Diabetes**
- ✓ **Kidney disease**



Hypertension in the Dental Office

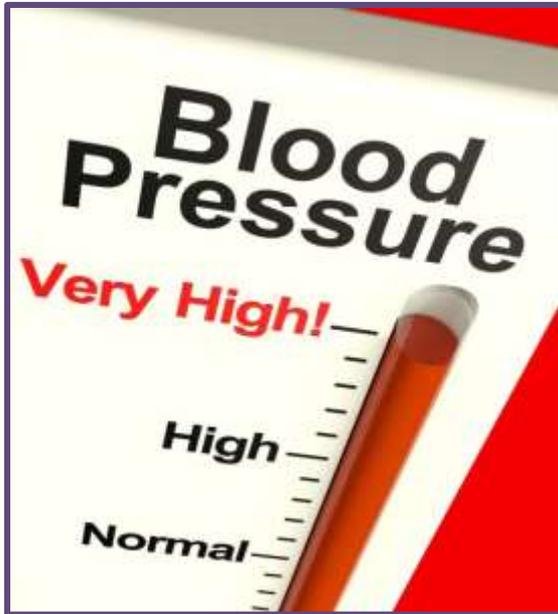
Dental Treatment and Blood Pressure

SBP	DBP	MRF*	Dentist Guidelines
120-139	80-89	Yes/No	Routine Tx OK; Discuss HTN guidelines
140-159	90-99	Yes/No	Routine Tx OK; Refer for Med/Consult
160-179	100-109	No	Routine Tx OK; Refer for Med/Consult
		Yes	Urgent Tx OK; Refer for Med/Consult
180-209	110-119	No	No Tx w/o consult; Refer prompt Med/Consult
		Yes	No dental Tx; Refer emergent Med/Consult
≥ 210	≥ 120	Yes/No	No dental Tx: Refer emergent Med/Consult

*MRF = Medical Risk Factors

Hypertensive Crisis

Hypertensive Urgency & Emergency



Blood Pressure Categories



BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

HYPERTENSIVE CRISIS
(consult your doctor immediately)

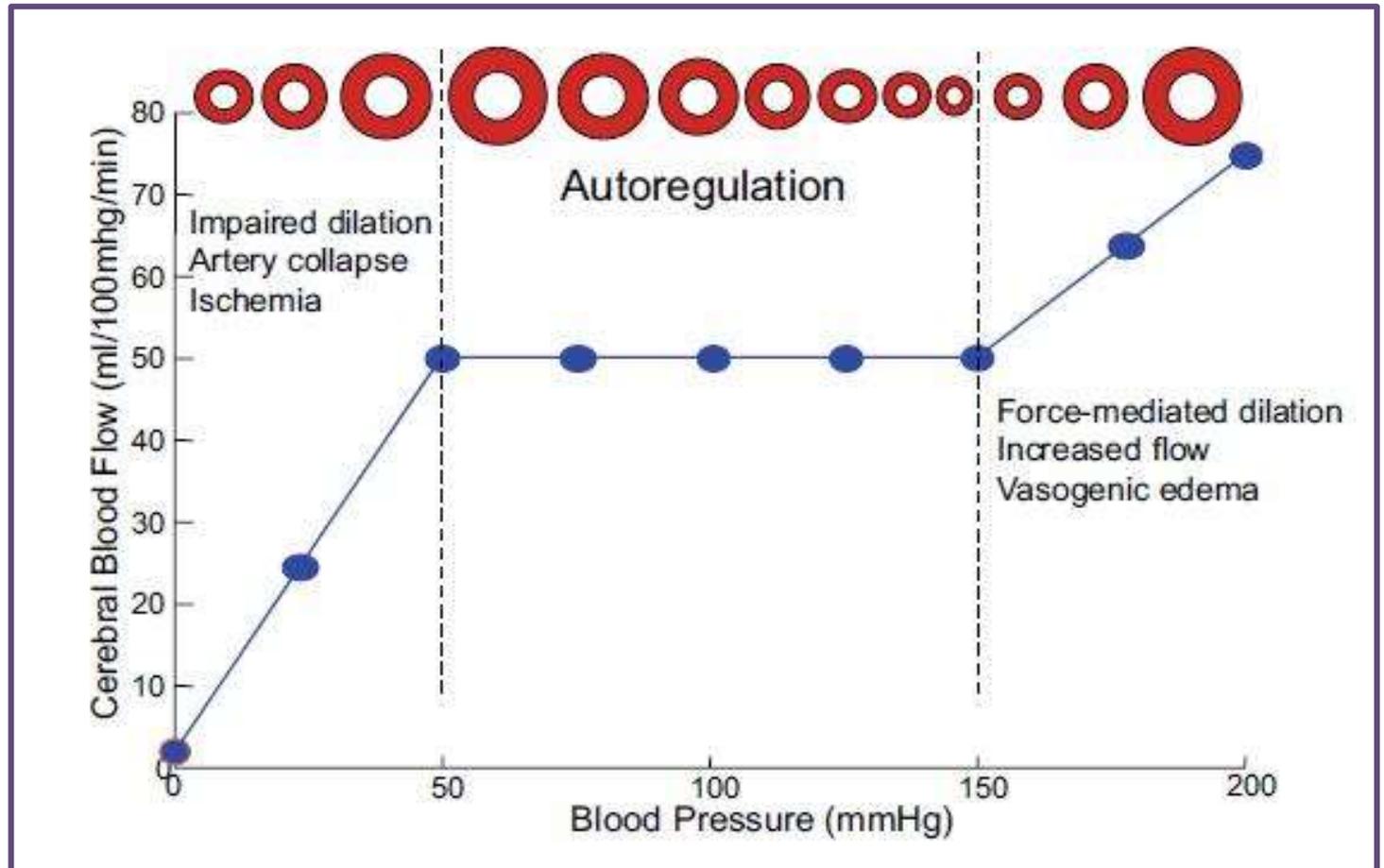
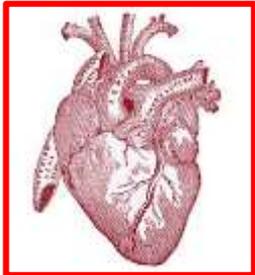
HIGHER THAN 180

and/or

HIGHER THAN 120

Hypertensive Crisis

Autoregulation of blood flow

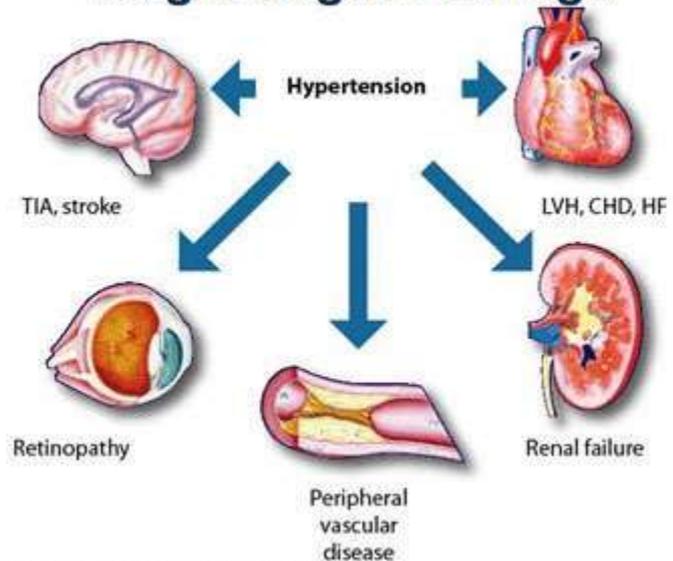


Hypertensive Crisis

Hypertensive Urgency & Emergency

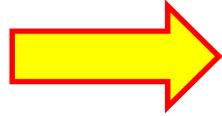


Complications of Hypertension: Target-Organ Damage

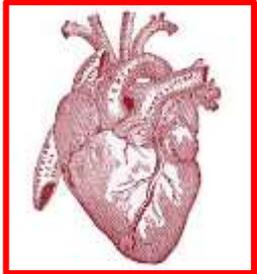


TIA, transient ischemic attack; LVH, left ventricular hypertrophy; CHD, coronary heart disease; HF, heart failure

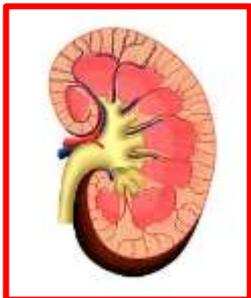
Hypertensive Crisis – End Organ Damage



**Neurological Deficit
(HTN encephalopathy, cerebral
infarction/hemorrhage)**



**Features of Acute LV Heart failure
Coronary insufficiency (Angina)
Aortic Dissection
Pulmonary Edema**



Acute Kidney failure (Anuria)

Hypertensive Crisis

Hypertensive Urgency & Emergency

Systolic BP >180 mmHg

Diastolic BP >120 mmHg

Hypertensive crisis

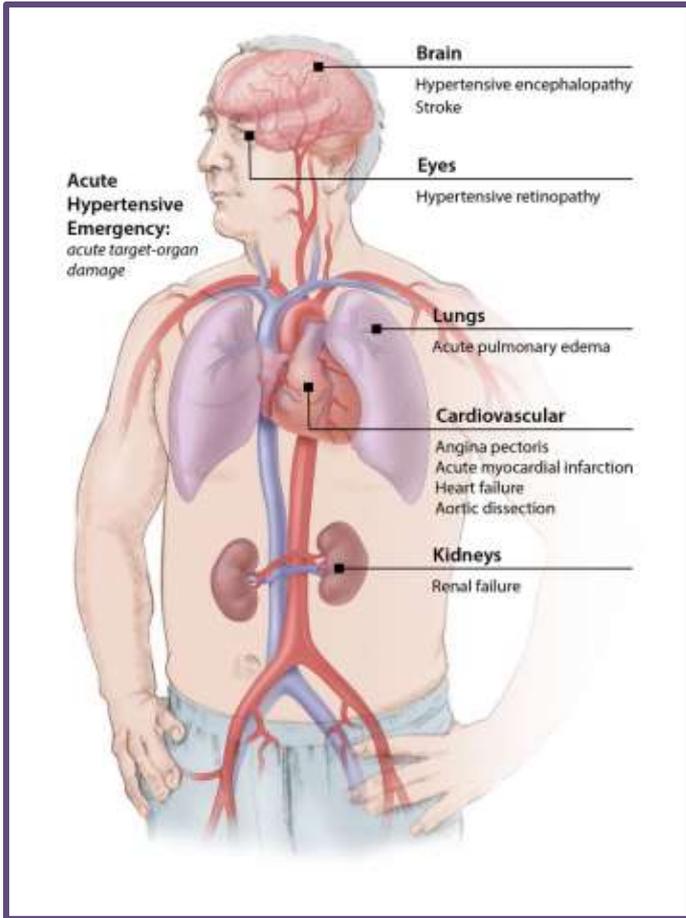
```
graph TD; A[Hypertensive crisis] -->|Yellow Arrow| B[Urgency]; A -->|Red Arrow| C[Emergency]; B --- D([End organ damage present?]); C --- D;
```

