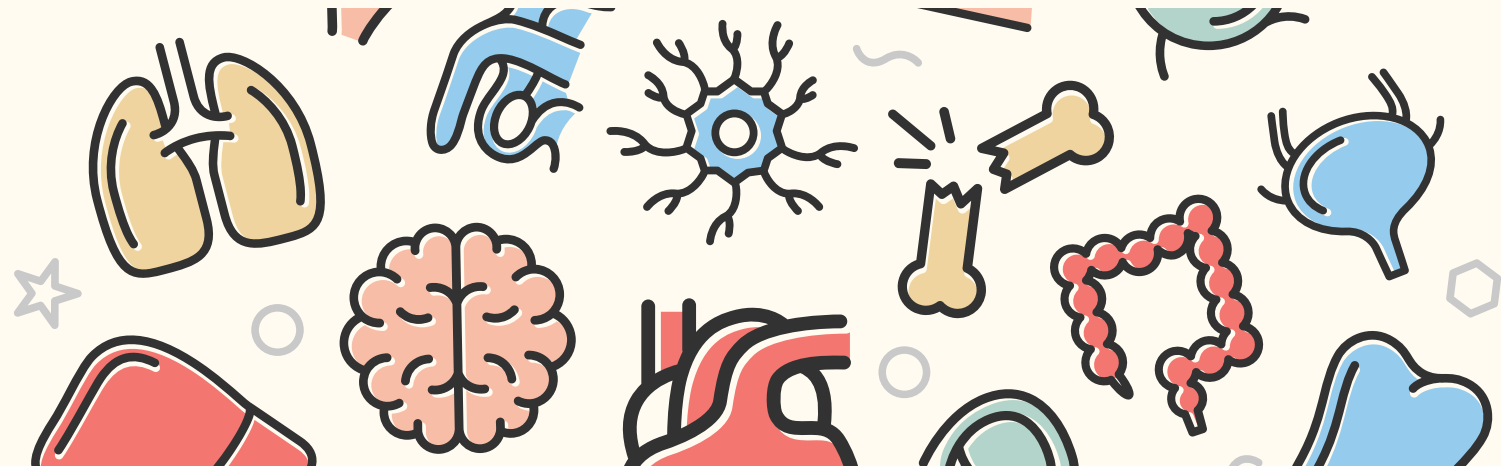


EMERGENCY IN CARDIOVASCULAR AND RESPIRATORY SYSTEMS



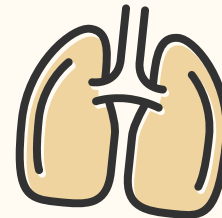
CONTENTS

EMERGENCY CONDITIONS



01

**CARDIOVASCULAR
SYSTEM**



02

**RESPIRATORY
SYSTEM**



01

CARDIOVASCULAR SYSTEM

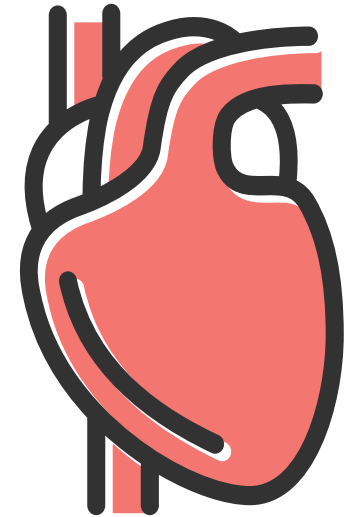
SCOPE OF THE TOPICS



CHEST PAIN

HYPERTENSIVE EMERGENCY

TACHY/BRADYCARDIA



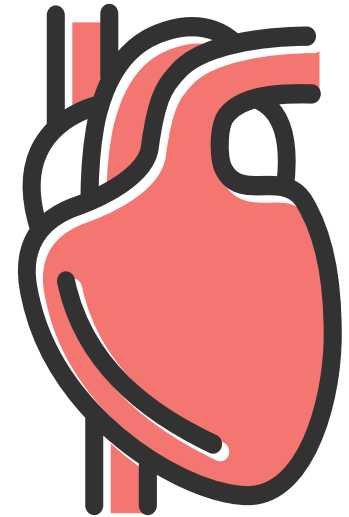
SCOPE OF THE TOPICS



CHEST PAIN

HYPERTENSIVE EMERGENCY

TACHY/BRADYCARDIA



Life Threatening conditions in patient with chest pain



01

Acute coronary syndrome

02

Acute aortic dissection

03

Acute pulmonary embolism

04

Rupture esophagus

05

Tension pneumothorax

06

Acute pericarditis & temponade



Characteristic of chest pain



ACS



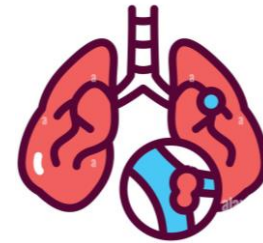
Substernal,
Radiating to arm
DOE, diaphoresis

Acute aortic dissection



Sudden, severe, tearing,
radiating to back
