Syncope

Neurology Module

AFEM Core Curriculum

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Syncope

- Self-limited loss of consciousness
  - Associated with loss of postural tone
    - Spontaneous return to baseline

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- Presyncope is near loss of consciousness – managed as syncope

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first five minutes

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First five minutes

- ABC
- Vital signs inc oxygen saturation
- Cardiac monitor and ECG
- Blood Glucose

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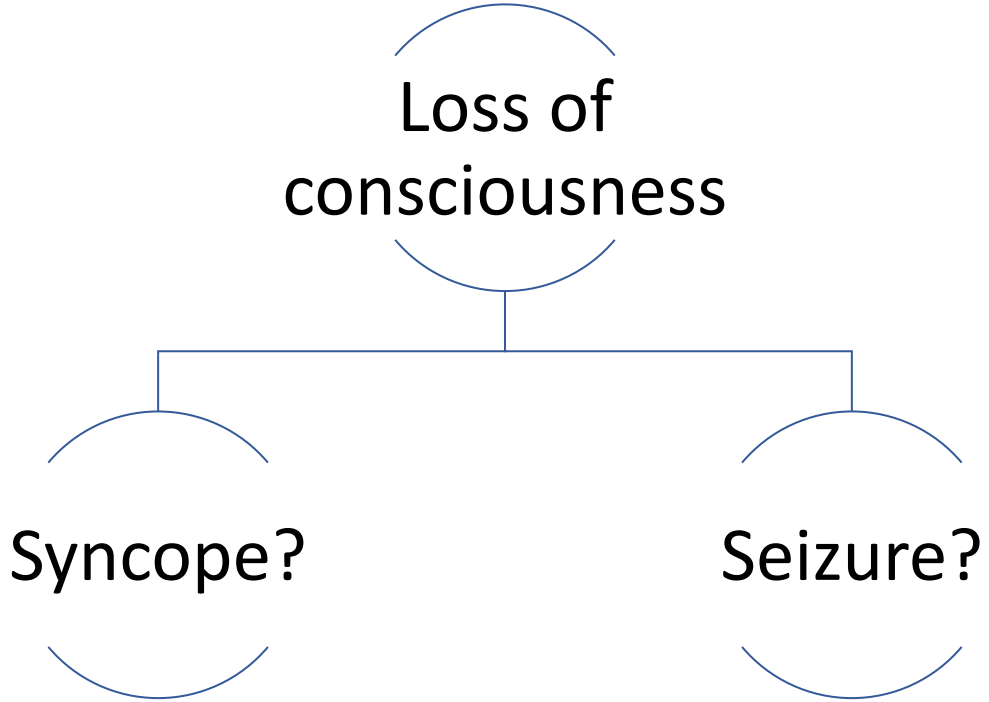
possible causes and differential diagnosis

Primary differential for syncope



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Common pitfall

- Convulsive movements after syncope are common
- “Convulsions” do NOT always = seizure
- Seizure signs:
  - post-event confusion
  - tongue biting
  - history of seizure
  - incontinence

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differential diagnoses that are NOT syncope

- Arrhythmia
- Congestive cardiac failure
- Metabolic
  - Hypoxia
  - Hypoglycaemia
  - Hypocapnia
- Intoxication
- Psychogenic

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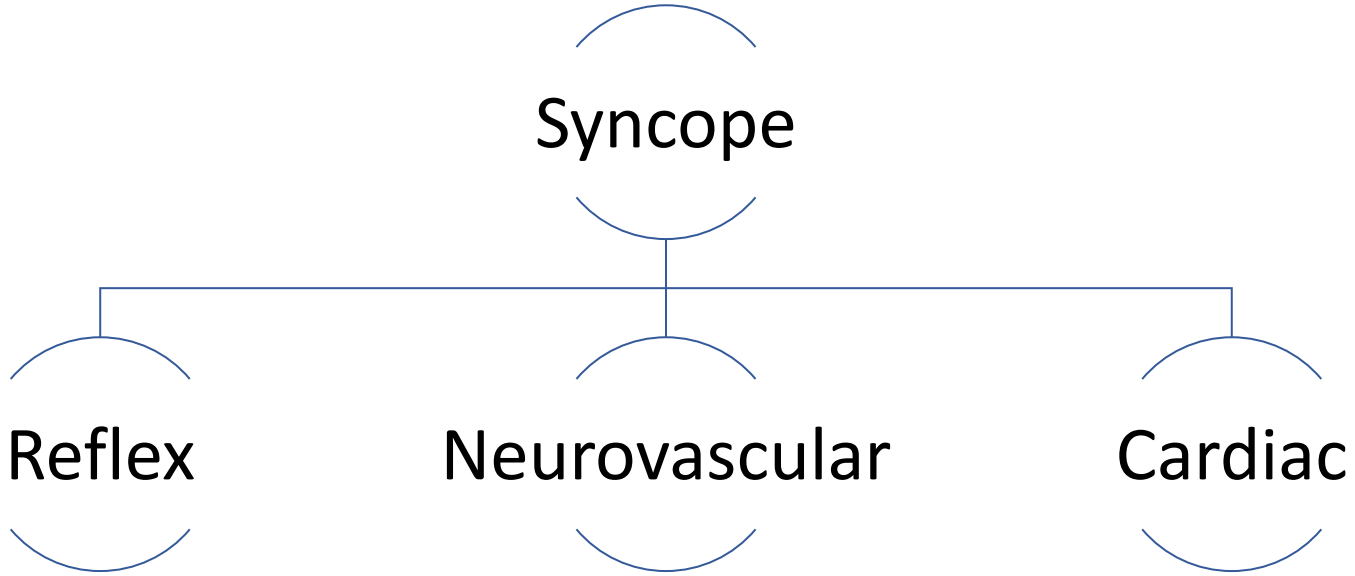
Syncope causes (a helpful framework)