Urgency

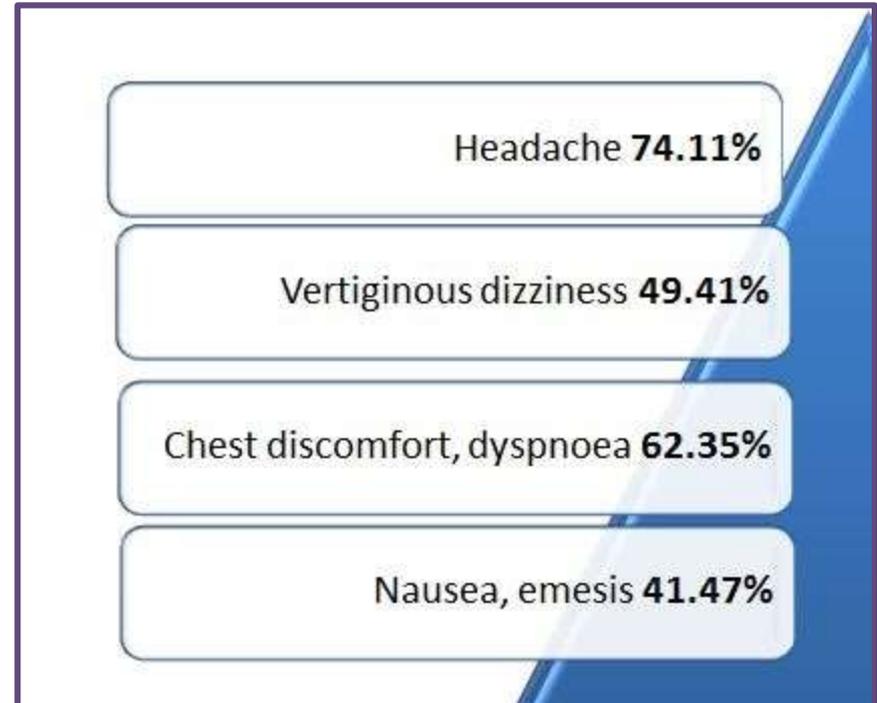
Emergency

**End organ
damage present ?**

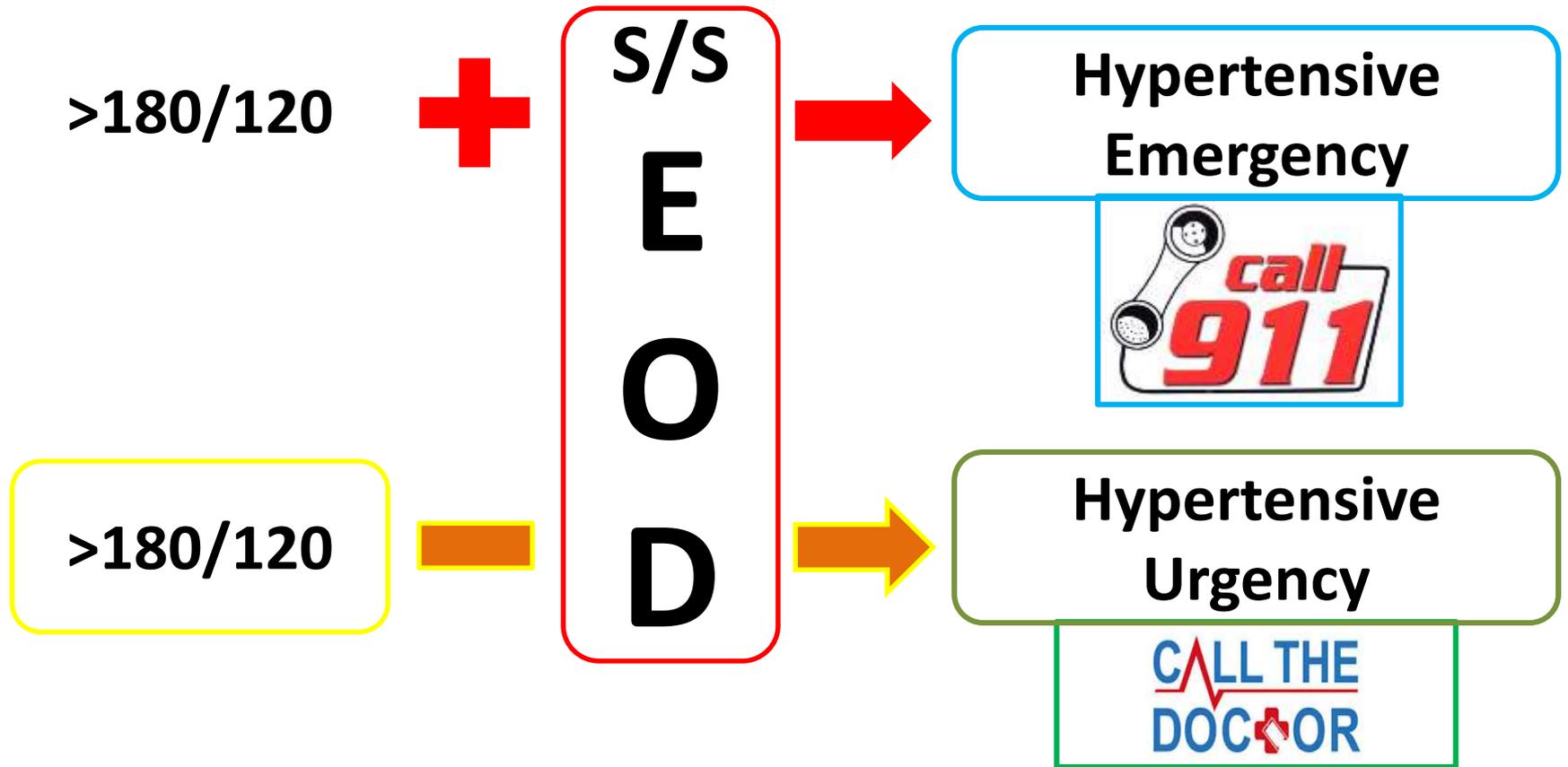
Hypertensive Crisis – End Organ Damage



S/S
E
O
D



Hypertensive Crisis



***Patient
Assessment***

Patient Assessment - P C A B D E



P

Position

C

Circulation

A

Airway

B

Breathing

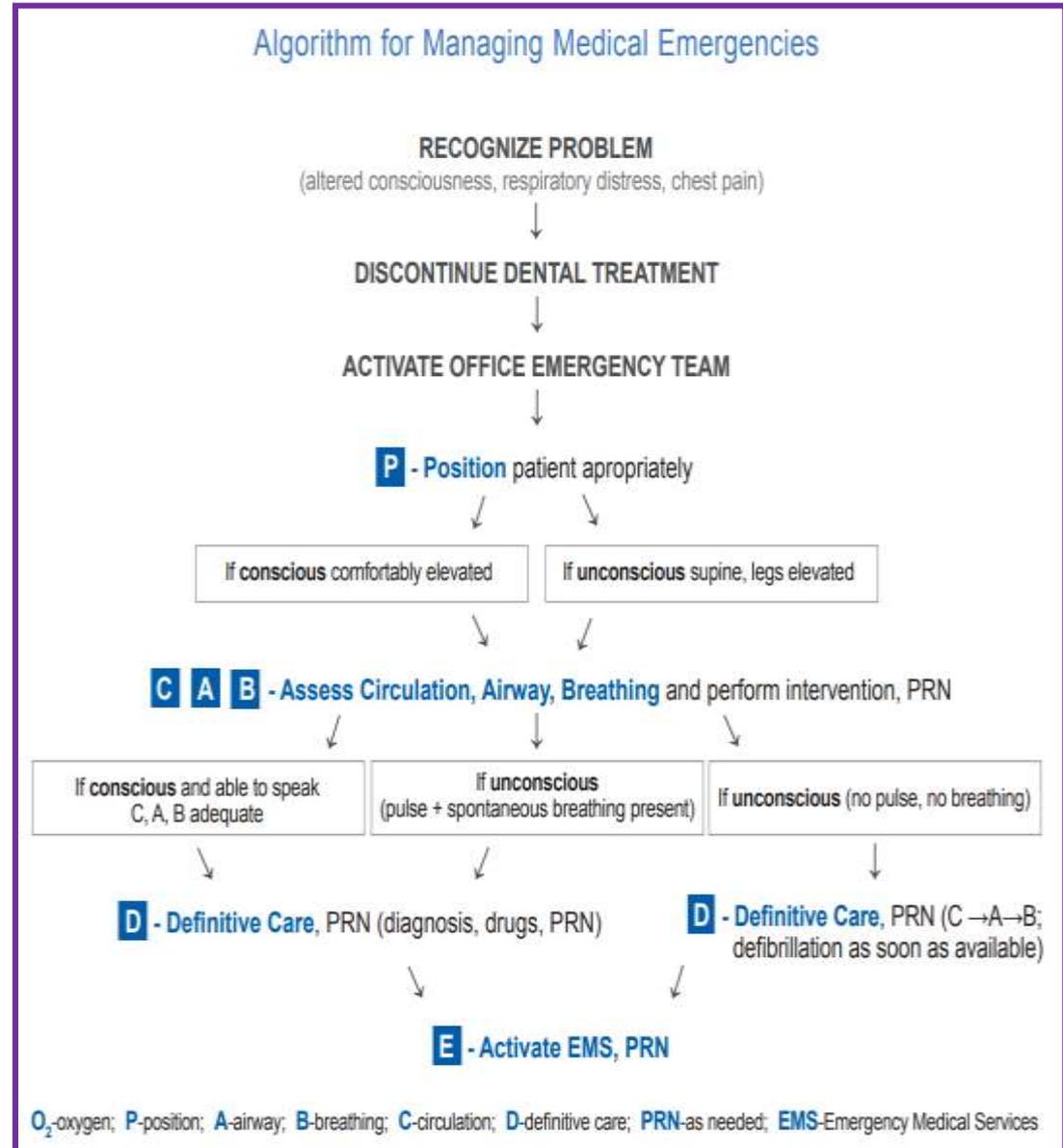
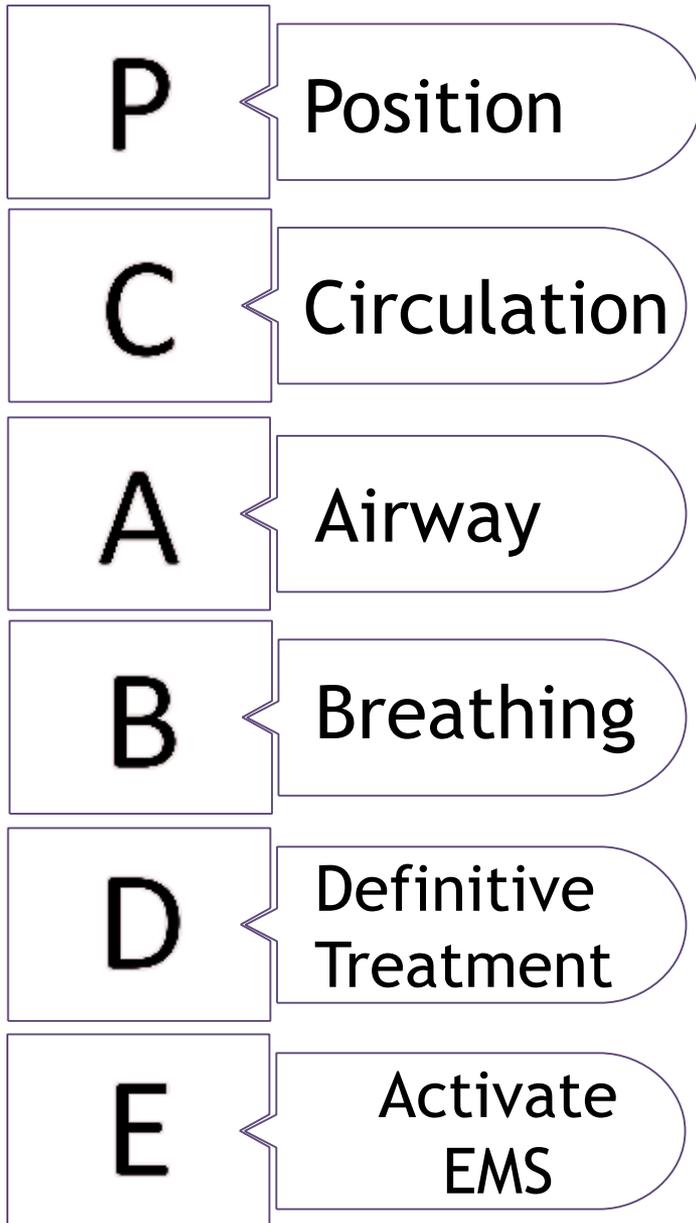
D

Definitive
Treatment

E

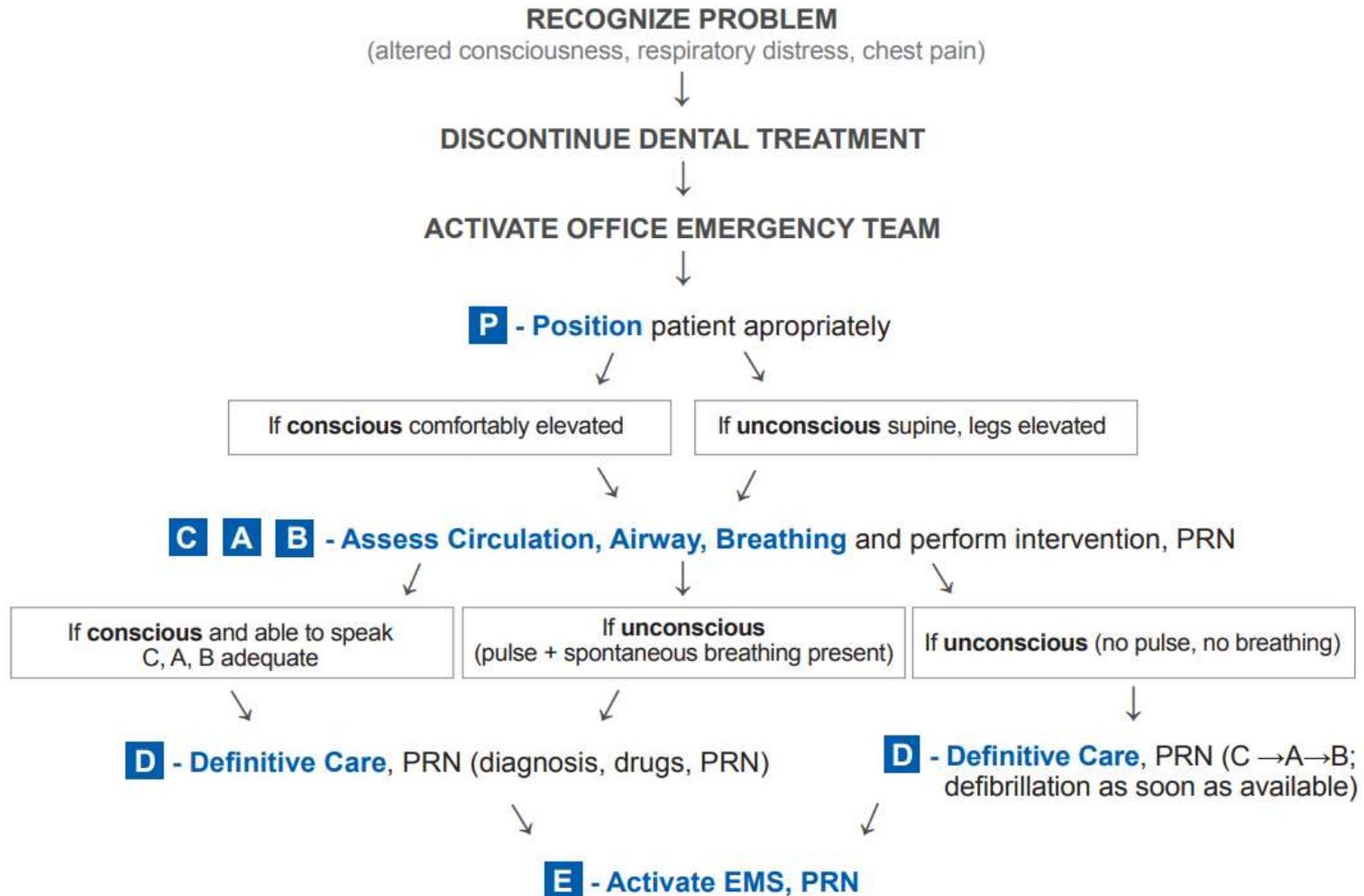
Activate
EMS ?

