



# **Assisting in a Medical Emergency Chapter 31**

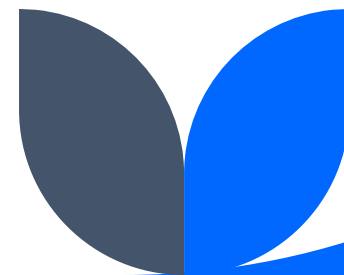
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# Introduction

A medical emergency is a condition or circumstance that requires immediate action for a person who has been injured or has suddenly become ill

You must be prepared to respond immediately

Your knowledge and skills could mean the difference between life and death



**If this was your patient?**



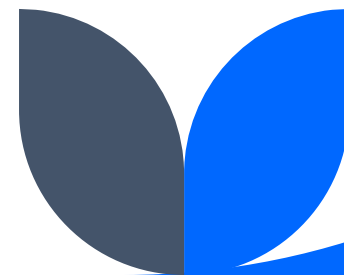
## **HAVE YOU EVER?**

Has anyone had annual training in their office or place of employment?



# Attending Today's Lecture

By attending today's lecture, you are taking on an important responsibility to yourself, your dentist, your colleagues, and your patient to have knowledge of medical emergencies and to aid with them.



<b>Define</b>	Define medical emergencies
<b>Describe</b>	Describe the elements of preparedness required for the successful management of medical emergencies.
<b>Discuss</b>	Discuss the role of the dental assistant in a medical emergency
<b>Evaluate</b>	Evaluate different medical emergencies that the dental assistant could experience.
<b>Develop</b>	Develop the importance of proper documentation of medical emergencies



# Preventing a Medical Emergency

One of the most important ways to prevent a medical emergency is to know your patient

- Have open communication about the patient's health

- Have a completed or an updated medical history

Front desk assistant is responsible for ensuring that patients update this information as they enter the office

- Most emergencies that occur in the dental office are caused by the combined stress of a person's daily life and the apprehension of going to the dentist



# American Society of Anesthesiologist (ASA)

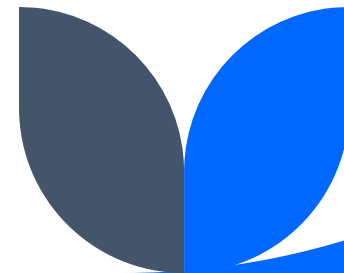
ASA I – Patients are normal and healthy

ASA II – Have mild to moderate systemic diseases or are healthy ASA I patients who demonstrate a more extreme anxiety and fear toward dentist

ASA III – Patients have severe systemic disease that limits activity but is not incapacitated.

ASA IV – Patients have severe systemic disease that limits activity and is a constant threat to life.

ASA V – Patients are moribund and are not expected to survive more than 24 hours with or without an operation.



# Emergency Preparedness

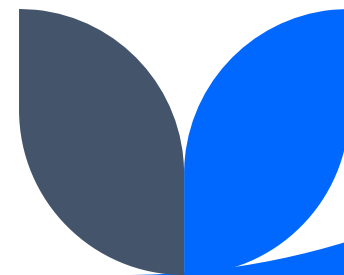
Successful management of medical emergencies in the dental office requires

- Preparedness

- Prompt recognition

- Effective treatment

Ongoing observation of the patient is an important part of emergency preparedness



# Emergency Protocol

## Assigned roles

### Duties of Team Member #1

First person to reach the emergency victim

Provide BLS, Remain with the Victim, Alert office staff members

### Duties of Team Member #2

Bring emergency drug kit, O2, and AED to the emergency site

### Duties of Team Member #3

Keep written record of all events and time (including vital signs, drugs administered, and patient responses)

Assist with BLS

Prepare Emergency drugs for administration

Active EMS system (Front Desk Member)

Assist as needed

Maintain Record

Meet rescue team at building entrance and escort to area (Front Desk Member)



# Emergency Protocol

## Emergency telephone numbers

List of emergency numbers need to be posted by the phone.

Due to forgetfulness - (811, 9111, 9011)

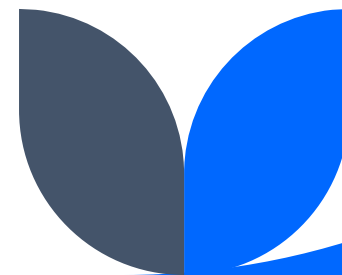
Poison Control

## Routine Drills

Training should be current – Annually or quarterly

Routine Mock Emergencies

Refining the office's emergency plan



# QUESTION

Who in the dental office would most likely oversee calling the emergency medical services?



# Recognizing a Medical Emergency

A medical emergency can occur at any time and any place.

Symptom: what a patient tells you

- General Appearance

- Gait

Sign: what you observe

- Dizziness

- Trouble Breathing

- Arm, Jaw, or Chest pain

- Sweating

- Changes in skin color



# Emergency Care Standards

Every member of the dental team must be:

- Skilled in taking, assessing, and recording vital signs accurately

- Certified in basic life support and cardiopulmonary resuscitation (CPR)