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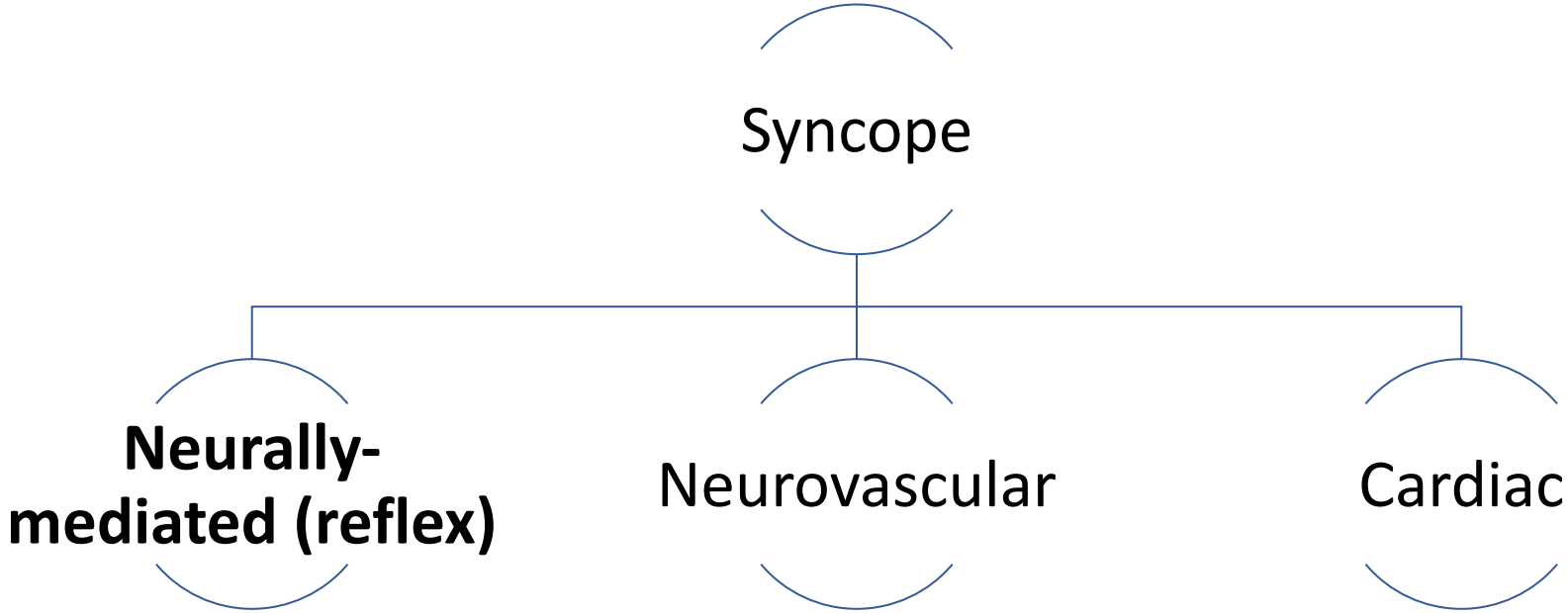

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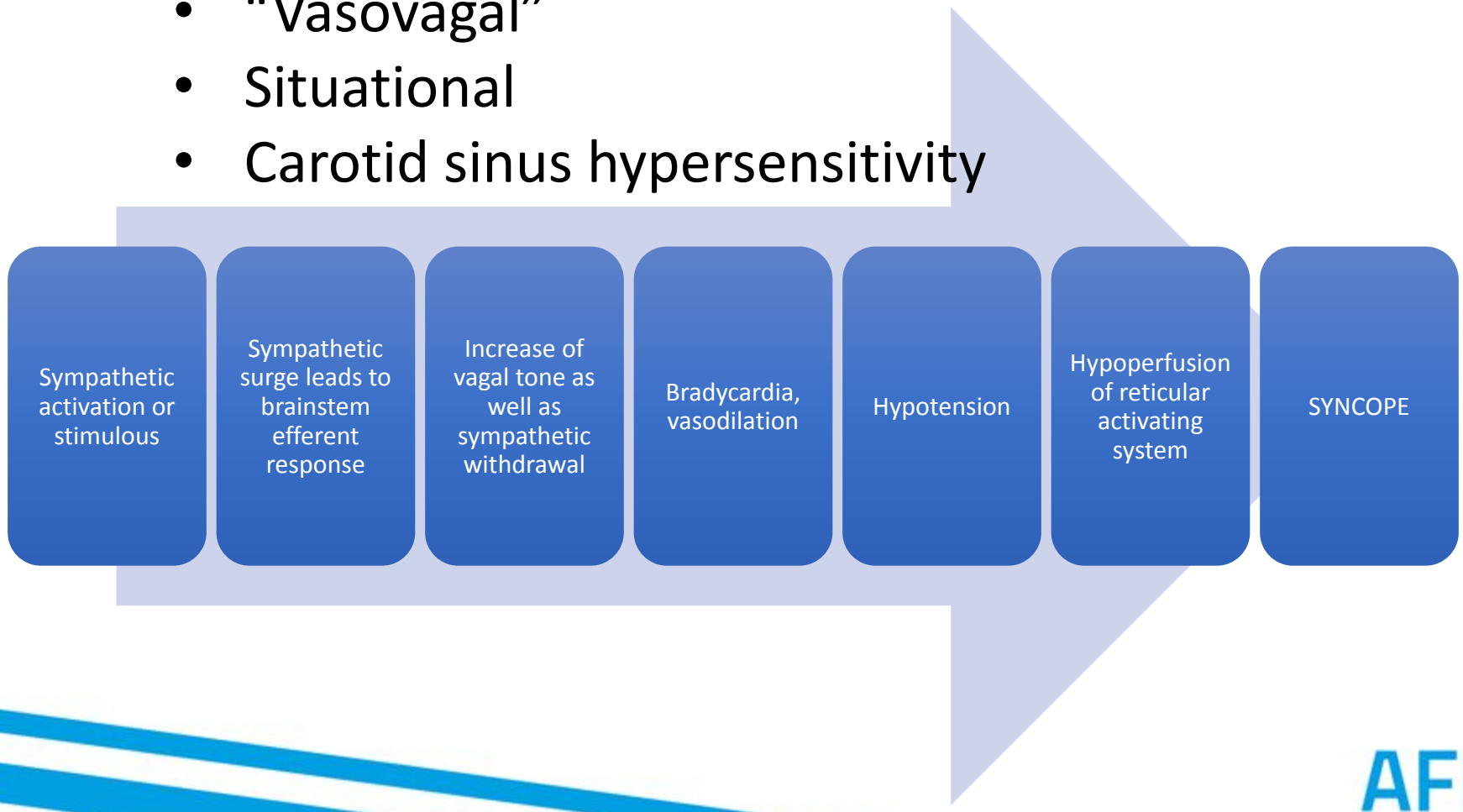
Neurally-mediated (reflex) syncope