Unequal arm BP > 20 mmHg
Wide mediastinum

Acute pulmonary embolism



Sudden, pleuritic, dyspnea
Tachycardia, tachypnea
Hypoxia
Evidence of DVT
Hx of cancer

Characteristic of chest pain

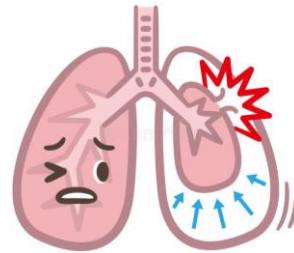


Rupture esophagus



Severe,
increase with swallowing
Fever, abdominal pain
vomiting
Hx of endoscopy,
FB ingestion or trauma

Tension pneumothorax



Sudden, sharp, pleuritic
Decrease breath sound
And chest excursion
Hypoxia

Acute pericarditis & Tamponade

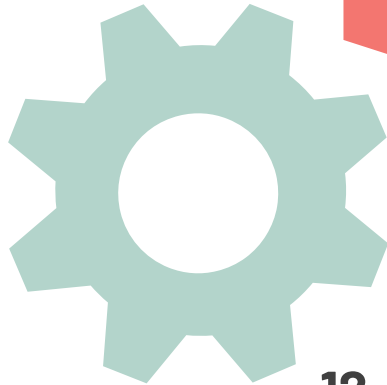


Sudden, pleuritic
Better with sitting forward
Radiating to back
Hypotension

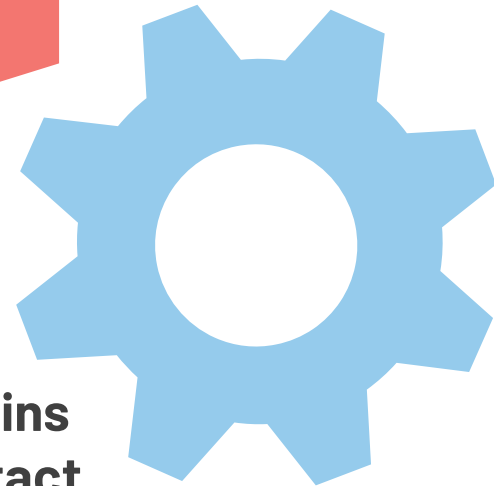
Key Focus in chest pain patient



**Focused
History taking**



**Focused
Physical examination**



**12-lead ECG within 10 mins
After first medical contact**

ECG monitoring with defibrillator capacity is indicated as soon as possible in all patients with suspected STE-ACS