- Certified in the Heimlich maneuver

- Certified in the operation of the AED



# Emergency Equipment and Supplies

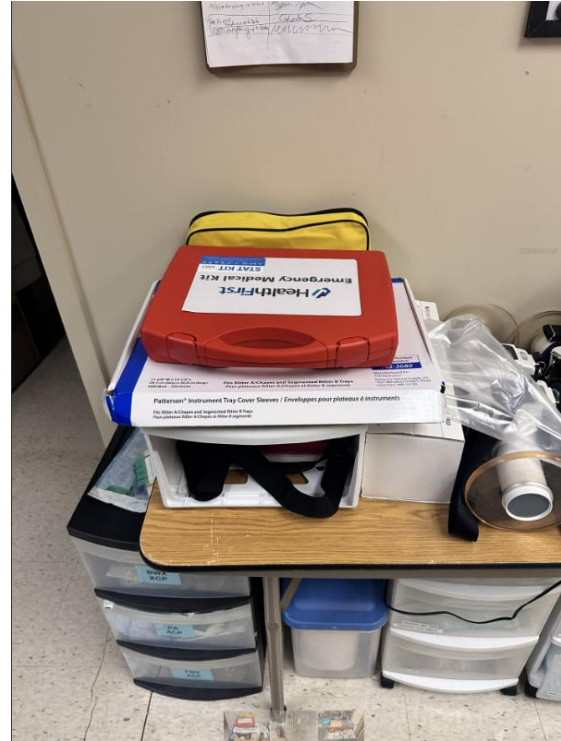
In most offices, a standardized emergency kit is equipped and organized with emergency supplies

Maintenance of the kit consists of:

- Routine check of supplies to determine whether they are in working condition

- Weekly examination for expiration of drugs within the emergency kit

- Daily check of oxygen tank or tanks



# Oxygen

Most frequently used “drug” in a medical emergency

Ideal agent for resuscitation of a patient who is unconscious but still breathing is 100% oxygen

If the patient is not breathing, air must be forced into the lungs through rescue breathing or similar emergency measures

A portable unit with tanks of oxygen may be stored where it can be moved quickly into a treatment room if needed

The oxygen tank is always color-coded green



# Emergency Responses

## Responsibility as dental assistant:

- Recognize signs and symptoms of a significant medical complaint

- Provide appropriate support to the dentist in implementing emergency procedures

## Assessing a Medical Emergency

- Unconsciousness

- Altered consciousness

- Respiratory distress

- Convulsions

- Chest pain

- Mental status



# Common Medical Emergencies Experienced in the Dental Office

## Syncope

Known as “Fainting”

Most common medical emergency in the dental office

Imbalance in the distribution of blood to the brain and to the larger vessels within the body

Psychological factors



## Management of Vasodepressor Syncope

Assess consciousness	
(lack of response to sensory stimulation)	
↓	
Activate office emergency system	
↓	
P—Position patient supine with feet slightly elevated	
↓	
C→A→B—Assess circulation; assess and open airway; assess airway patency and breathing	
↓	
D—Definitive care:	
Administer O <sub>2</sub>	
Monitor vital signs	
Perform additional procedures:	
Administer aromatic ammonia vaporole; administer “sugar” (e.g., orange juice, nondiet soft drink)	
Administer atropine if bradycardia persists	
Do not panic!	
↓	↓
(Postsyncopal recovery) Postpone further dental treatment	(Delayed recovery) Activate emergency medical services (9-1-1)
↓	
Determine precipitating factors	

# Common Medical Emergencies Experienced in the Dental Office

## Postural Hypotension

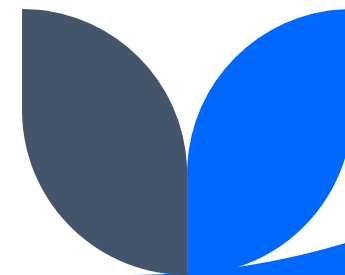
### Orthostatic Hypotension

Altered consciousness may lead to loss of consciousness

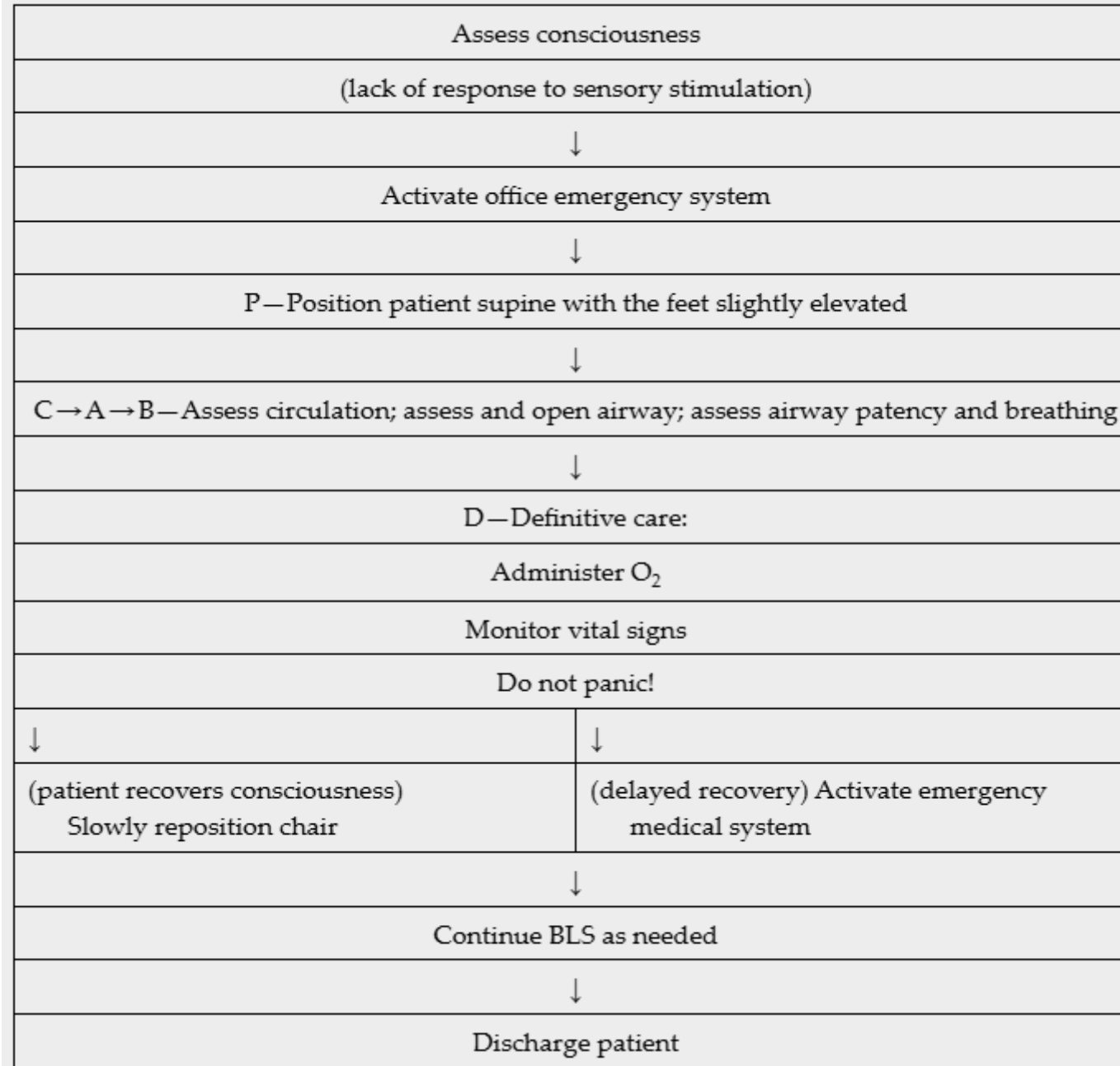
Occurs when patient assumes an upright position too quickly