- “Vasovagal”
- Situational
- Carotid sinus hypersensitivity



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Neurally-mediated (reflex)

- 25-65% of syncope -- excellent prognosis
- Self-limited bradycardia/vasodilation causes transient hypotension

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- **Vasovagal**: emotional distress/painful stimuli
- **Situational**: micturation, defecation, cough/sneeze, post-prandial
- **Carotid sinus hypersensitivity**: turning neck causes reflex syncope

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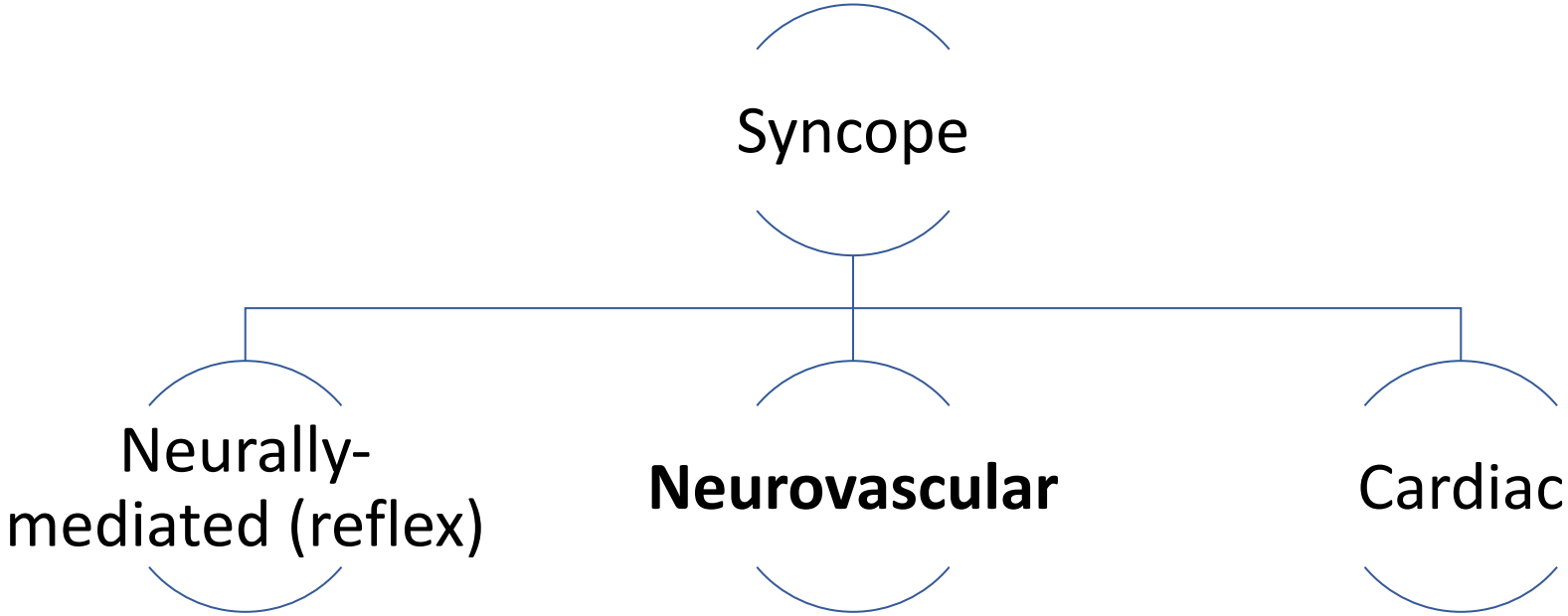
Syncope causes (a helpful framework)



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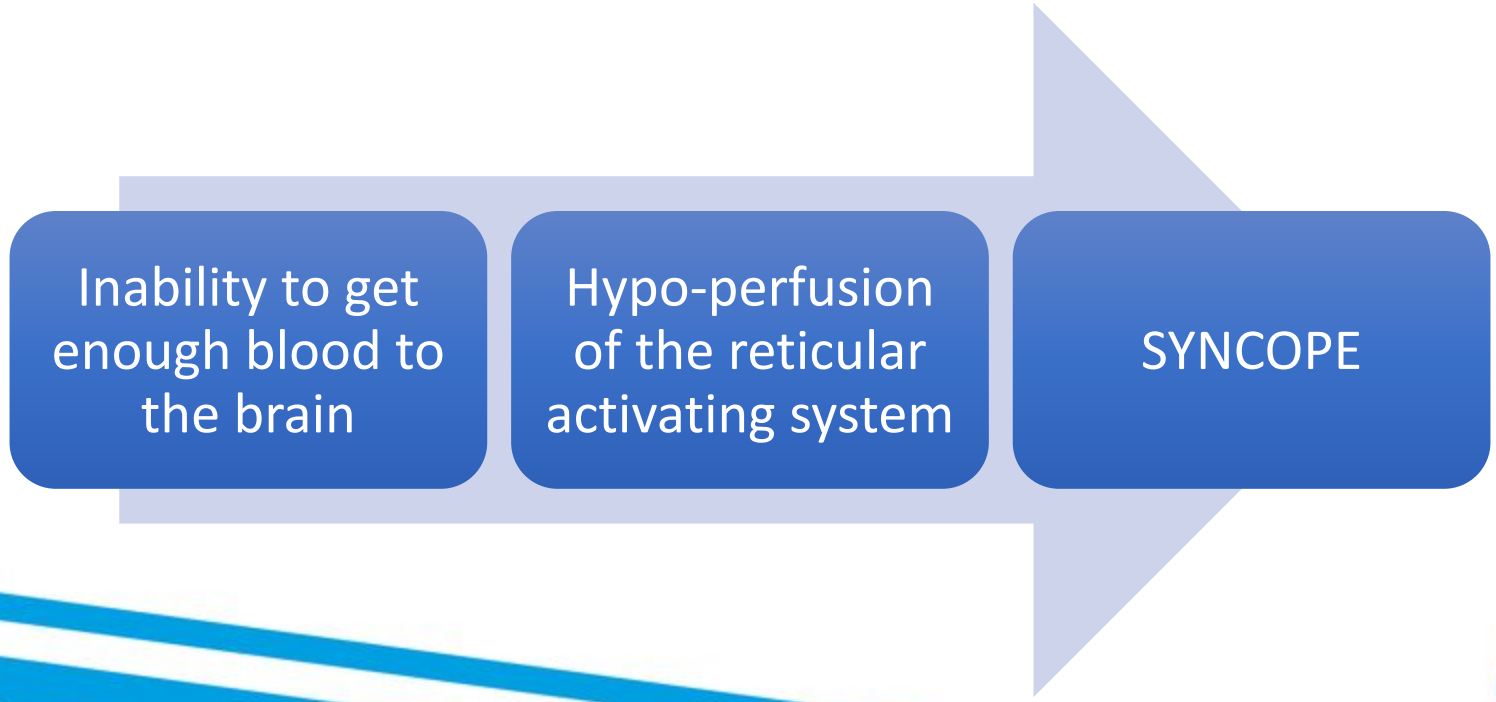
Neurovascular syncope:

- Bilateral cerebral hemisphere hypo-perfusion
  - Autonomic failure
  - Volume loss/orthostatic hypotension



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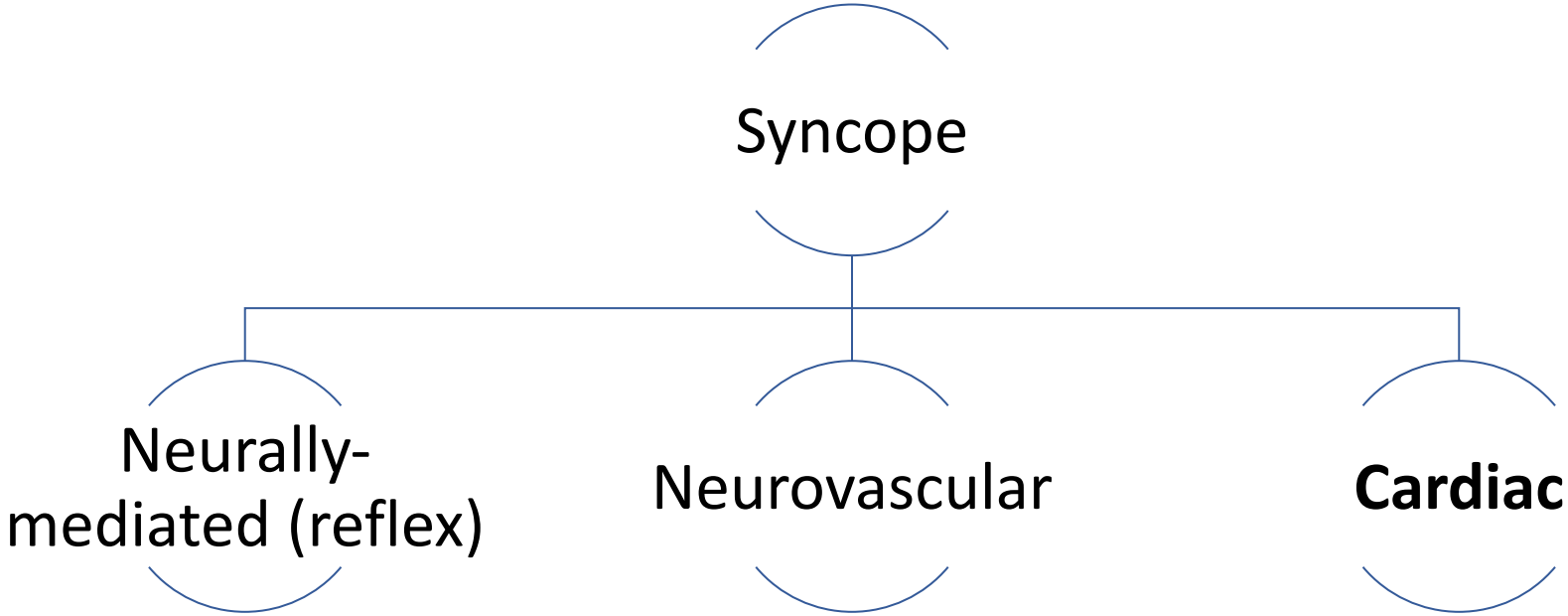
Neurovascular syncope:

- Consider causes of volume loss from:
  - Dehydration
  - Ectopic pregnancy
  - GI bleed

Syncope causes (a helpful framework)



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Cardiac causes of syncope

- Often life-threatening, “can’t miss” diagnoses

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- **Dysrhythmia**
  - Bradycardia, tachycardia

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- **Structural**
  - Valvular disease, failure, acute infarct, tamponade, congenital disease

Cardiac causes of syncope

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- **Dysrhythmia**
  - Bradycardia, tachycardia
- **Structural**
  - Valvular disease, failure, acute infarct, tamponade, congenital disease
- **Increase in afterload**
  - Pulmonary HTN, pulmonary embolism, hypertrophic cardiomyopathy

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history and physical exam

PRE syncope symptoms	Suggests…
• Nausea, tunnel vision, diaphoresis?	• Reflex or Vasovagal

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• Chest pain?	• Ischaemia or Aortic stenosis

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PRE syncope symptoms

- Nausea, tunnel vision, diaphoresis?
- Chest pain?
- Dyspnea?