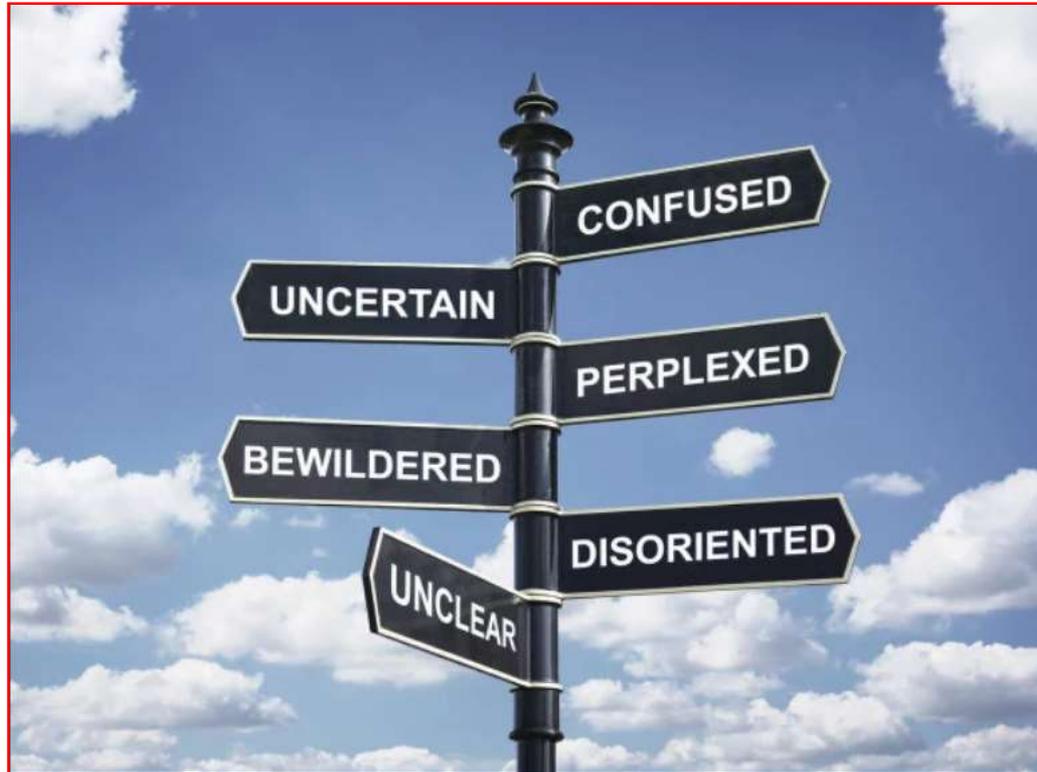
Patient Assessment - P C A B D E



Patient Management – BLS

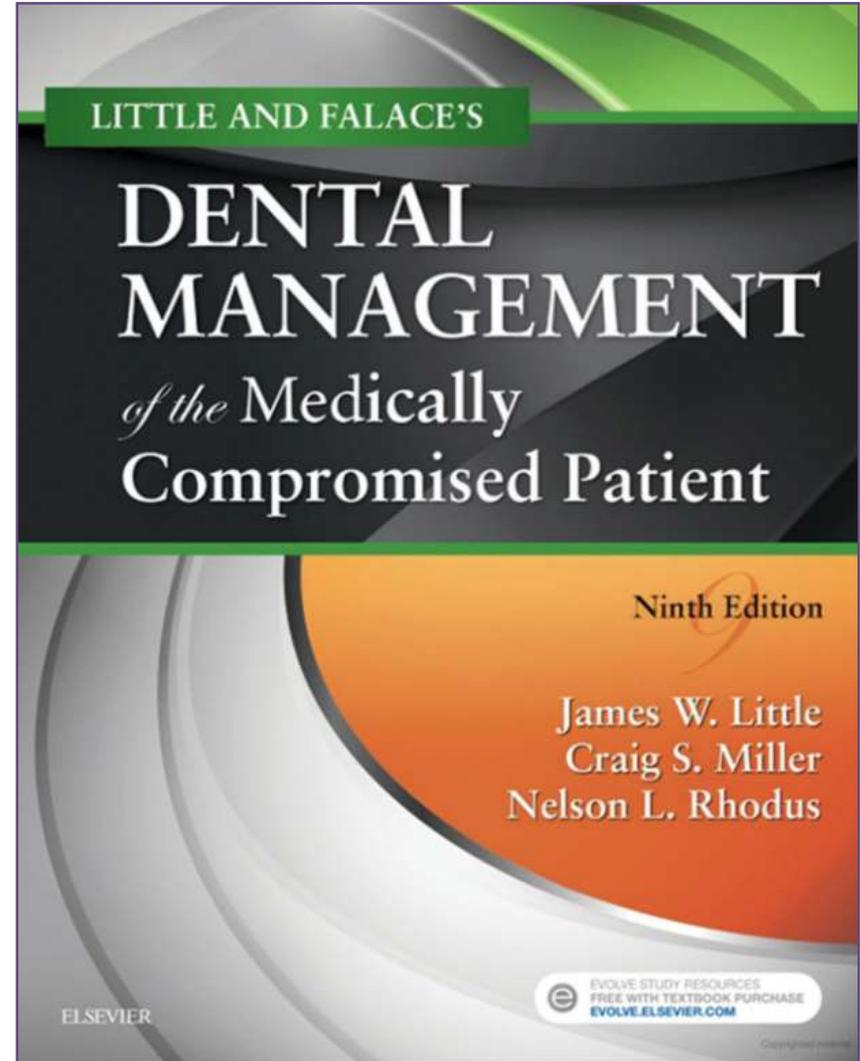
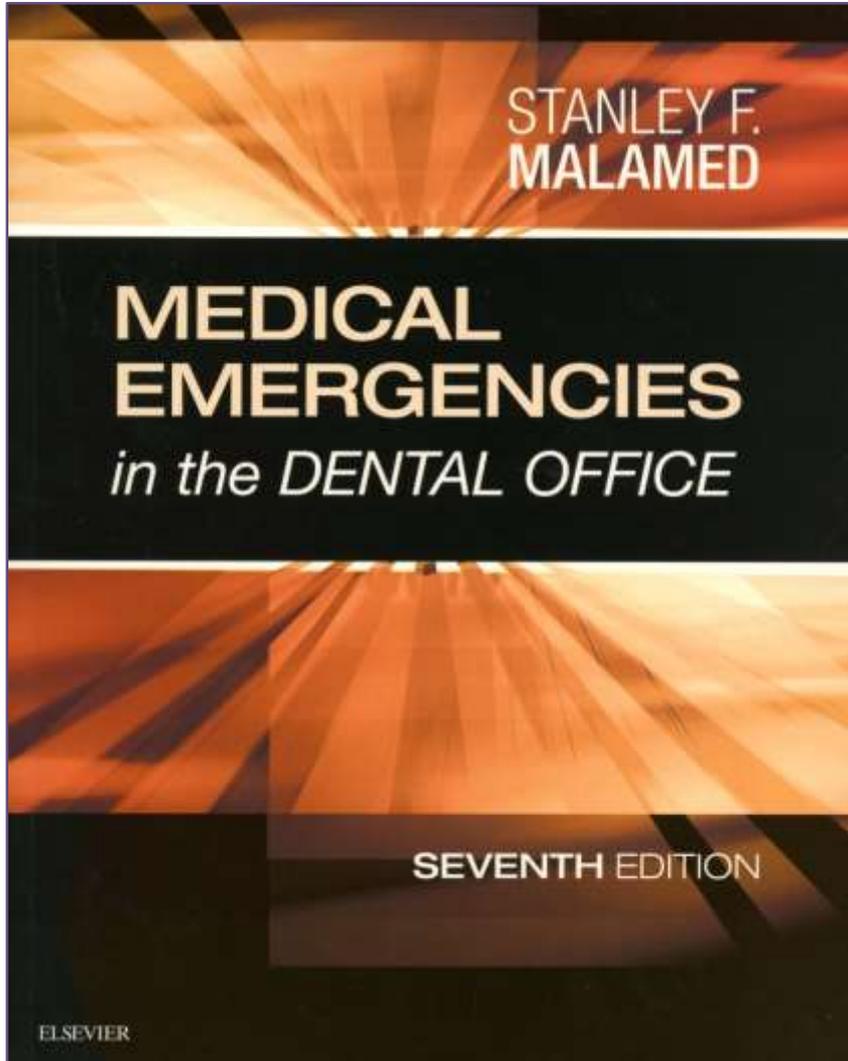
Algorithm for Managing Medical Emergencies





- 1. Unable to make diagnosis**
- 2. Know the diagnosis but are uncomfortable with it**
- 3. Whenever you think EMS is warranted**

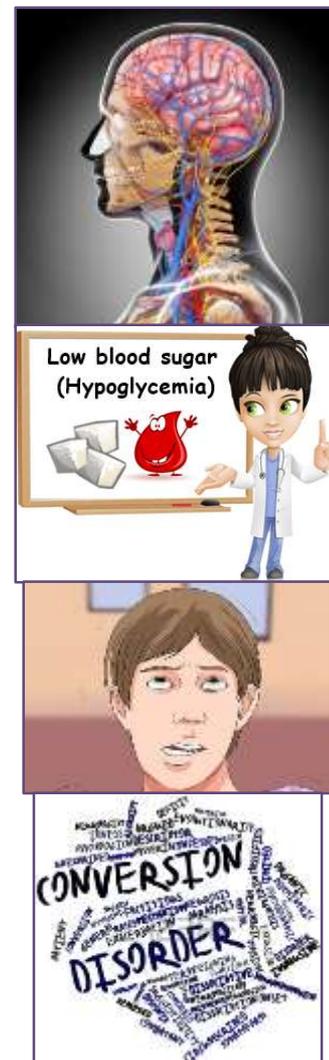
Reference Textbooks



***Unconscious
Patient***

Unconsciousness Mechanisms

- ✓ Inadequate blood flow to brain
- ✓ Inadequate oxygen to brain
- ✓ Metabolic deficiencies
- ✓ Disorders of nervous system
- ✓ Psychiatric mechanisms



Unconsciousness in the Dental Chair

Differential Diagnosis

Cause	Frequency
Vasodepressor syncope (faint)	Most common
Drug administration or ingestion	Common
Orthostatic hypotension	Less common
Epilepsy	Less common
Hypoglycemic reaction	Less common
Acute adrenal insufficiency	Rare
Acute allergic reaction	Rare
Acute myocardial infarction	Rare
Cerebrovascular accident	Rare
Hyperglycemic reaction	Rare
Hyperventilation	Rare

Basic Unconsciousness Treatment

Recognition of Unconsciousness



Position patient supine, feet elevated



Assess Circulation (Carotid pulse)

Artificial circulation if needed



Assess Breathing (Look, Listen, Feel)