Insufficient blood flow to the brain and occurs after a sudden change in positioning

Very brief, lasting only seconds to minutes



## Management of Postural Hypotension



# QUESTION

What is the major difference between Syncope and Postural Hypotension?



# Common Medical Emergencies Experienced in the Dental Office

## Angina

Severe Chest Pain

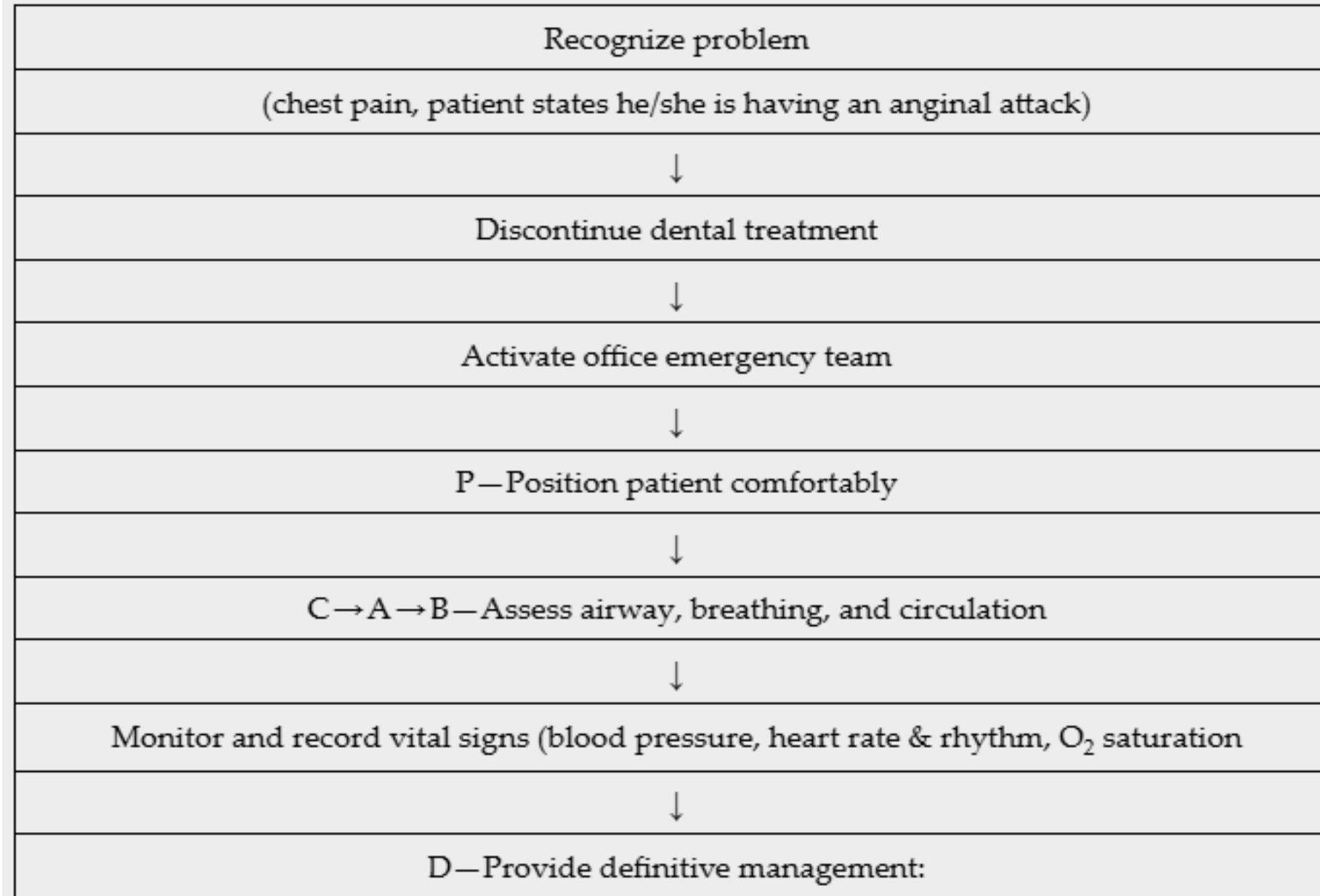
Does NOT lead to death or permanent heart damage