Suggests…

- Reflex or Vasovagal
- Ischaemia or Aortic stenosis
- Pulmonary embolism

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PRE syncope symptoms	Suggests…
• Nausea, tunnel vision, diaphoresis?	• Reflex or Vasovagal
• Chest pain?	• Ischaemia or Aortic stenosis
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• Headache?	• Subarachnoid hemorrhage

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PRE syncope symptoms	Suggests…
• Nausea, tunnel vision, diaphoresis?	• Reflex or Vasovagal
• Chest pain?	• Ischaemia or Aortic stenosis
• Dyspnea?	• Pulmonary embolism
• Headache?	• Subarachnoid hemorrhage
• Sudden syncope with no warning?	• Dysrhythmia

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Other crucial history

- **Activity** just prior to syncope
  - Exertion? Standing? Emotional distress? Sitting or lying?

- **Medications**
  - New med? Change in meds? Herbal or traditional meds? QTc prolonging?

- Structural heart disease, Dysrhythmias, Prior syncope

- Family history of sudden cardiac death
  - Especially at young age or during exertion

- **Post**-syncope symptoms
    - Headache, chest pain, abdominal pain, dyspnea, etc.

Signs and symptoms

- VS: Bilateral upper extremity blood pressure and pulse
- Cardiopulmonary
- Neck
- Rectal
- Oral
- Abdominal

Signs and symptoms

- VS: Bilateral upper extremity blood pressure and pulse
  - Unequal in subclavian steal/aortic dissection
- Cardiopulmonary
  - Murmurs in critical AS, HCM
- Neck
  - JVD: PE/tamponade
  - Meningismus: SAH
  - Bruits: cerebrovascular disease
- Rectal
  - Consider GI bleed, melena
- Oral
  - Tongue bites suggests seizure
- Abdominal
  - Pulsatile abdominal mass: AAA
  - Peritonitis: ectopic pregnancy

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investigations

Investigations

- **Testing depends on clinical picture**
- ECG if possible
- Urine pregnancy test
- Haematocrit/Hemoglobin
- Electrolytes
- Cardiac enzymes

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management


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Management

Goal of acute management is to recognize and manage life-threats

- Differentiate from mimics, primarily seizure
- Rehydration trial if suspect dehydration

Management

High-risk indicators accompanying syncope

(further testing and/or admission/transfer may be indicated):

- Abnormal ECG
- History of dysrhythmia, structural heart disease, CHF
- SBP <90
- Hgb <10
- Old age, comorbidities, pregnancy
- Family history of sudden death
- Exertional syncope (SAH, HOCM)

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disposition

Disposition

- **Admit or Transfer for higher level care**
  - Severe structural or coronary heart disease
  - Concern for dysrhythmia:
    - Exertional, supine syncope, no prodrome, palpitations, family hx of sudden death
    -
    - Concerning ECG findings
      - VT, Brugada, ischaemia, AV block, sinus pause, ARVC patter, HOCM pattern

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Disposition

- **Discharge for outpatient follow up**
  - Absence of heart disease and story consistent with reflex syncope
    - Typical prodrome
  - Young, non-exertional, no cardiac disease, no family history of sudden death and normal ECG
  - Clear non life-threatening cause found

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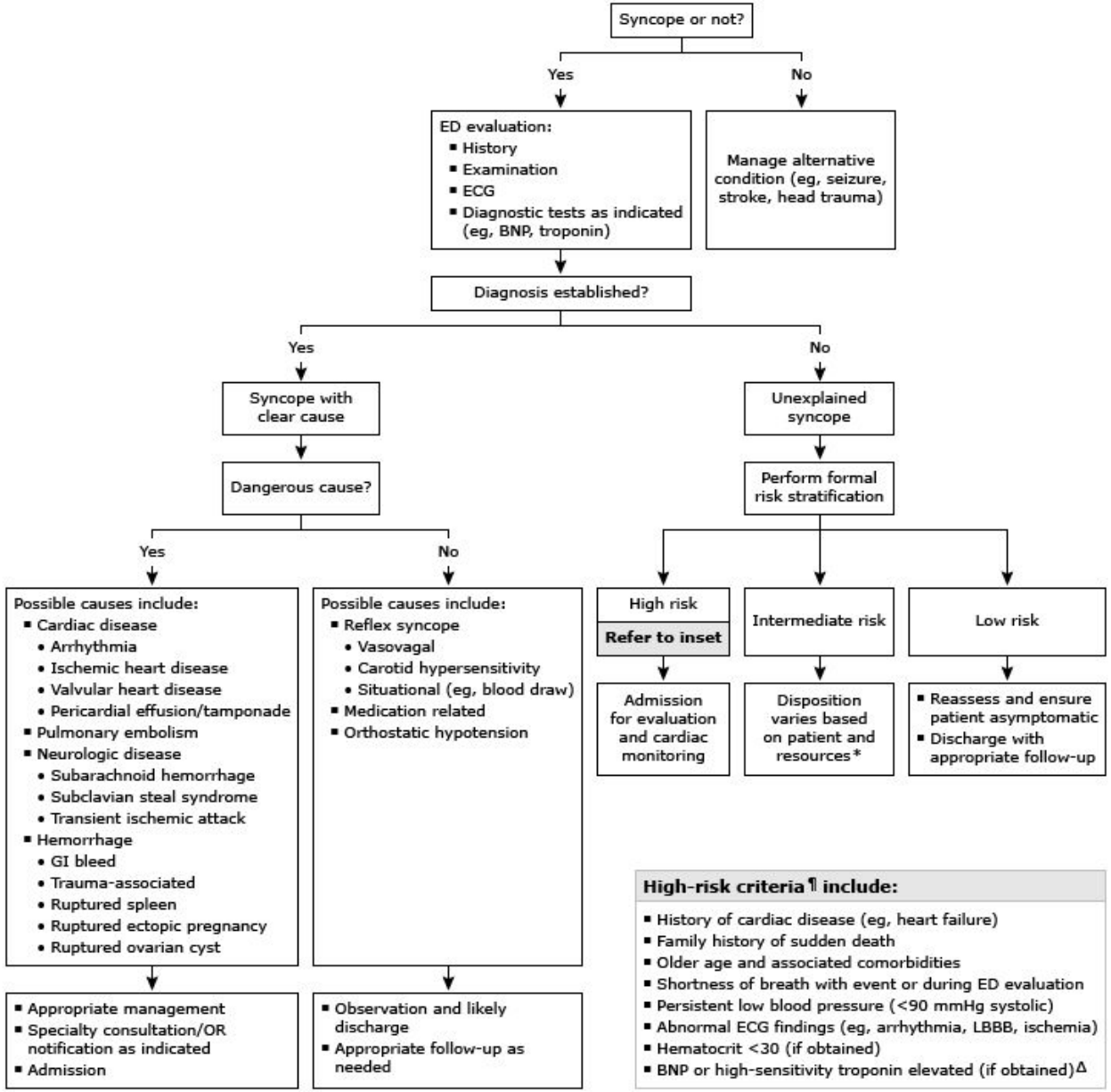