Artificial ventilation if needed



Activate EMS if delayed recovery



Definitive management of cause



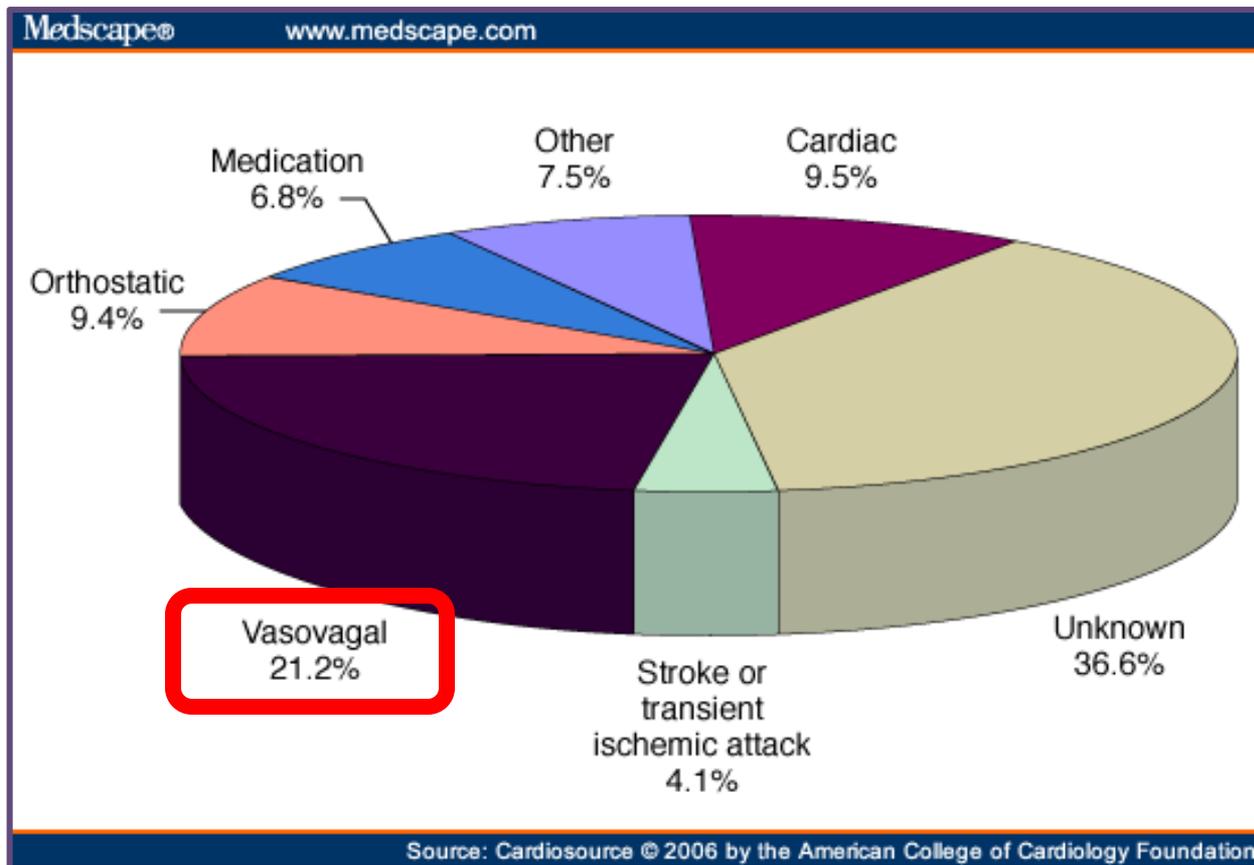
Unconscious Patient

Vasodepressor

Syncope

Syncope - Etiology

Temporary loss of consciousness caused by a fall in blood pressure



Syncope - Etiology

Neurally-Mediated

- VVS
- CSS
- Situational
 - Cough
 - Post-micturition

60%

Orthostatic

- Drug-induced
- ANS Failure
 - Primary
 - Secondary

15%

Cardiac Arrhythmia

- Brady
 - Sick sinus
 - AV block
- Tachy
 - VT
 - SVT
- Channelopathies

10%

Structural Cardio-Pulmonary

- Aortic Stenosis
- HCM
- Pulmonary Hypertension
- Aortic dissection

5%

Unknown Cause = Approximately 10%

Syncope – Predisposing Factors

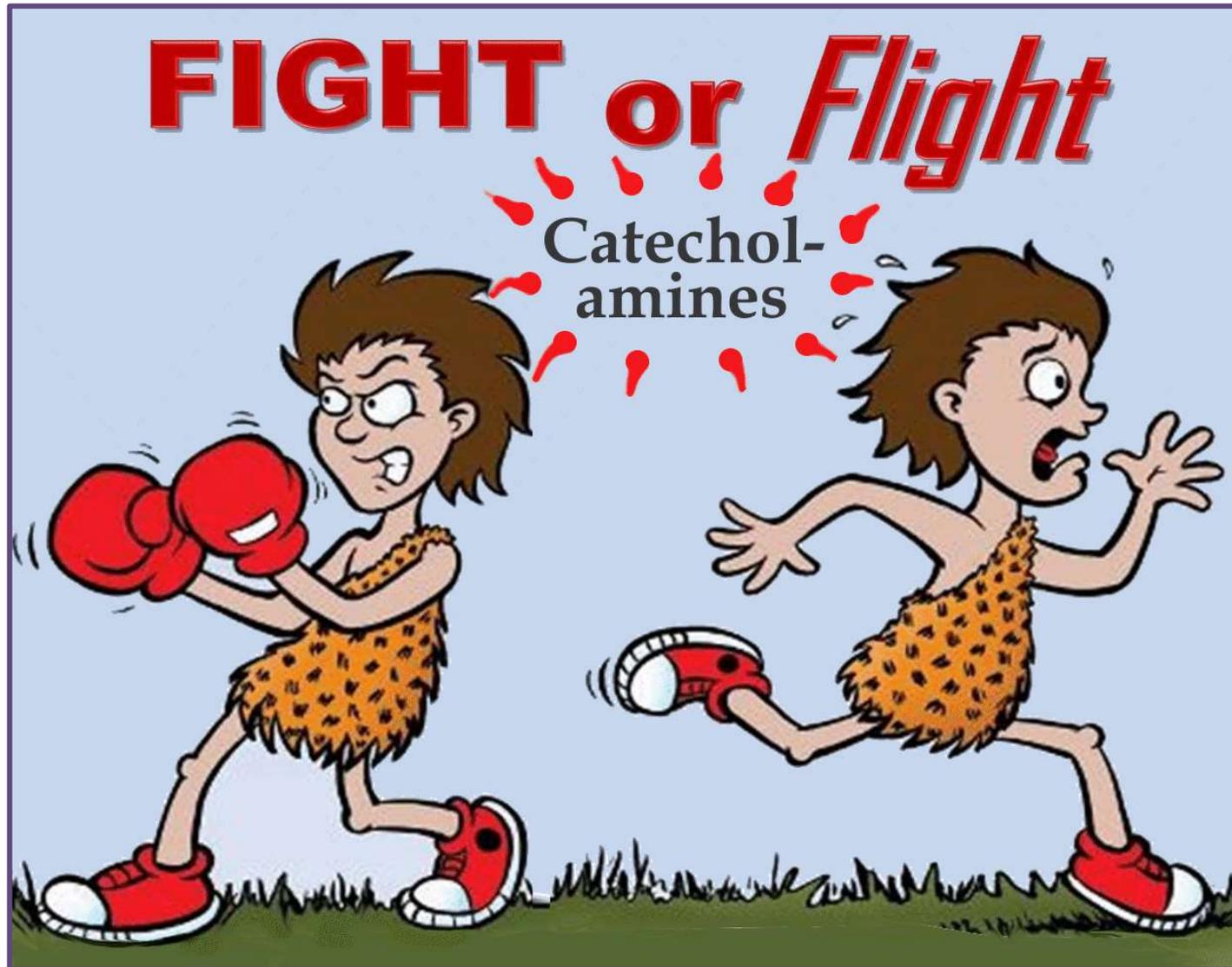
▪ Psychogenic

- Fright
- Anxiety
- Emotional stress
- Unwelcome news
- Sight of blood

▪ Nonpsychogenic

- Upright position
- Hunger
- Exhaustion
- Male gender
- Age 16 – 35 yrs

Normal “Fight or Flight” Response



Normal Flight or Fight Response

Pain or fear



Release of catecholamines (Adrenalin)



Blood pumped to peripheral muscles



Muscle activity – run or fight



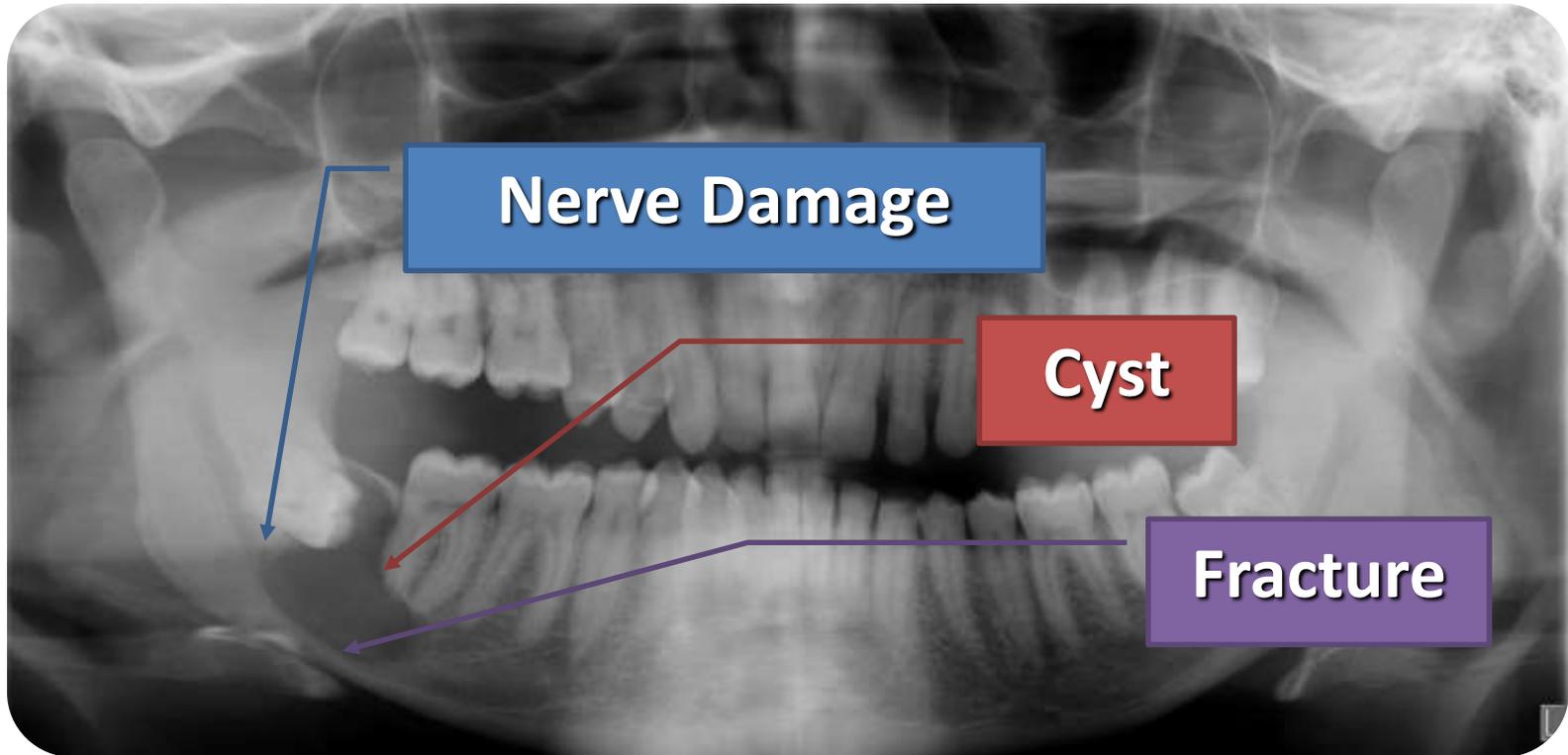
Blood pumped back to heart



Normal cardiac output maintained



Syncopal Reaction



Dry Socket

Syncopal Reaction

Pain or fear – Catecholamine release – Blood to muscles



No muscle activity - Blood pools in muscles



Compensatory => vasoconstriction, tachycardia

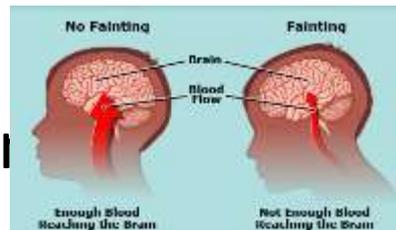


Mechanoreceptors => reflex bradycardia, vasodilation



Reduced cardiac output & hypotension

Cerebral ischemia => loss of consciousness



Syncope – Early signs and symptoms

- ✓ Feeling of warmth
- ✓ Loss of skin color
pale, ashen
- ✓ Heavy perspiration
- ✓ Nausea
- ✓ “Feel bad”, “feel faint”
- ✓ Tachycardia (↑ pulse)



Syncope – Late signs and symptoms

- ✓ Pupils dilation
- ✓ Yawning
- ✓ Rapid respirations
- ✓ Cold hands and feet
- ✓ Hypotension
- ✓ Bradycardia (↓ pulse)



Syncopal Management

Assess level of consciousness



Position supine, feet elevated



Assess Circulation, Airway, Breathing

Provide BLS/CPR as indicated



Activate EMS if recovery is not immediate



Administer oxygen



Monitor vital signs

15 – 20 sec

Diagnosis correct ?



Syncopal Management

Definitive management



Aromatic ammonia inhalants

Cold towel on face

Stimulate patient



(Post-syncopal recovery)

Postpone dental treatment ?



Escort for patient ?