Last 3 to 8 minutes

History – Nitroglycerin



# Management of Chest Pain with a History of Angina Pectoris



D—Provide definitive management:

↓		↓
HISTORY OF ANGINA PRESENT		NO HISTORY OF ANGINA
↓		↓
Administer vasodilator and O <sub>2</sub> (up to 3 doses at 5-min intervals)		Activate EMS, STAT
↓	↓	↓
IF PAIN RESOLVES	IF PAIN DOES NOT RESOLVE	Administer O <sub>2</sub> and consider nitroglycerin
↓	↓	↓
Consider future dental treatment modifications	Activate EMS ↓	Monitor and record vital signs
Administer aspirin		
↓		
Monitor and record vital signs		

# Cerebrovascular Accide

Commonly known as Stroke  
Interruption of blood flow to the  
Damage can occur within the brain  
Predisposing factors

## If Stroke Happens, Act F.A.S.T.



### F—FACE DROOPING

Ask the person to smile.  
Does one side droop?



### A—ARM WEAKNESS

Ask the person to raise both  
arms. Does one arm drift  
downward?



### S—SPEECH DIFFICULTY

Ask the person to repeat  
a simple sentence. Are the  
words slurred?



### T—TIME TO CALL 9-1-1

If the person shows any  
of these signs, call 9-1-1  
immediately.

(patient responds to sensory stimulation)



Discontinue dental treatment



Activate office emergency team



P – Position patient comfortably



C → A → B – Assess and perform basic life support as needed



D – Provide definitive management as needed

Activate emergency medical services.

Monitor vital signs

Manage signs and symptoms

If blood pressure elevated, place patient in semi-Fowler position

Administer O<sub>2</sub>

Do NOT administer CNS depressants



**FAST!**

**SPEECH**



# Hyperventilation

Initiated by Stress and Anxiety

Increase in the frequency or depth of respiration

Too much oxygen

Conscious



## Management of Hyperventilation

Recognize problem
(rapid, deep, uncontrolled breathing)
↓
<b>P</b> – Position patient comfortably
(usually upright)
↓
<b>C</b> → <b>A</b> → <b>B</b> – Basic life support as needed
↓
<b>D</b> – Definitive care:
Remove dental materials from patient's mouth
Calm patient
Correct respiratory alkalosis
Initiate drug management as needed
↓
Dental care may continue if BOTH doctor and patient agree
↓
Discharge patient