https://www.uptodate.com/contents/approach-to-the-adult-patient-with-syncope-in-the-emergency-department/print?search=syncope&topicRef=969&source=see_link

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Syncope

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Syncope

Rapid Assessment Protocol

AFEM Keystone Module

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Objectives

- Understand how to use appropriate Rapid Sequence Protocol for adults presenting with syncope

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Case

- 22 yro female student
- Fell down 5 times during basketball matches in the last 1 week
- Vitals: Temp 36.2°C, SPO_2 98%, BP 120/75, RR 14, HR 78

Image courtesy of James Roh for the Seattle Times

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Which RAP and why?

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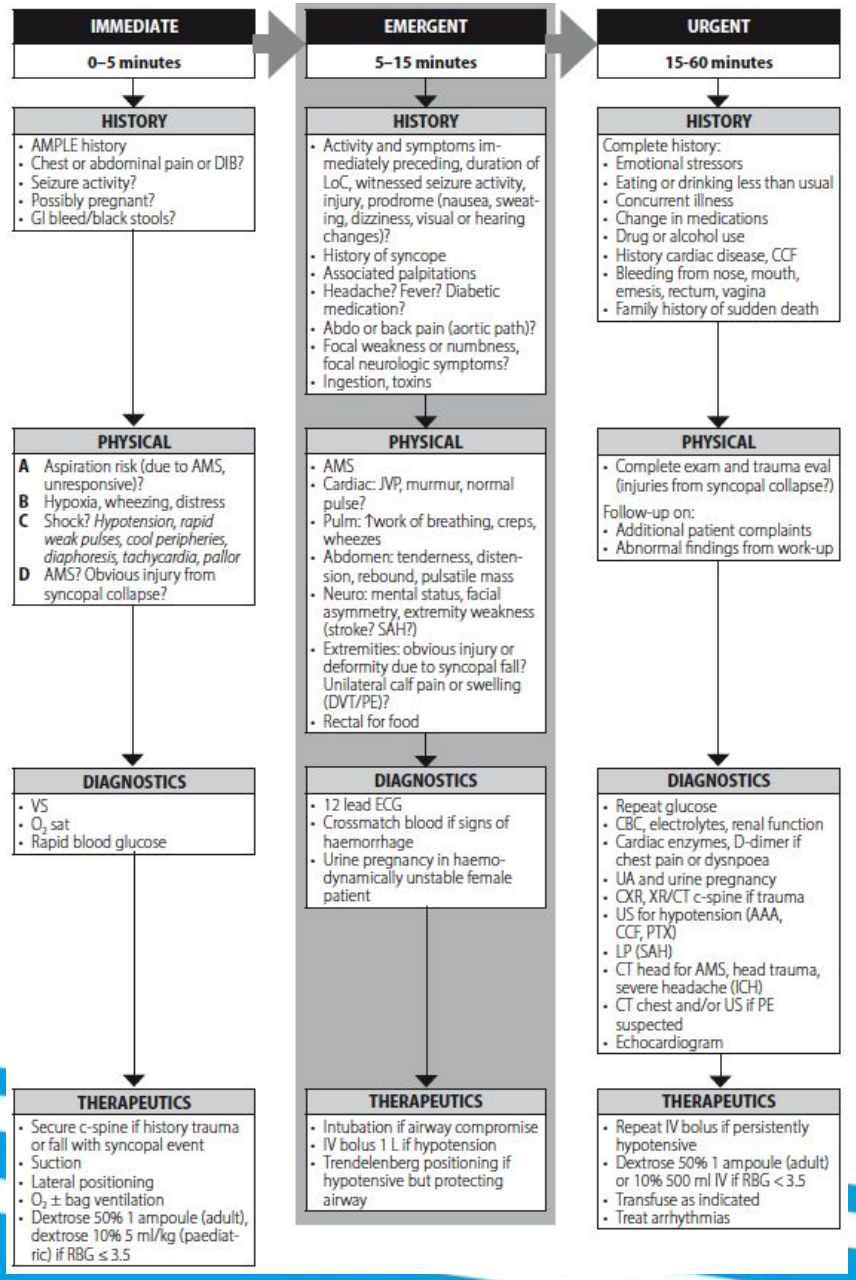
Syncope