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ACS : Typical chest pain



All of the 3 following

- Chest discomfort
- Pain on exertion
- Relieved with rest/nitrate

Atypical chest pain : have 2/3

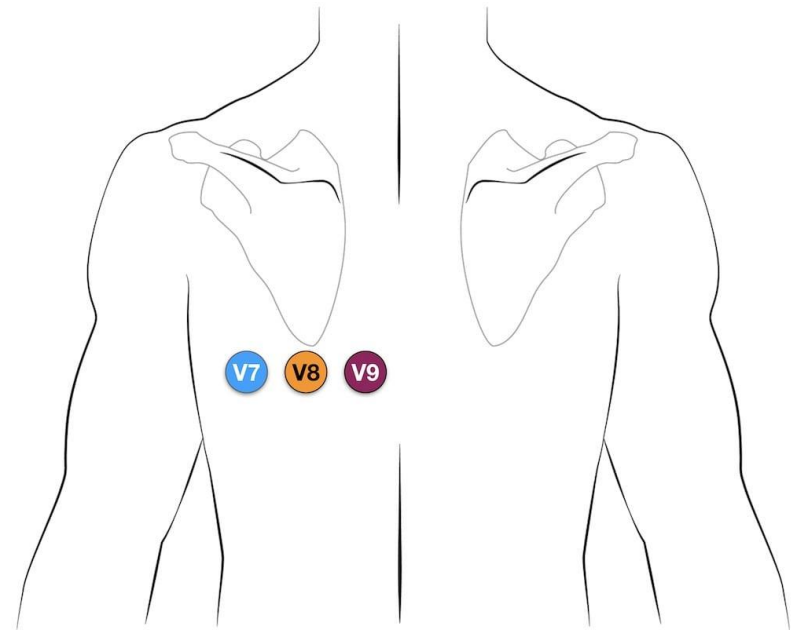
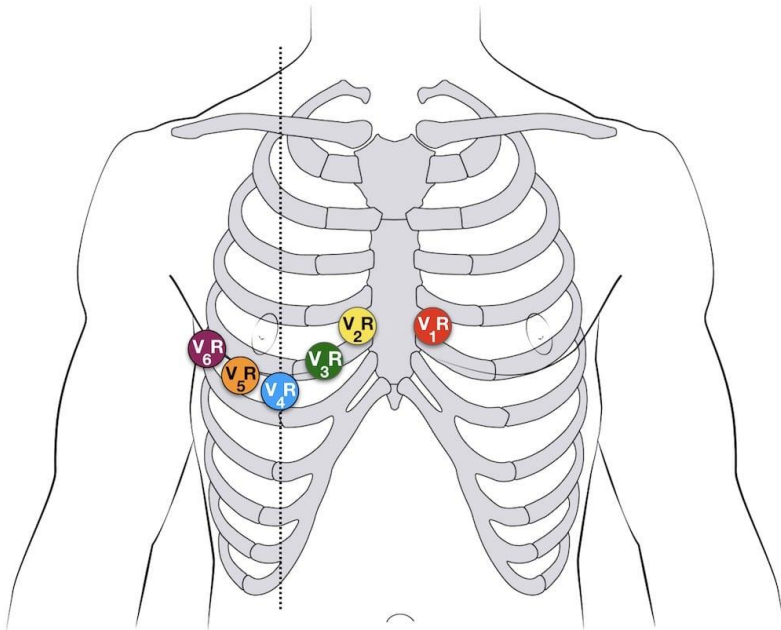
Elderly, DM patients