(Delayed recovery)

Activate EMS



Patient to hospital

Prevention of Syncope

Patient positioning



Anxiety relief

Preop sedation

Nitrous oxide

SOMS Sunset Oral & Maxillofacial Surgery
Barnes Road Professional Campus
11786 SW Barnes Road, Suite 110
Portland, OR 97225
503-924-2323

Drs. Beadnell & Ueck

Steven W. Beadnell, DMD Brett A. Ueck, DMD, MD

Name Ura Nervous Wreck Date 7/17/09
Address _____ Phone _____
DOB _____

Rx: Halcion 0.25mg tablet

Disp: Four (4)

Sig: † p.o. one hr prior to dental appt

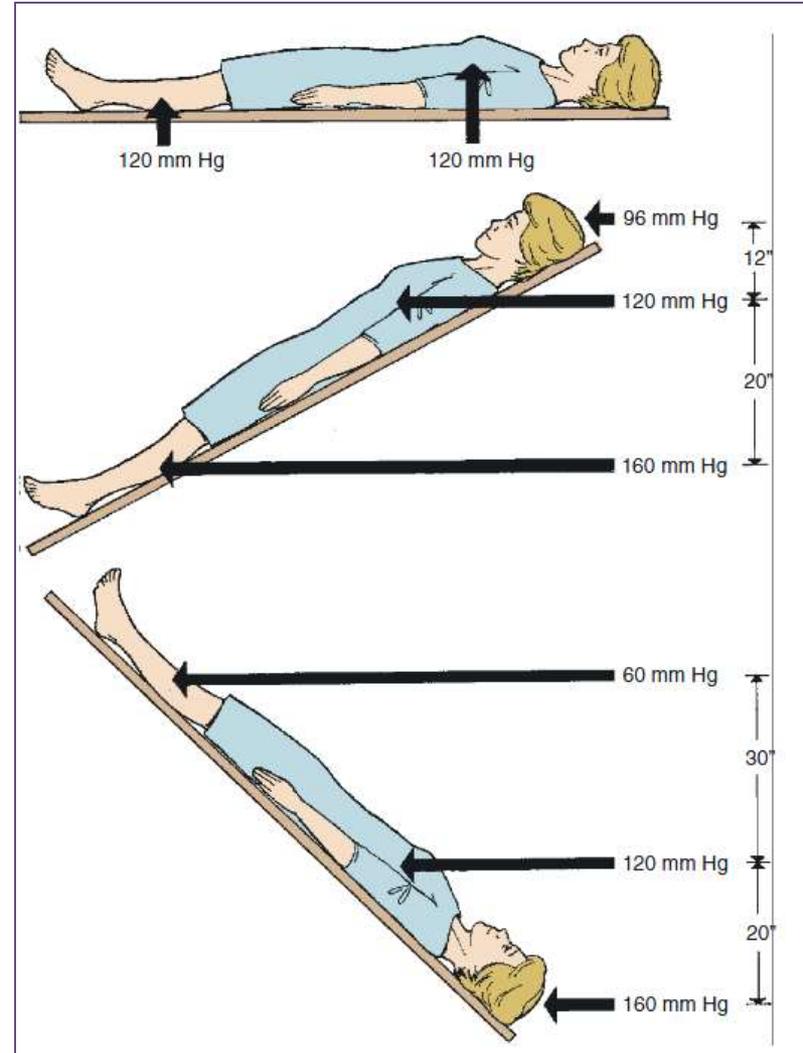
Refills 0 ~~1~~ ~~2~~ Steven W. Beadnell D.M.D.
Generic approved _____ DEA _____

Unconscious Patient

Postural

Hyoptension

Postural Hypotension



Postural Hypotension

Predisposing factors

- ✓ **Drug administration**
- ✓ **Prolonged recumbency**
- ✓ **Inadequate postural reflex**
- ✓ **Pregnancy**
- ✓ **Addison's disease**

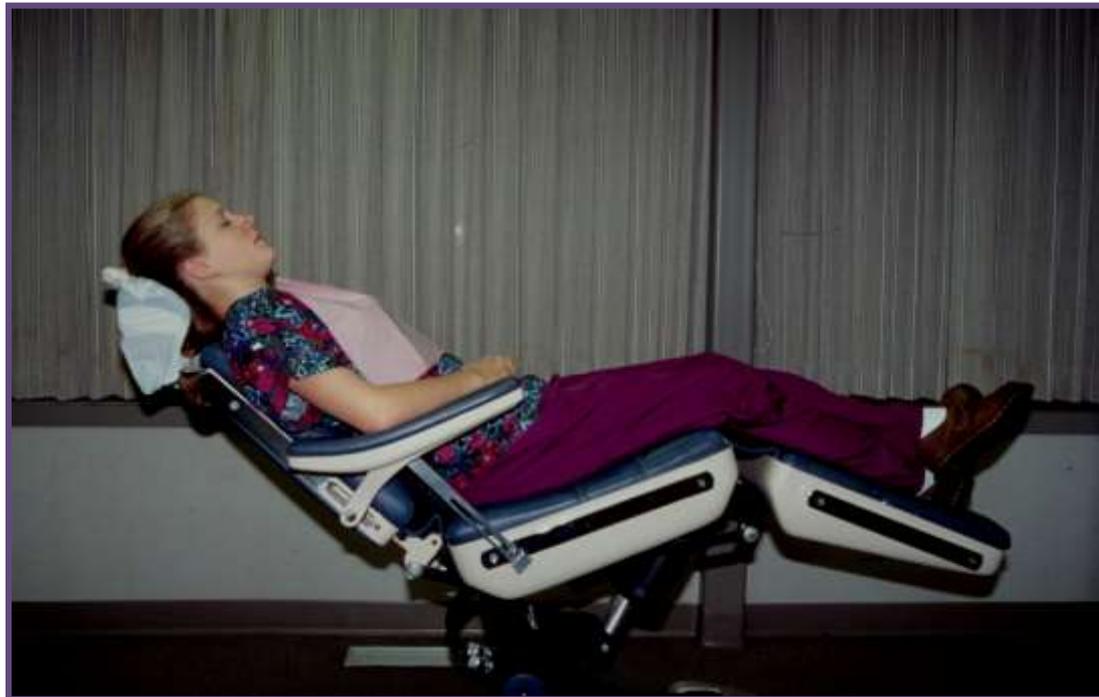
Postural Hypotension

Drugs causing postural hypotension

- ✓ **Antianginals**
- ✓ **Antipsychotics**
- ✓ **Antiarrhythmics**
- ✓ **Beta-blockers**
- ✓ **Antidepressants**
- ✓ **Diuretics**
- ✓ **Antihistamines**
- ✓ **Phenothiazines**
- ✓ **Antihypertensives**
- ✓ **Tranquilizers**