# Asthma Attack

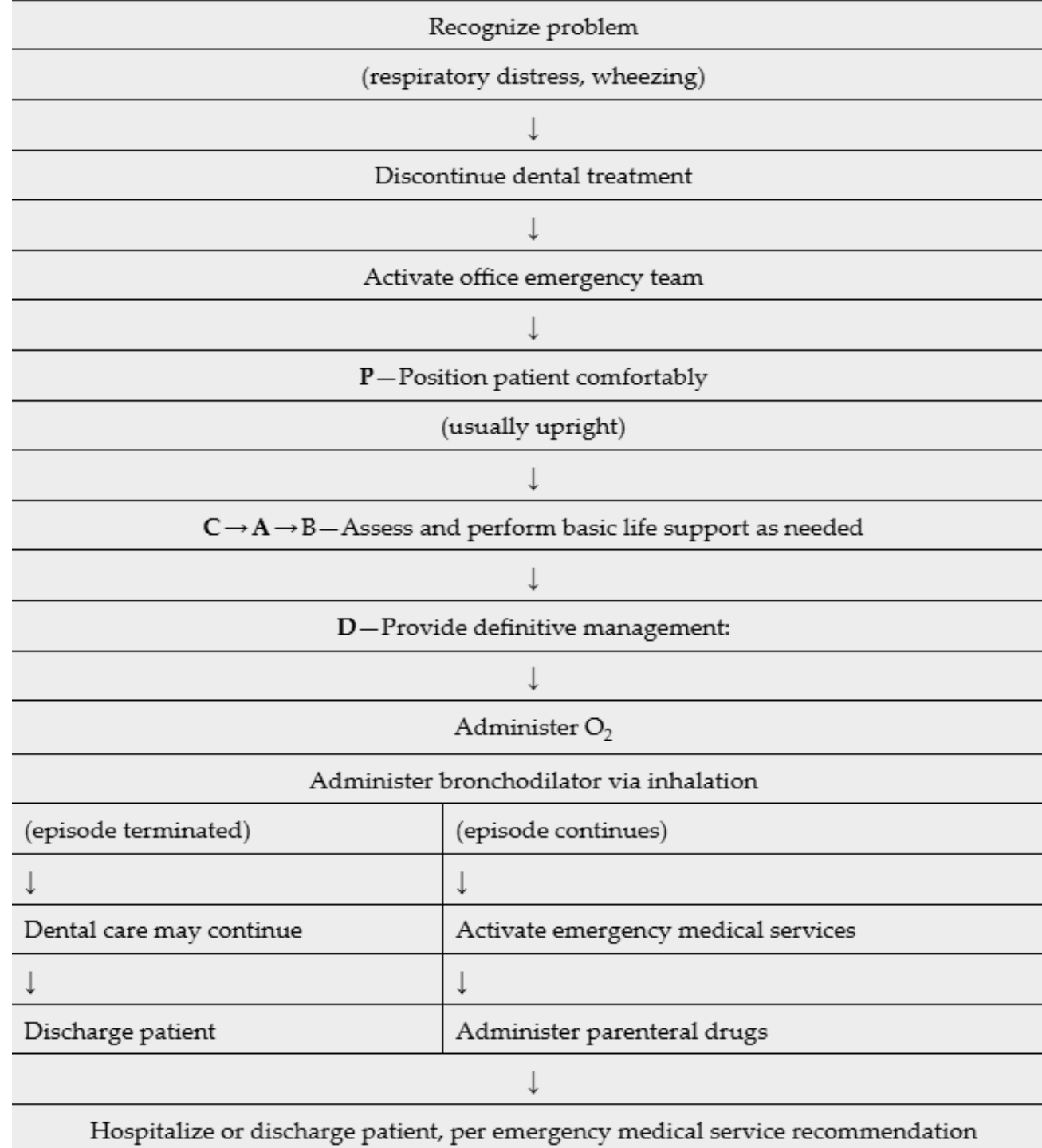
Pulmonary Disorder with sudden onset

Patient's airway narrows

Allergic reaction, severe emotional stress, or respiratory infection could cause an asthma attack

Patient's inhaler





# Comprehension Question

What is the medical term for stroke?