PROMINENT FEATURES that would suggest …	RELEVANT CHAPTERS
Abdominal pain or tenderness, consider: • AAA, GI bleeding • Ectopic pregnancy, sepsis with intra-abdominal source	Abdominal aortic aneurysm p. 112 Upper GI bleeding p. 246 Lower GI bleeding (including diverticulitis) p. 248 Ectopic pregnancy p. 480 Bowel obstruction p. 236 Approach to abdominal pain p. 32
Headache, focal neuro signs, or AMS, consider: • SAH, stroke, SOL, head injury • Meningitis/encephalitis, malaria • Toxic ingestion	**RAP: AMS p. 36** Stroke p. 464 Transient ischaemic attack p. 110 Subarachnoid haemorrhage p. 468 Malaria p. 326 Meningitis p. 330 Toxic shock p. 380
Chest pain, DIB, palpitations, oedema, consider: • MI, DVT/PE, constrictive pericarditis, tamponade, aortic dissection • Critical AS, IHSS/HOCM, pulmonary hypertension, cardiomyopathy, CCF	DVT/PE, tamponade, dissection, cardiomyopathy, CCF pp. 84–127
Persistent hypotension, consider: • Shock (septic, cardiogenic, neurogenic, hypovolaemic) • Severe dehydration • Anaemia • GIB, trauma	Sepsis p. 318 Cardiogenic shock p. 88 Adult resus p. 8 Anaemia p. 285 GIB p. 246, p. 248 ATLS p. 726
Stridor, wheezing, or respiratory distress, consider: • Choking • Anaphylaxis • Upper airway obstruction • Status asthmaticus	**RAP Anaphylaxis p. 38** Choking p. 10 Stridor p. 172 Asthma p. 626
Electrolyte abnormalities: • Hypoglycaemia • Hyperthyroidism • Adrenal insufficiency • Dehydration • Malnutrition • Vomiting • Diarrhoeal illness	Hypoglycaemia p. 402 Hyperthyroidism p. 410 Adrenal insufficiency p. 414 Vomiting p. 274 Diarrhoea p. 242
Headache or neck pain, consider: • C-spine injury, blunt head injury, carotid dissection, SAH	Approach to neuro-imaging p. 734 Head injury p. 755
Tongue wound, urinary incontinence, prolonged confusion, consider: • Seizure • Toxic ingestion	**RAP: Seizures p. 76** Toxic shock p. 380
Prodrome of dizziness, nausea, visual blurring; very hot or dehydrated; emotional stressors; consider: • Vasovagal syncope • Heat-associated illness	Syncope p. 454 Heat-associated illness p. 202

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IMMEDIATE 0 – 5 min

- History
- Physical
- Diagnostics
- Therapeutics

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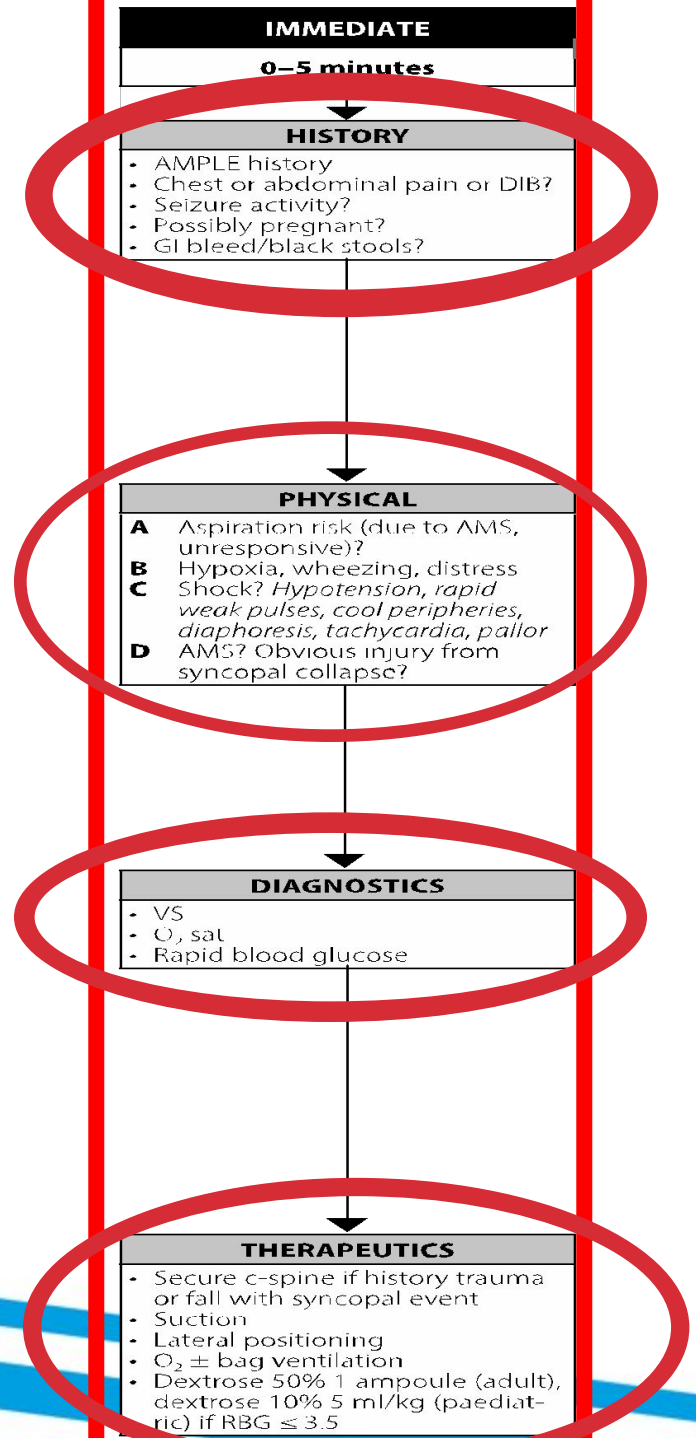

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What is your one-sentence case summary at 5 minutes?