Prevention of Postural Hypotension

- ✓ **PMH: medications, fainting Hx**
- ✓ **Slowly discharge from supine**



***Respiratory
Emergencies***

Respiratory Distress

Potential Causes

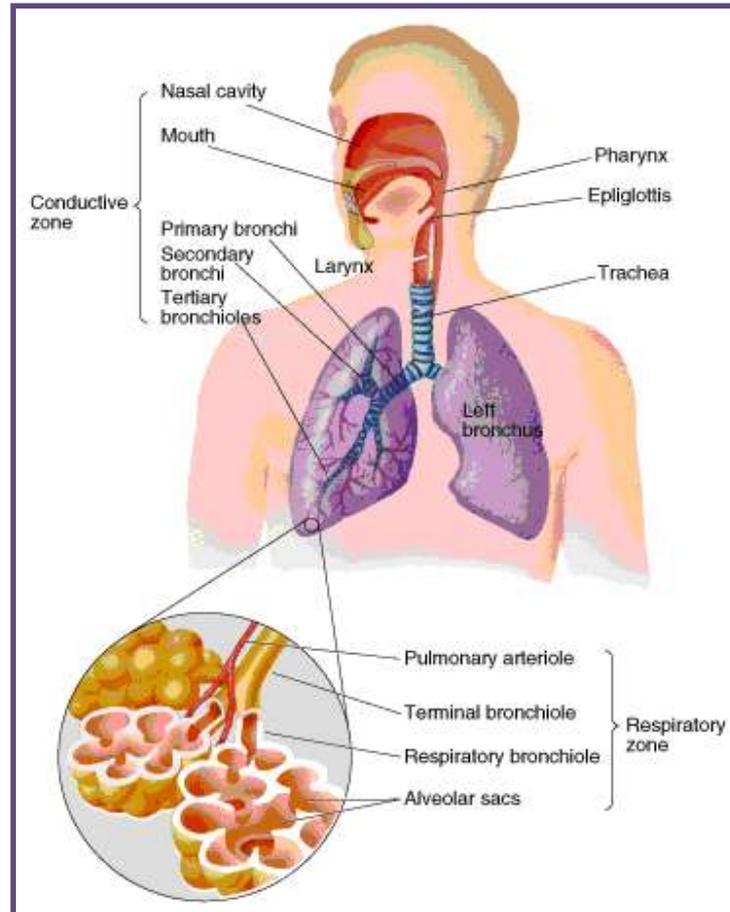
Hyperventilation

Syncope

Asthma

Heart Failure

Hypoglycemia



Acute MI

Anaphylaxis

Angioedema

Stroke

Epilepsy

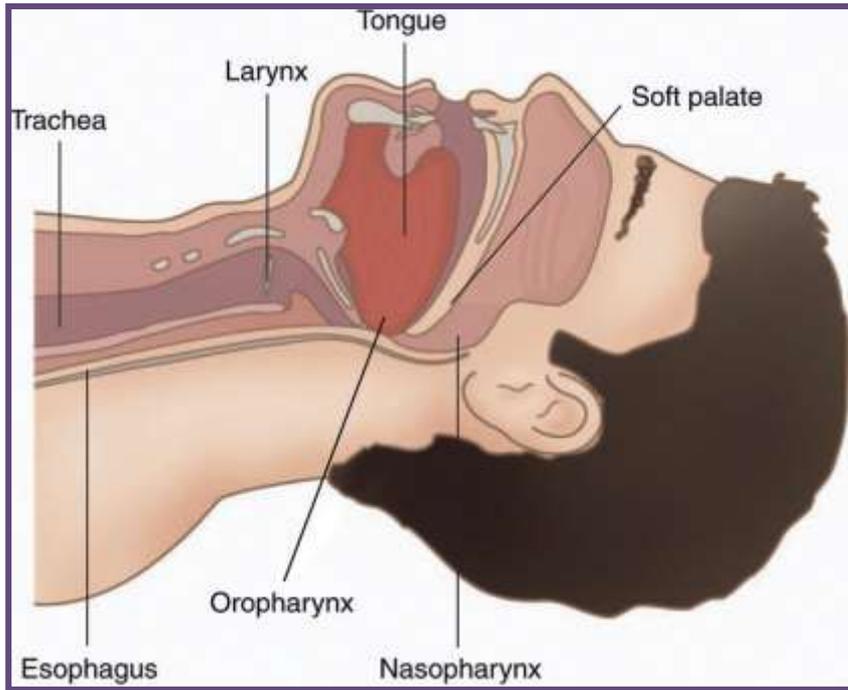
Respiratory Emergencies

Obstructed

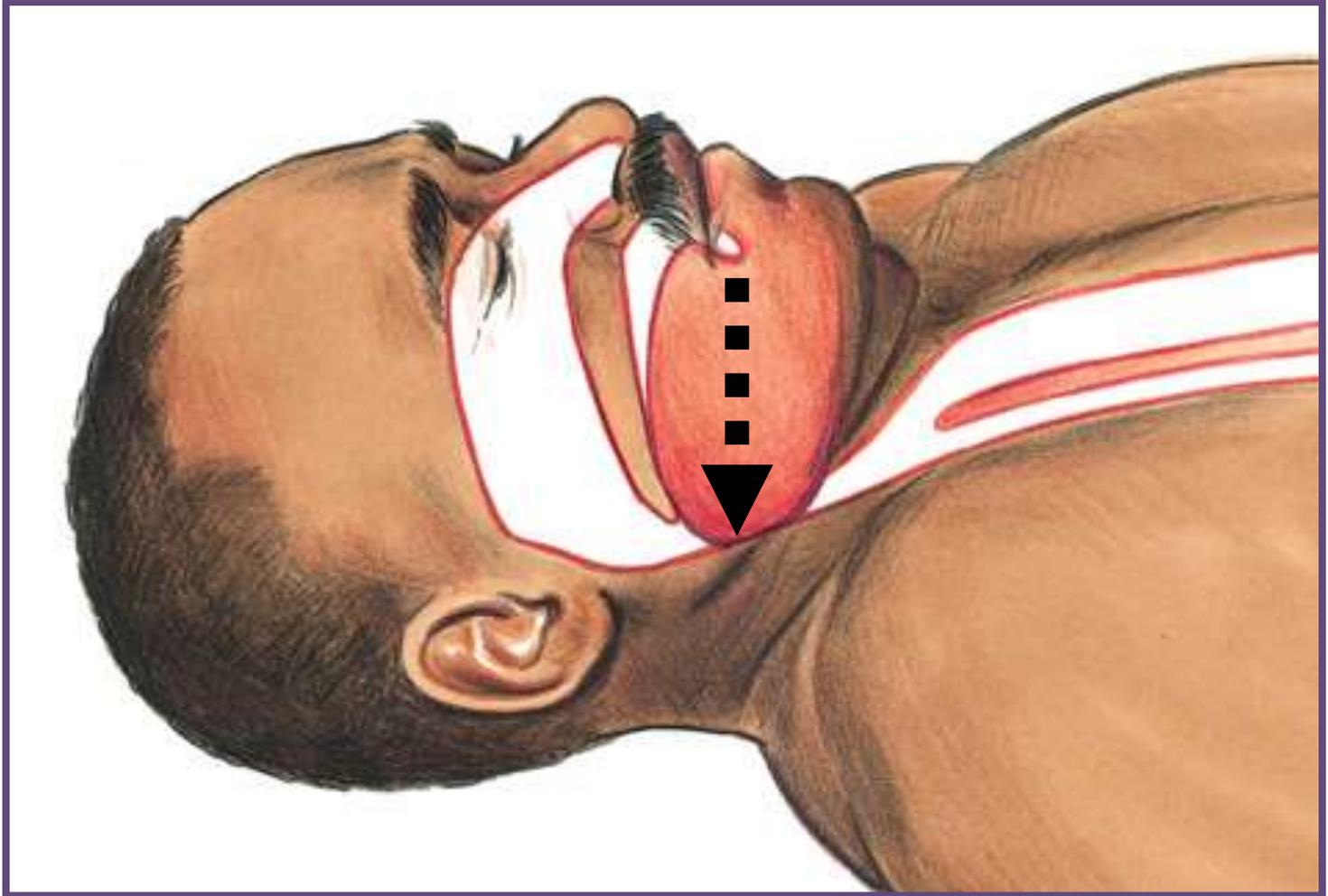
Airway

Airway Obstruction

Relaxed Tongue Blocks Airway

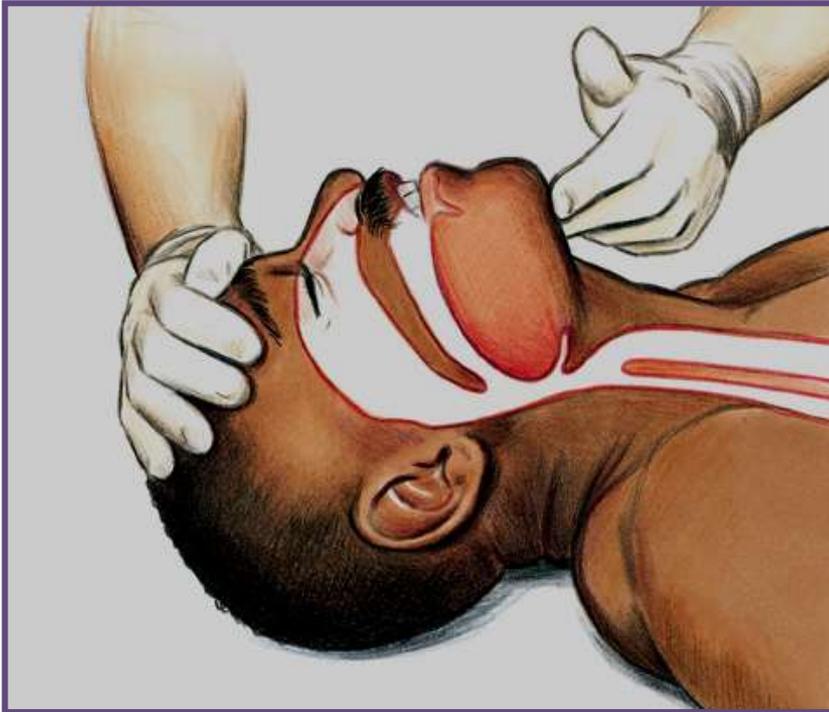


Airway Obstruction



Airway Obstruction

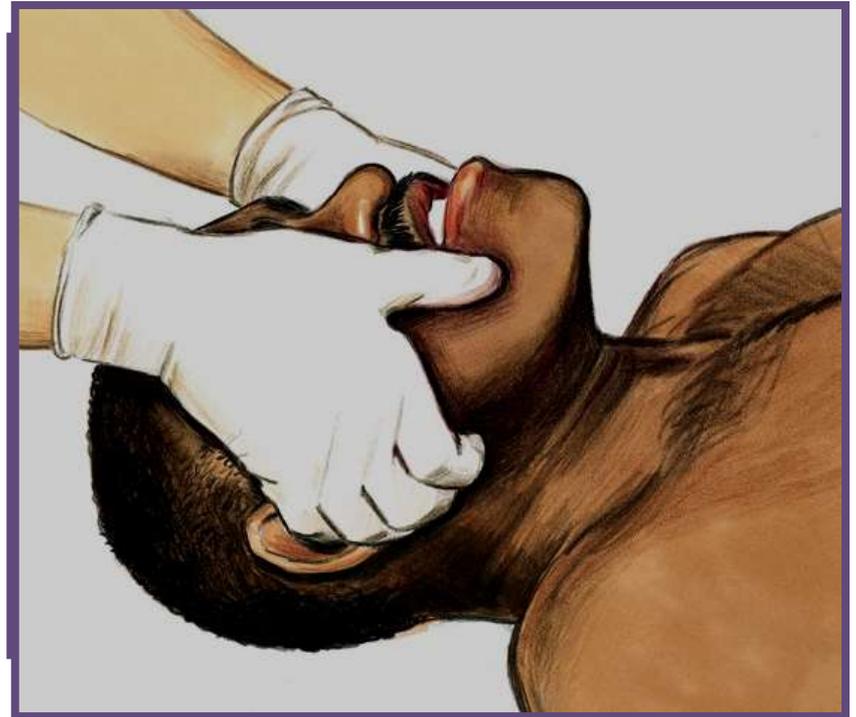
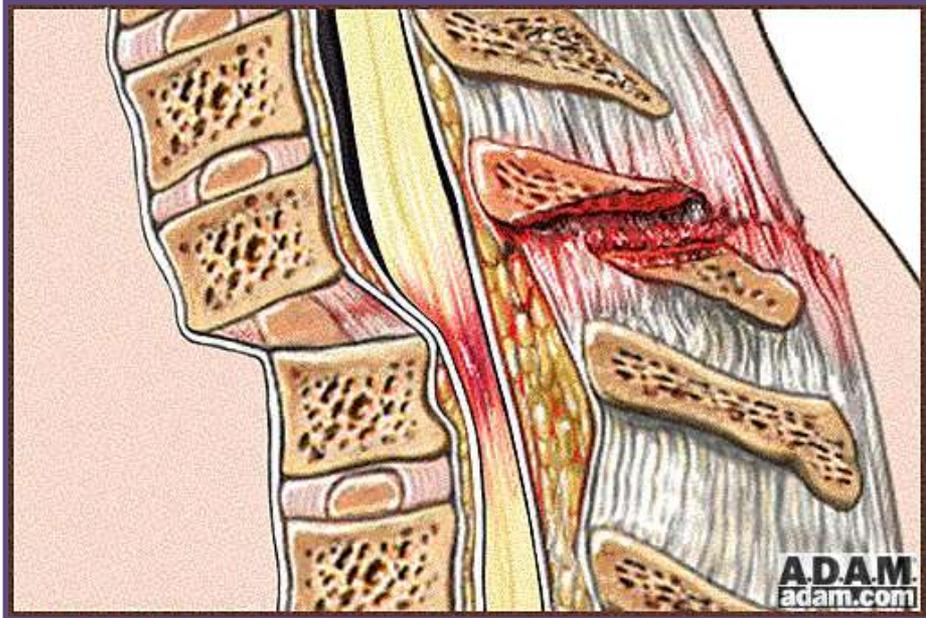
Opening the Airway => HTCL



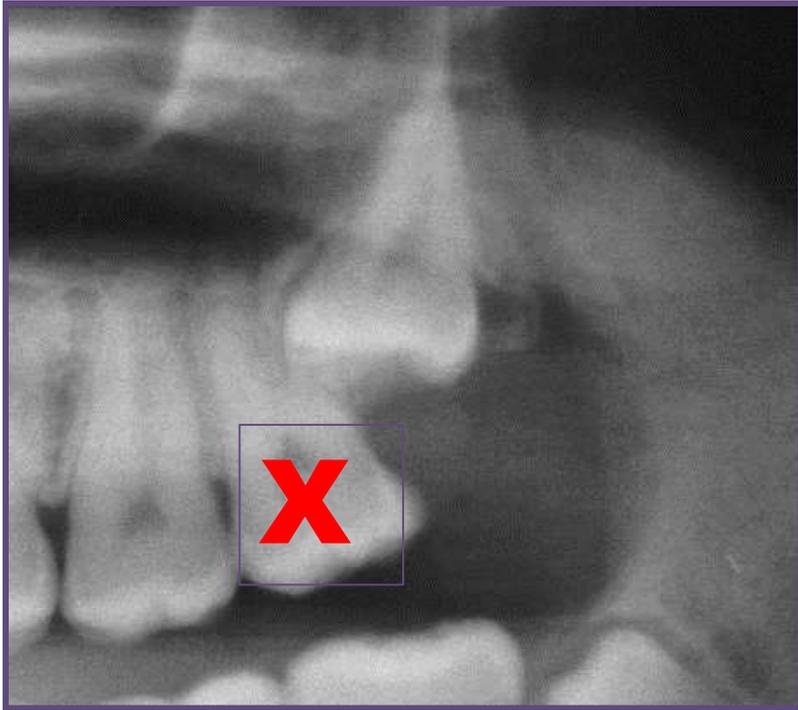
Head Tilt – Chin Lift

Airway Obstruction

Opening the Airway – Trauma Patient



The Lost Tooth



The Lost Tooth

Aspirated Object

- ✓ Cough, wheeze, choking,
shortness of breath
- ✓ Symptoms present within one
hour 90% of the time
- ✓ Symptoms may be delayed up to
six hours

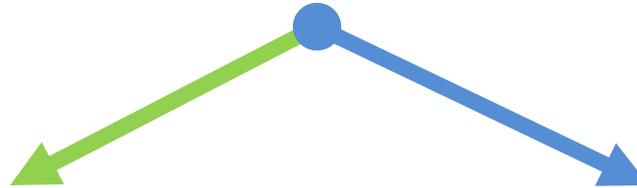
Management of Possible Aspiration

Place patient in left lateral decubitus position

Head tilted down over edge of chair



Encourage patient to cough



Object is retrieved



**Consult physician or
pulmonologist**

Post-aspiration complications ?

Object not retrieved



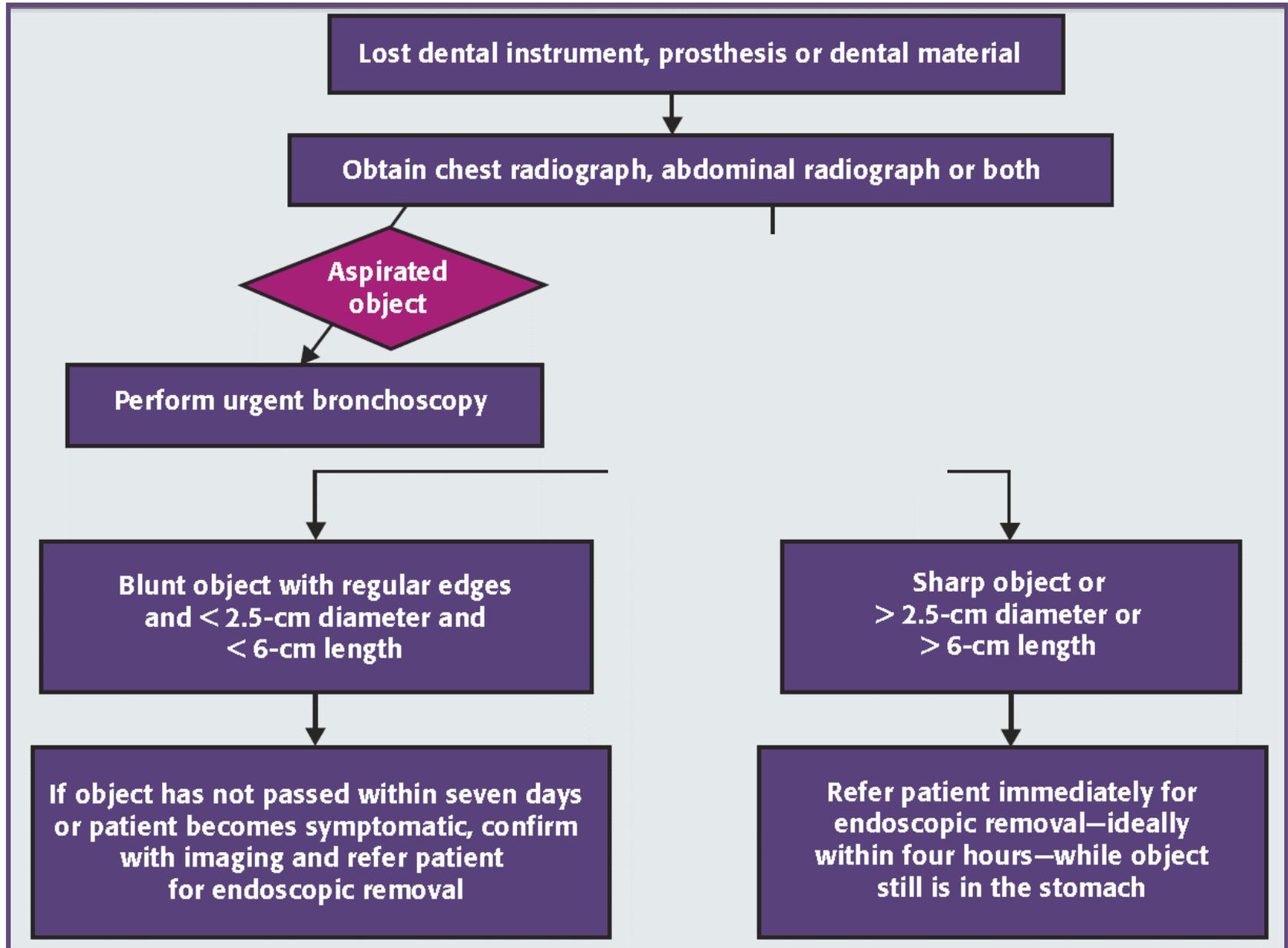
Transport to E.R.