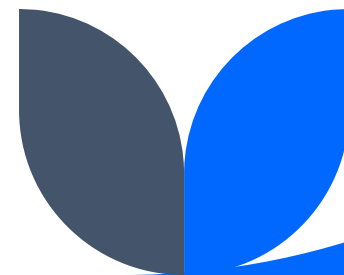


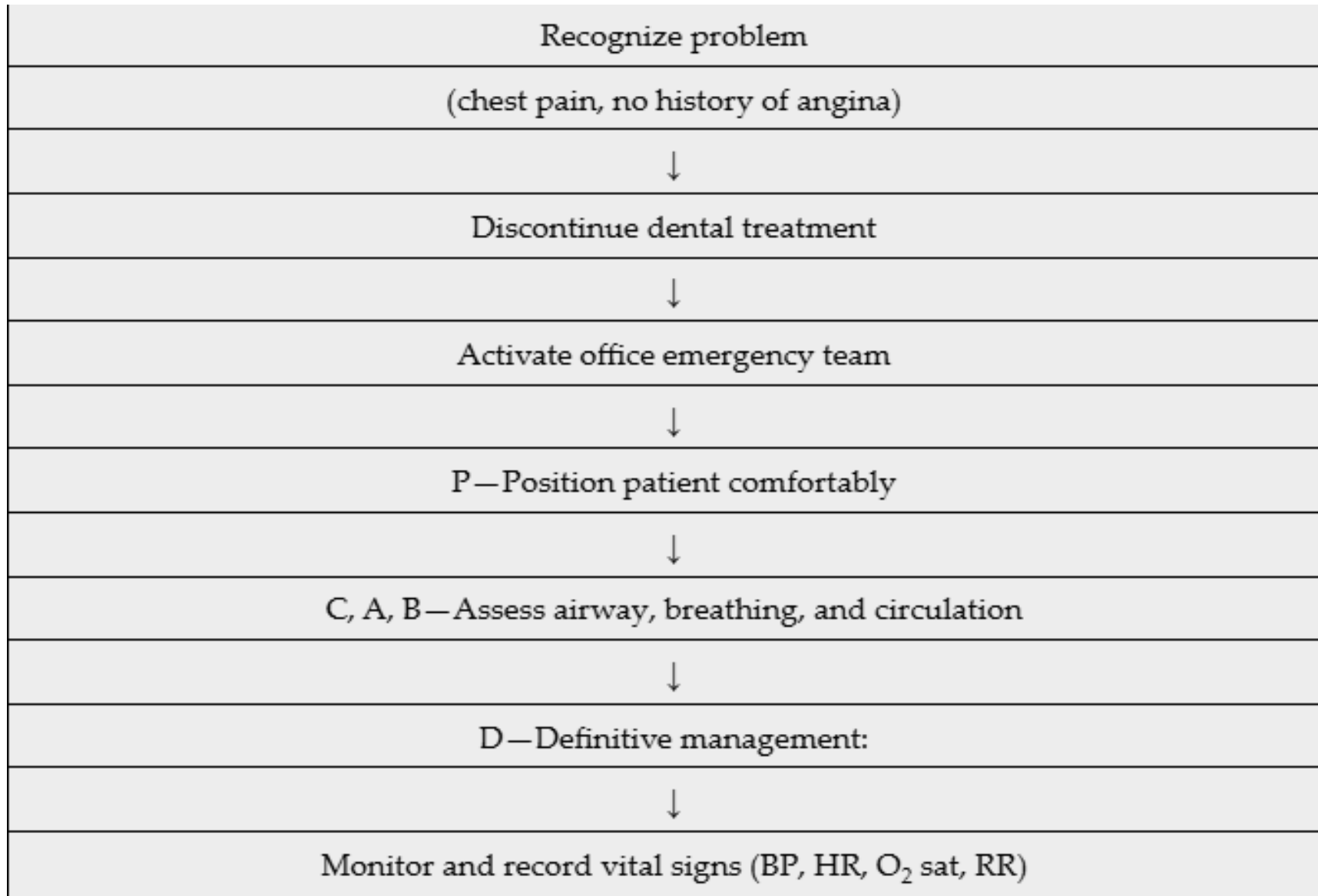
# Acute Myocardial Infarction

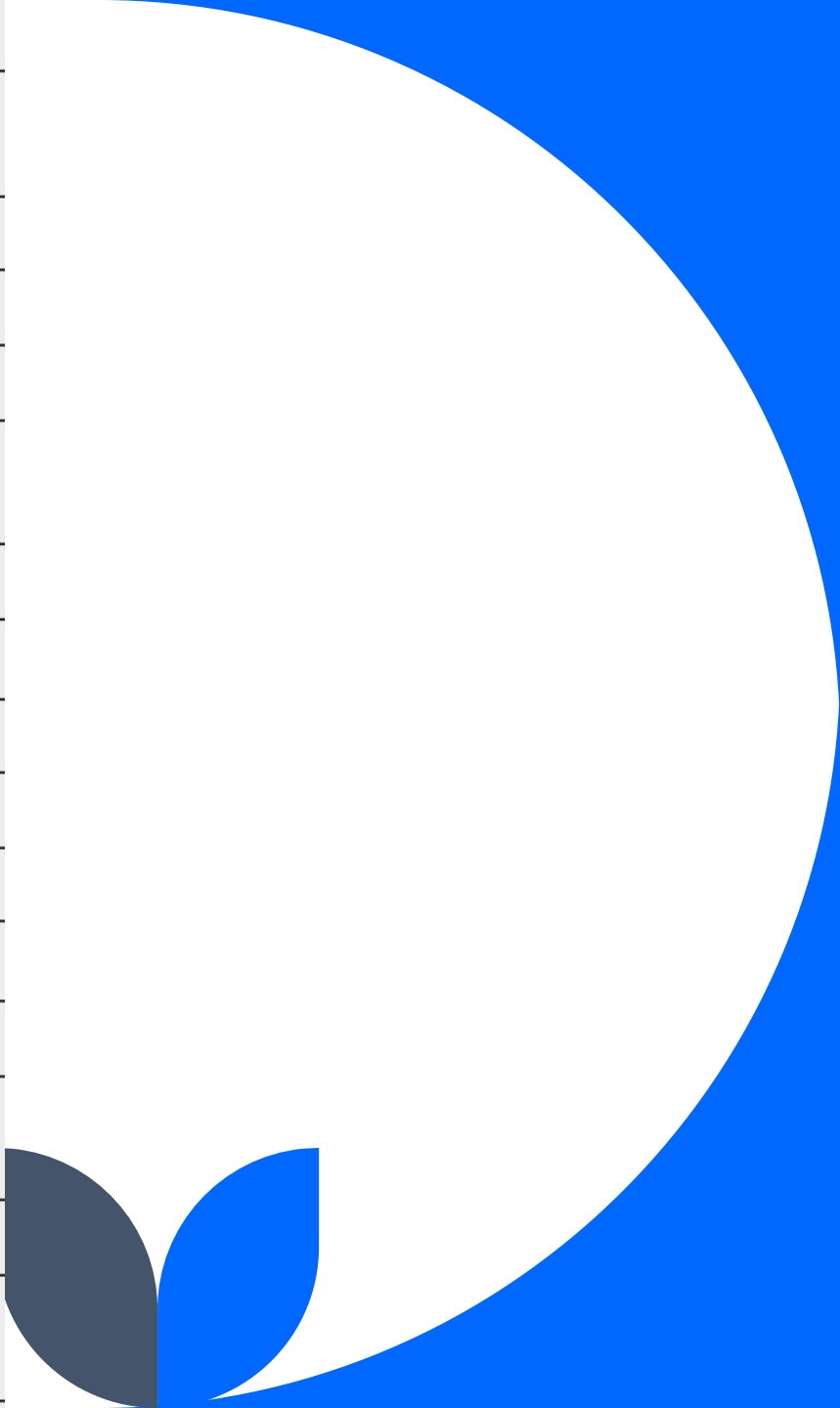
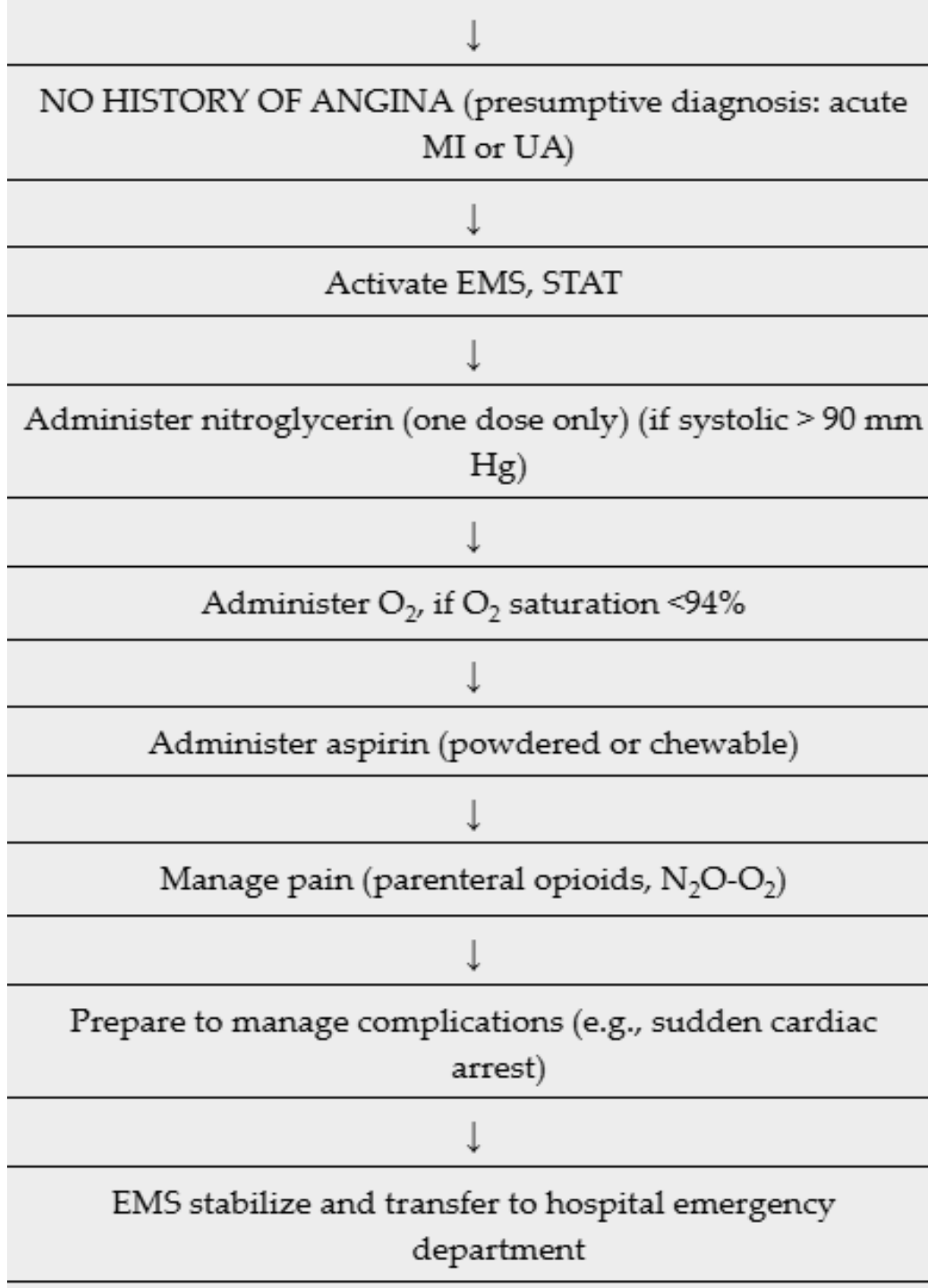
Known as heart attack