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EMERGENT 5 – 15 min

- History
- Physical
- Diagnostics
- Therapeutics

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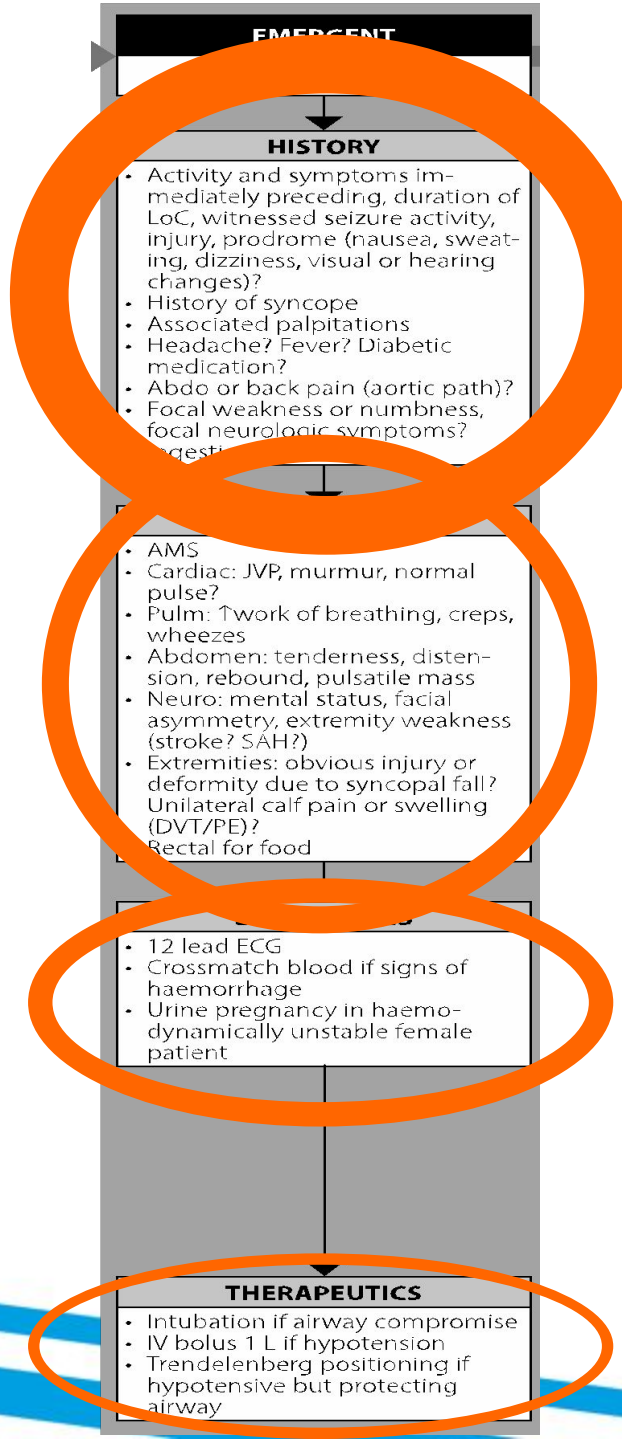

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What is your one-sentence case summary at 15 minutes?

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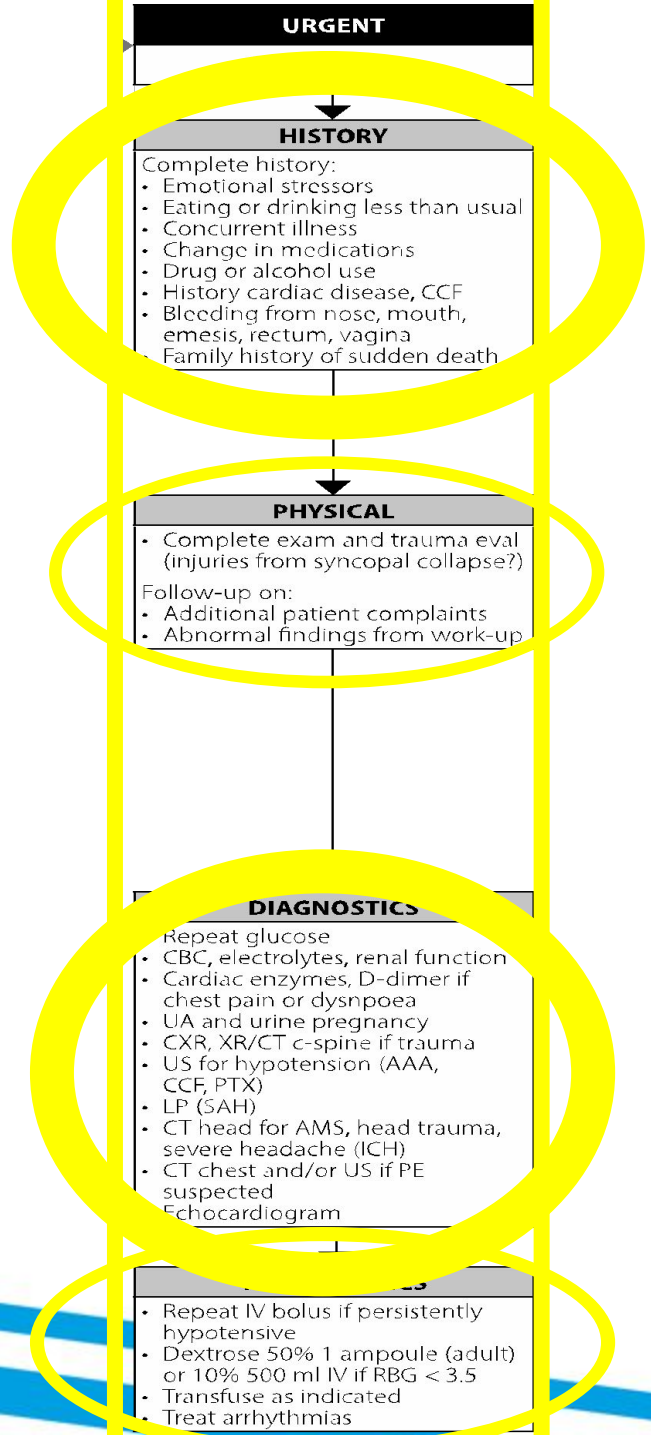
URGENT 15 – 60 min

- History
- Physical
- Diagnostics
- Therapeutics



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Syncope: Definition

- Transient
- Self-limiting LOC
- Loss of postural tone

Syncope

- History:
  - Pre-event
  - Event
  - Post-event
  - Family history
  - CVS history, dysrhythmias
  - Medications

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Syncope

- Examination:
  - BP, pulses
  - CVS
  - Neuro (CVA, SAH)
  - Abdo (AAA, ectopic)
  - Neck (stenosis)
  - Metabolic (glucose, sats)
  - Reflexes

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Syncope

- Investigations:
  - Glucose
  - Pregnancy test
  - Hb / Haematocrit
  - ECG
  - ? CT brain

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Syncope

- Manage the cause
- High risk factors:
  - Abnormal ECG
  - SBP <90
  - SOB
  - Hb <10
  - Hx of heart disease
  - Old age
  - Family hx
  - Exertional

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What is your final 1 – 2 minute handover case summary?

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