Flat plate abdomen

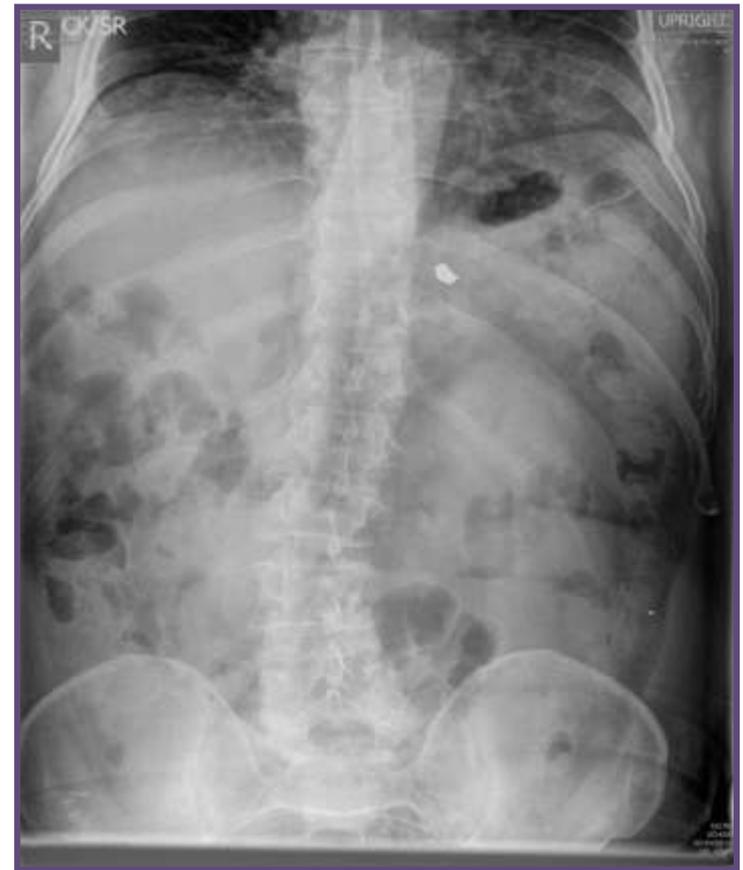
Lateral and PA Chest X-rays

Management of Possible Aspiration



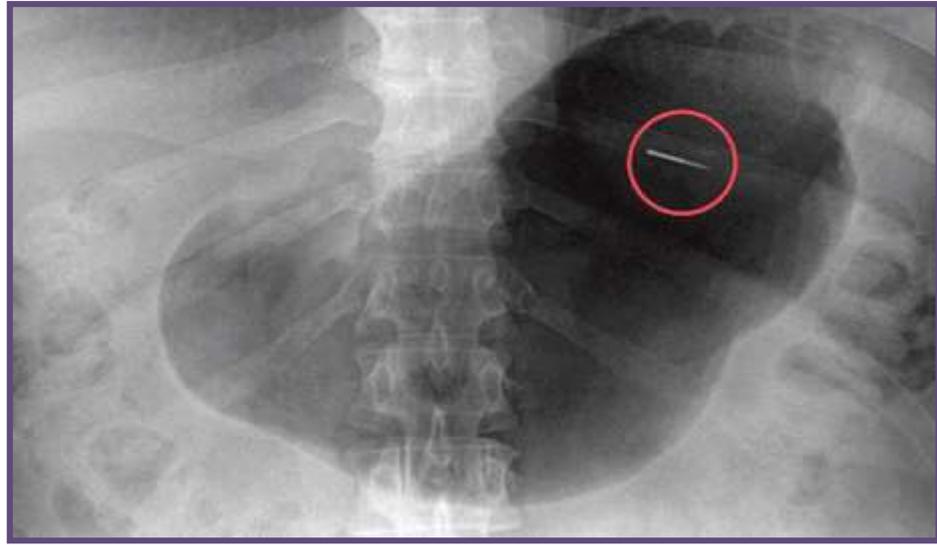
Management of Swallowed Object

Swallowed object => Asymptomatic



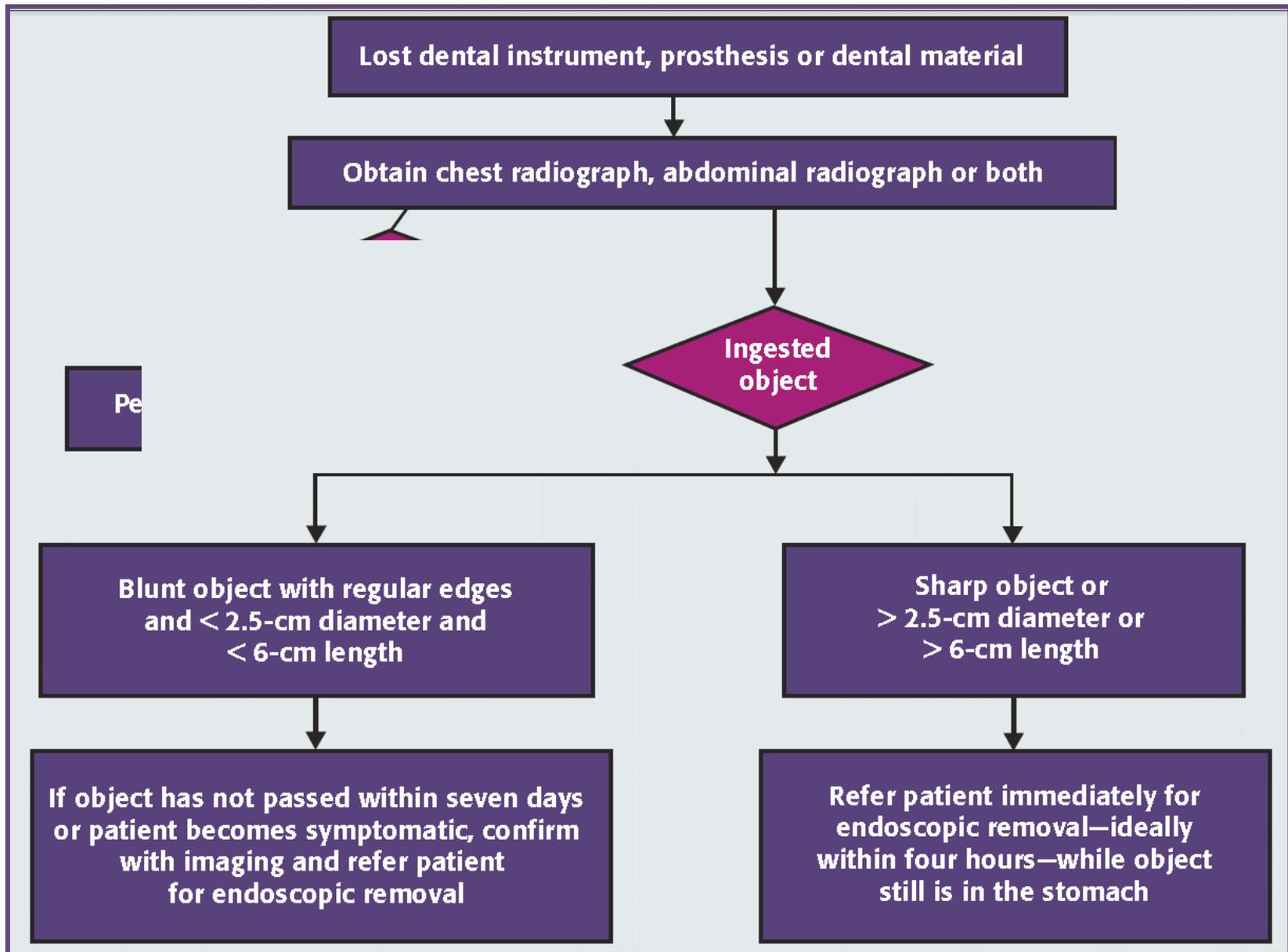
Management of Swallowed Object

Potential for Bowel Perforation ?

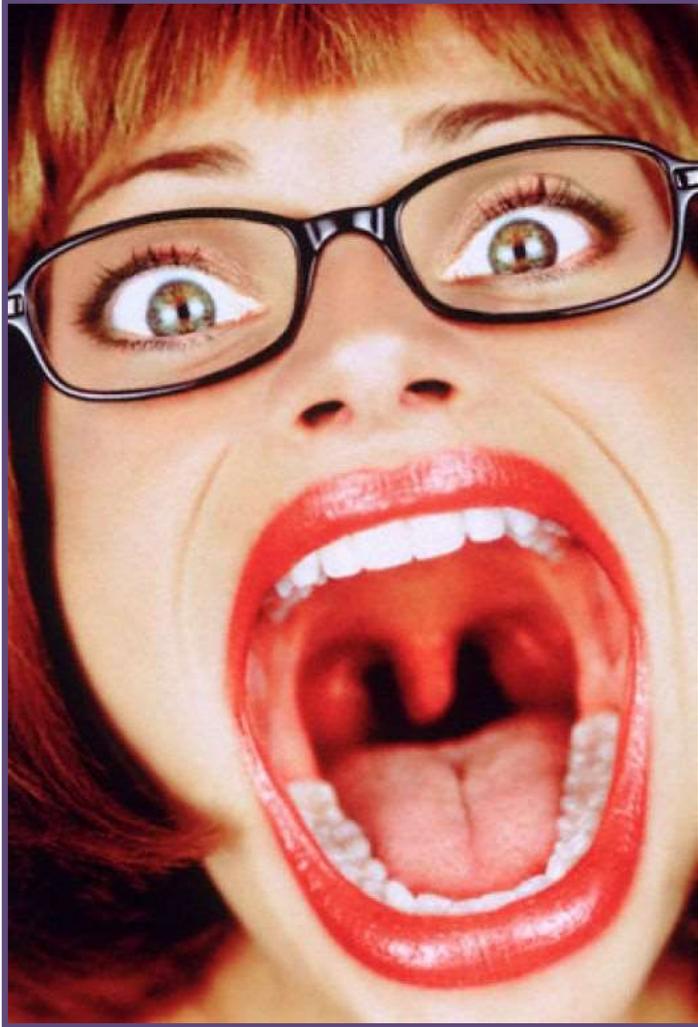


Swallowed and aspirated dental prostheses and instruments in clinical dental practice. M Abusamaan; JADA 2014; 145(5):459-463.