Lack of oxygen supply to the muscles of the heart causing damage

Dental team must be swift and cautious, untreated can lead to death







# Allergic Reaction

Referred to Hypersensitivity

Altered state of reactivity that occurs in body tissues in response to specific antigens

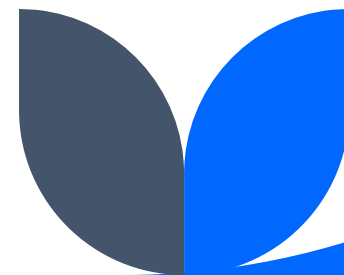
Antigens cause an immune response through the production of antibodies

Antigens can trigger an allergic state that is known as an allergen

Speed of symptoms

Localized: Slow and Mild

Anaphylaxis: Fast and Death



Signs & symptoms of allergy are present – urticaria, erythema, pruritis, wheezing, hypotension, loss of consciousness



Discontinue dental treatment



Activate office emergency team



P – Position patient supine with feet elevated slightly



C → A → B – Assess and perform basic life support, as needed



D – Definitive management



Activate EMS



Administer epinephrine (AIE – IM, vastus lateralis)



Administer O<sub>2</sub>



Monitor and record vital signs



Permit recovery

Hospitalize or discharge of patient, as per EMS

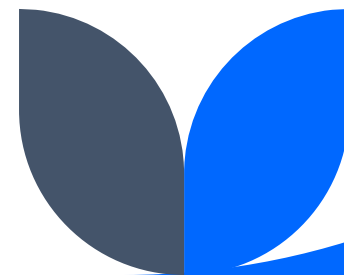
# Epileptic Seizure

Neurologic Disorder

Recurrent episodes of seizures

Controlled with medication

Generalized and Focal



PRODROMAL PHASE	
Recognize aura	
↓	
Discontinue dental treatment	
ICTAL PHASE	
↓	
Activate office emergency team	
↓	
P—Position patient – supine with feet elevated	
↓	
Consider activation of emergency medical services	
↓	
C→A→B	
Assess and perform basic life support as needed	
↓	
D—Definitive care	
Protect patient from injury	
IF SEIZURE PERSISTS FOR MORE THAN 5 MIN	
↓	↓
C→A→B Assess and perform basic life support as needed Protect patient from injury	If available perform venipuncture and administer IV anticonvulsant (midazolam, lorazepam) or IM midazolam (vastus lateralis)
↓	↓
D—Definitive care Protect patient	Administer 50% dextrose solution (IV) for patient

# Diabetes Mellitus

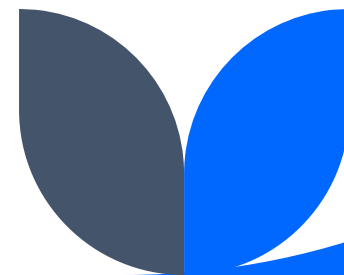
Metabolic disorder from disturbances in the body's normal insulin mechanism

Type 1 diabetes mellitus

Type 2 diabetes mellitus

Hyperglycemia

Hypoglycemia



## Management of Hyperglycemia – Unconscious Patient

Recognize Problem
(lack of response to sensory stimulation)
↓
Discontinue dental treatment
↓
Activate office emergency team
↓
P – Position patient in supine position with feet elevated
↓
C → A → B – Assess and perform basic life support as needed
↓
D – Provide definitive management as needed
Summon emergency medical service,
Establish intravenous infusion, if possible,
Administer O <sub>2</sub> ,
Transport to hospital for definitive management