Management of Swallowed Object



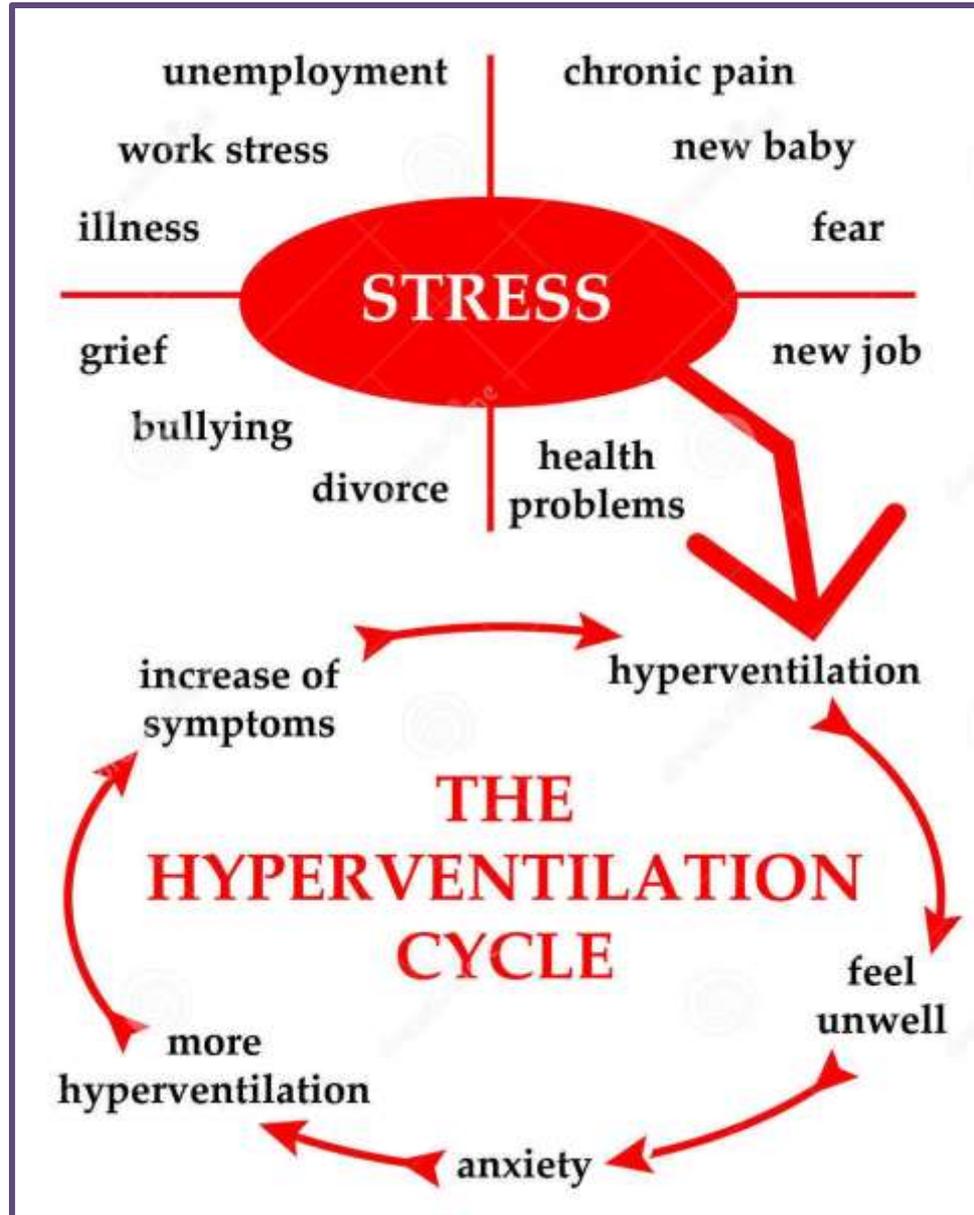
Avoiding Aspiration



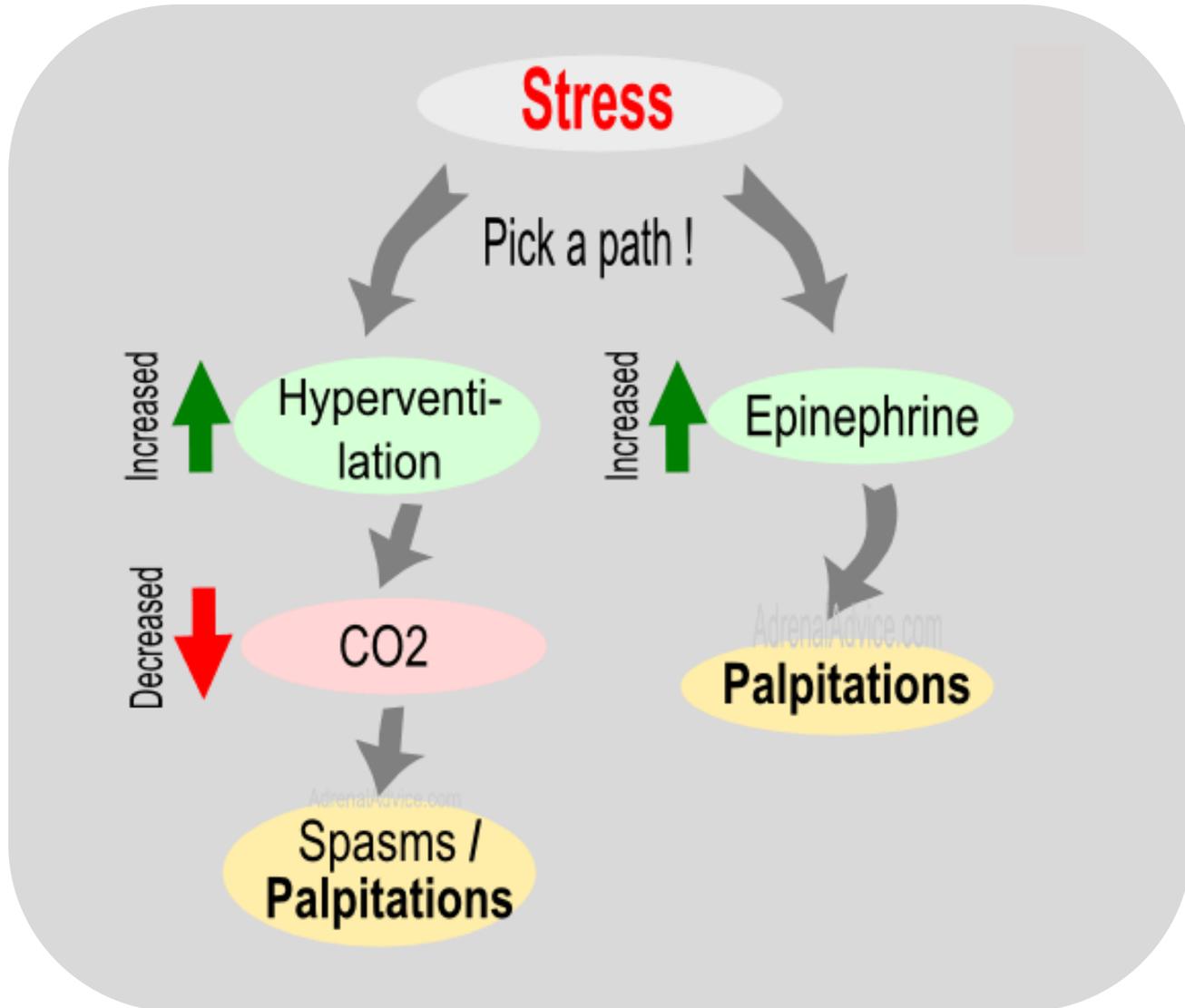
Respiratory Emergencies

Hyperventilation

Hyperventilation

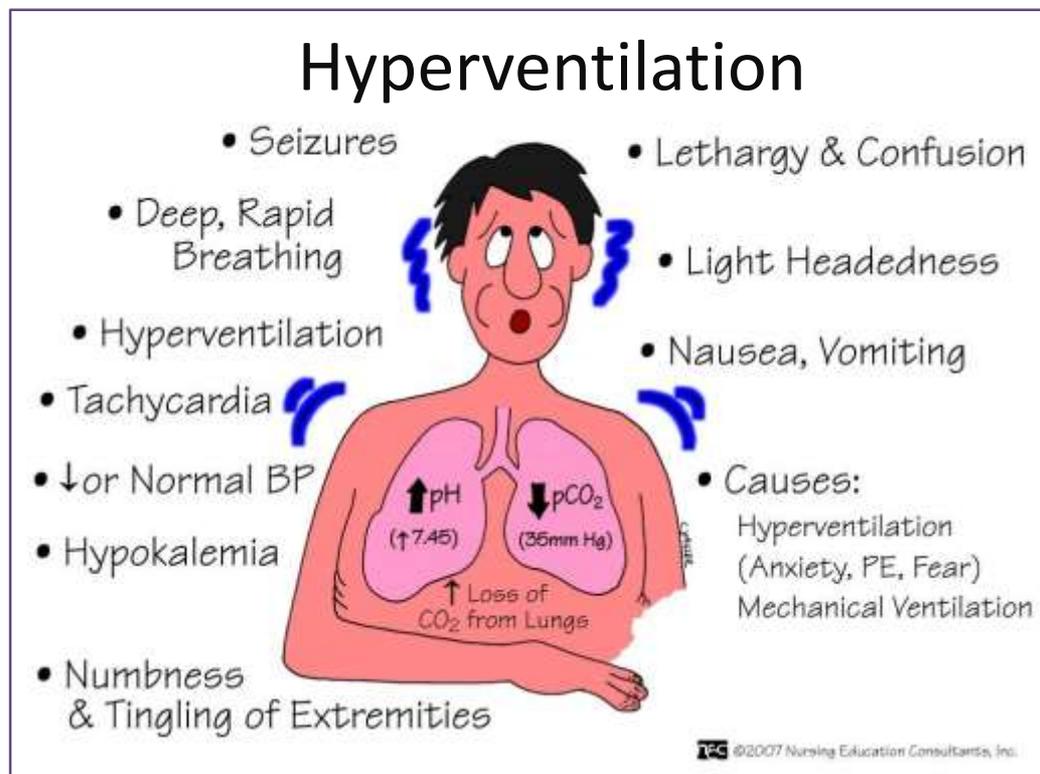


Hyperventilation - Pathophysiology



Hyperventilation - Manifestations

- ✓ Anxious patient
- ✓ Shortness of breath
 - ✓ “Air hunger”
- ✓ Palpitations
- ✓ Tachycardia
- ✓ Lightheadedness
- ✓ Circumoral paresthesia
- ✓ Carpopedal tetany



Hyperventilation - Management

Position patient comfortably (upright)



C – A – B – BLS as needed



Remove dental materials from patient's mouth
Calm patient

Correct respiratory alkalosis



Drug management if needed – Versed, Valium



Complete treatment, discharge

Respiratory Emergencies

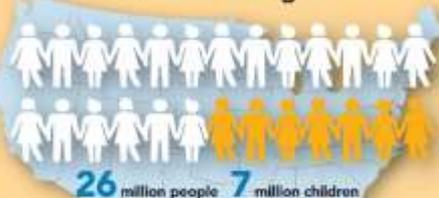
Asthma

Asthma

Scope and Impact of The Asthma Epidemic

American College of Allergy, Asthma and Immunology

Asthma prevalence at all-time high



3,400 people die each year

Patients receive substandard care



Asthma care is needlessly costly

\$3,259 Direct cost per person per year

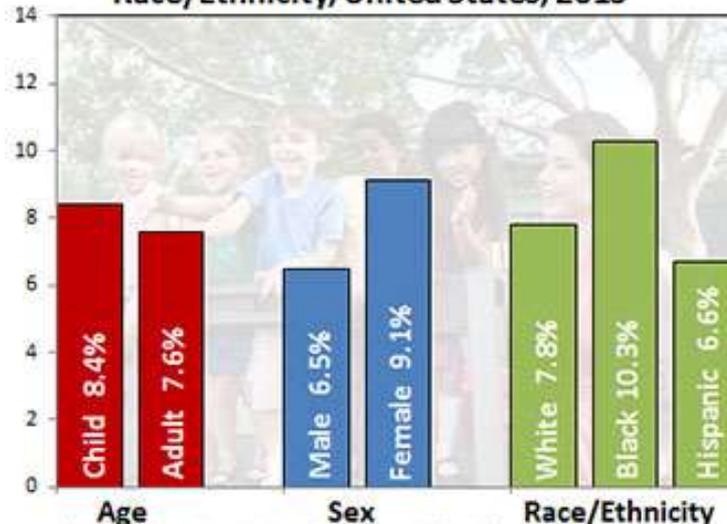
\$56 billion Total annual cost



Allergists improve quality, reduce costs



Current Asthma Prevalence Percents by Age, Sex, and Race/Ethnicity, United States, 2015



Source: National Health Interview Survey, National Center for Health Statistics, Centers for Disease Control and Prevention

Excerpted from Asthma Management and the Allergist: Better Outcomes at Lower Cost ©2015 The American College of Allergy, Asthma and Immunology. The complete report with supporting documentation is available at college.aacpi.org/betteroutcomeslowercost



American College of Allergy, Asthma & Immunology



Asthma - Pathophysiology

Hyperactivity of tracheobronchial tree



Bronchial smooth muscle contraction

Bronchial wall edema

Mucus hypersecretion



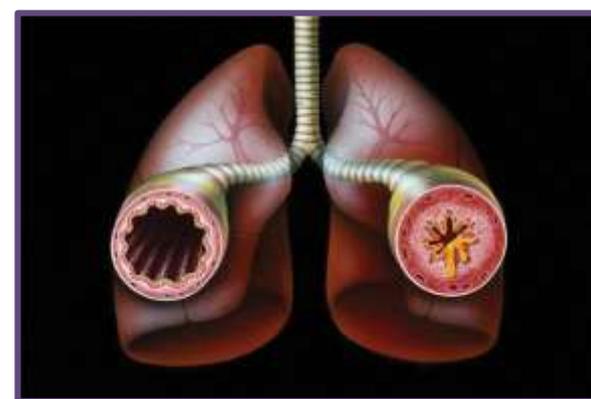
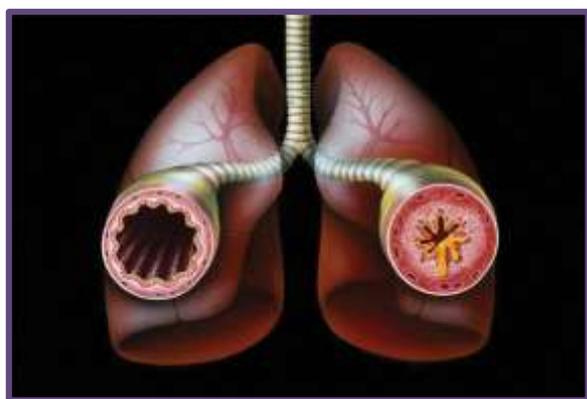
Narrowed airways



Wheezing

Shortness of breath

Coughing



Asthma

Medical Management of Asthma

Allergy & Asthma Network
Mothers of Asthmatics
breatheville.org • 800.878.4403

Asthma Inhalers

Sixth Edition • 2007
☐ includes built-in dose counter

Inhaled Bronchodilators

Inhaled bronchodilators relax tight airways (bronchoconstriction). Bronchodilators treat the lower part of asthma: coughing, wheezing, choking and shortness of breath.

Short-Acting Inhaled Bronchodilators (3-6 hours)

- Albuterol (generic) HFA inhaler
- Alupent HFA inhaler
- Atrivent HFA inhaler
- Combivent inhaler
- Maxair Autohaler inhaler
- ProAir HFA inhaler
- Proventil HFA inhaler
- Ventolin HFA inhaler
- Xopenex HFA inhaler

Inhaled Anti-Inflammatories

Inhaled corticosteroids and other anti-inflammatories reduce and prevent airway inflammation (swelling). Used daily, anti-inflammatories treat the underlying part of asthma that you may not feel or see.

Long-Acting Inhaled Bronchodilators (12 hours)

- Foradil Aerolizer inhaler
- Serevent Diskus inhaler

Combination Medications

Combination medications contain both long-acting bronchodilator and inhaled corticosteroid components.

- Aerobid, Aerobid-M inhaler
- Asmanex Twisthaler inhaler
- Azmacort inhaler
- Flovent Diskus inhaler
- Flovent HFA inhaler
- Intal inhaler
- Pulmicort Flexhaler inhaler
- QVAR (HFA) inhaler
- Symbicort (HFA) inhaler
- Advair Diskus inhaler
- Advair HFA inhaler

Important: Inhaled anti-inflammatories should NOT be used to treat acute symptoms of asthma.

Important: Inhaled anti-inflammatories should NOT be used to treat acute symptoms of asthma.

Asthma – Signs and Symptoms

- ✓ Chest congestion/tightness
- ✓ Cough, wheezing, SOB
- ✓ Anxiety or agitation
- ✓ Increased respiratory rate
- ✓ Increased heart rate
- ✓ Pt wants to sit or stand up
- ✓ Use of accessory muscles



Asthma

Indicators of a Severe Attack

- ✓ **SaO₂ (pulse oximeter) is below 91%**
- ✓ **Bronchodilator doesn't improve Sx after two treatments**
- ✓ **Patient has difficulty speaking**
 - ✓ **Sentences < phrases < words < mute**
- ✓ **Patient is struggling for air**

Asthma Management

Position patient comfortably (upright)



C - A - B - BLS as needed



Administer bronchodilator via inhalation
(Albuterol inhaler)



(Episode terminates)

(Episode continues)



Complete dental treatment



Administer oxygen, call EMS



Discharge patient



Epinephrine 0.3mg SQ or IM



Discharge or hospital