## Management of Hypoglycemia – Conscious Patient

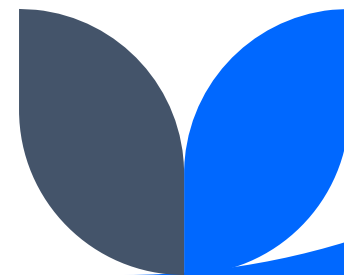
RECOGNIZE PROBLEM	
(altered consciousness)	
↓	
Discontinue dental treatment	
↓	
Activate office emergency team	
↓	
P – Position patient comfortably	
↓	
C → A → B – Assess and perform basic life support as needed	
↓	
D – Provide definitive management:	
Administer oral carbohydrates	
If successful	If unsuccessful
↓	↓
Permit patient to fully recover ↓	Activate emergency medical service
Discharge patient – if uncertain of degree of recovery, a responsible adult (someone with a vested interest in the health and safety of the patient) should be called to take the patient home.	↓
Administer parenteral carbohydrates	
↓	
Monitor patient	
↓	
Discharge patient	

## Management of Hypoglycemia – Unconscious Patient

RECOGNIZE PROBLEM
(lack of response to sensory stimulation)
↓
Discontinue dental treatment
↓
Activate office emergency team
↓
P – Position patient in supine position with feet elevated
↓
C → A → B – Assess and perform basic life support as needed
↓
D – Definitive management:
Summon emergency medical service,
Administer carbohydrates:
IV 50% dextrose solution – if IV route available, or 1 mg glucagon via IV (if available) or IM route
Monitor and record vital signs every 5 minutes
Administer O <sub>2</sub>
↓
Allow patient to recover and discharge per medical recommendations

# Comprehension Question

What type of allergic reaction can be life threatening?



# Extrapyramidal Reactions

Side effects that occur due to the use of certain medications; antipsychotic drugs.

Affects the motor system

Signs and Symptoms

Tardive Akathisia

Tardive Dyskinesia

Treatment – IV Diphenhydramine (Benadryl)

<https://www.youtube.com/watch?v=2krwEbm5hBo>

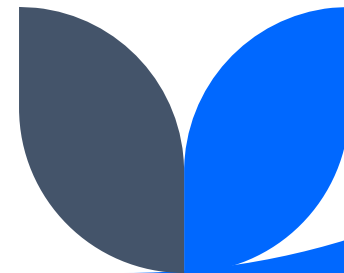


# Acute Adrenocortical Insufficiency (CRISIS)

Life-threatening

Adrenal glands do not produce enough cortisol hormones

Signs and Symptoms



## Management of Adrenal Insufficiency: Conscious Patient

Assess Consciousness
Conscious (victim responds to stimulation)
↓
Terminate dental treatment
↓
<b>P</b> – Position patient comfortably if asymptomatic; supine with feet slightly elevated if symptomatic
↓
<b>C</b> → <b>A</b> → <b>B</b> – Provide BLS as needed
↓
<b>D</b> – Definitive care:
Monitor vital signs
Summon medical assistance
Obtain emergency kit and O <sub>2</sub>
Administer glucocorticosteroid, if available, and if history of adrenal insufficiency exists
↓
Consider additional management:
Provide BLS as needed
Provide O <sub>2</sub> as needed
Provide glucocorticosteroid as needed
Establish IV access

## Management of Adrenal Insufficiency: Unconscious Patient

Assess Consciousness
Unconscious
(victim unresponsive to sensory stimulation)
↓
<b>P</b> – Position patient supine with feet elevated slightly
↓
<b>C → A → B</b> – Provide BLS as needed
↓
<b>D</b> – Definitive care:
Summon medical assistance
Obtain emergency kit and O <sub>2</sub>
Evaluate medical history
Monitor vital signs
↓
Consider additional management:
Provide BLS as needed
Provide O <sub>2</sub>
Provide glucocorticosteroid as needed
Establish IV access if possible
↓
Transfer to hospital

# Mental Health First Aid

Teaching you how to assist and support others who may be experiencing mental health or substance use challenges.






## 988 Suicide and Crisis Lifeline

Call or text 988 to connect with a trained crisis counselor

Chat online with a trained crisis counselor

[https://alison.com/tag/mental-health#google\\_vignette](https://alison.com/tag/mental-health#google_vignette)

### ALGEE: THE ACTION PLAN

-  **ASSESS** for risk of suicide or harm.
-  **LISTEN** non-judgmentally.
-  **GIVE** re-assurance and information.
-  **ENCOURAGE** appropriate professional help.
-  **ENCOURAGE** self-help and other support strategies.



# Documentation of an Emergency

Full documentation of the details of an emergency is essential

After such an emergency, the dentist will make extensive notes in the patient's record to:

- Explain exactly what happened

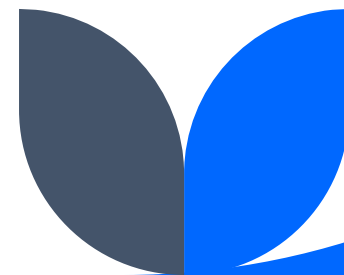
- Indicate the treatment provided

- Describe the patient's condition at the time he or she left the office



# SUMMARY

Even though medical emergencies are a rare occurrence in the dental setting, when it does happen, it is crucial that the dental assistant and the rest of the dental team is well prepared and ready to follow through with the practice protocols and steps.



# Critical Thinking Activity

1. You are escorting a patient to the treatment areas and notice that she appears flushed and is sweating. You take her vital signs and note a rapid heart rate and a decrease in her blood pressure. What warning sign could this represent regarding a medical emergency?  
– Group 1
2. How would the dental team respond to the patient described in question 1? – Group 2
3. The dentist has just finished administering local anesthesia when a patient complains of shortness of breath and “not feeling well.” What medical emergency would you suspect, and how should the dental team respond? – Group 3
4. What should be kept available in the dental office for a patient with hypoglycemia? – Group 4
5. Why would you not place anything in a patient’s mouth during a grand mal seizure? – Group 5



**Questions?**



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