Additional lead of EKG in STE-ACS

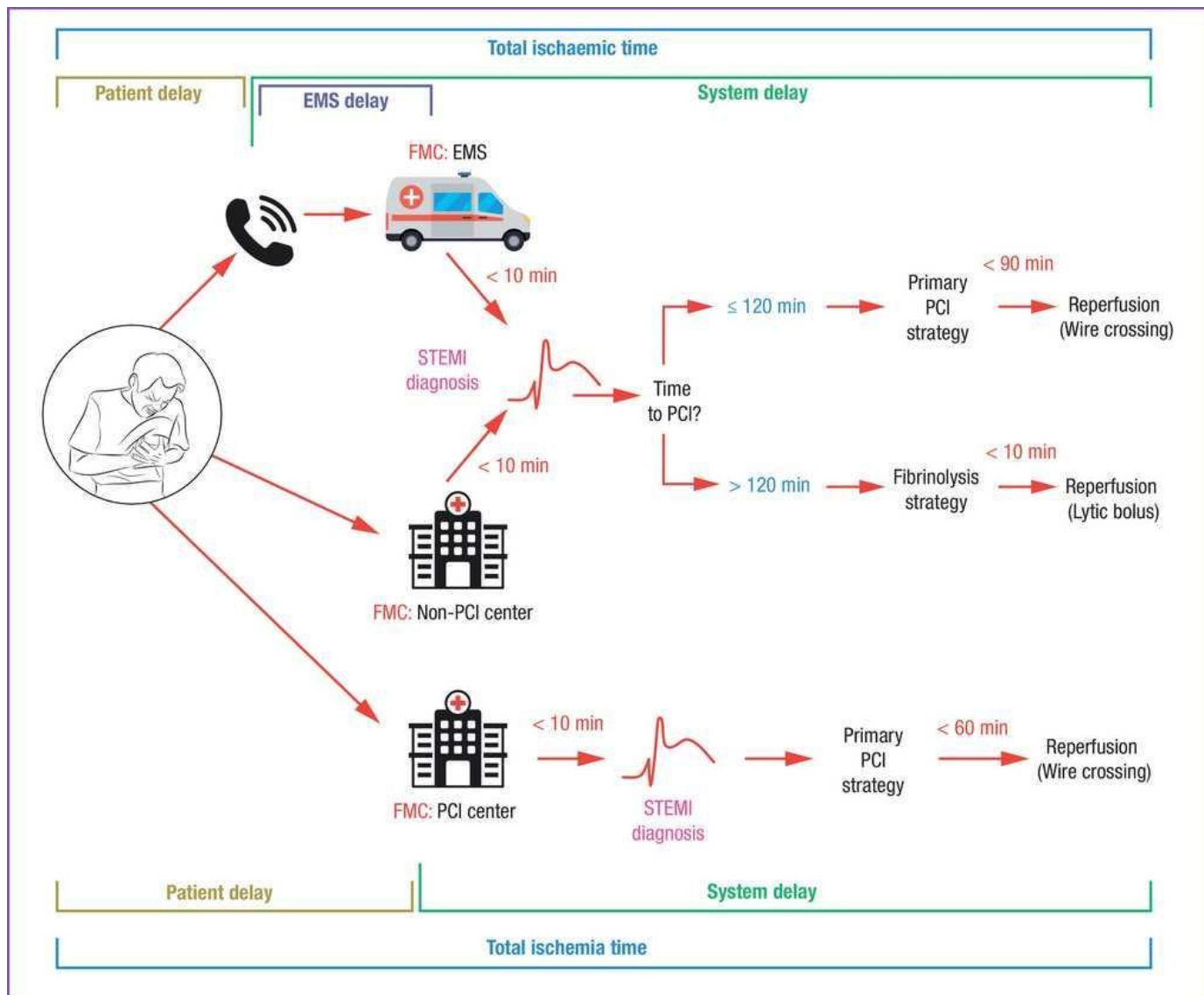


- Inferior wall STE-ACS

- Posterior wall STE-ACS



Maximum target time



Management



- Don't forget patient's chief complaint
 - Relieve symptoms
 - Nitrate sublingual
 - Titrated IV opioids to relieve pain
- Hypoxemia ?
 - Routine O_2 is not recommended in patients with $SaO_2 \geq 90\%$

Management



- Anti-platelet loading
 - ASA 162-325 mg chew
 - Potent P₂Y₁₂ inhibitor
 - Prasugrel(10) 6 tabs oral
 - Ticagrelor (90) 2 tabs oral
 - Clopidogrel (75) 8 tabs oral
- Anti-coagulant loading (usually depend on interventionist)
 - UFH
 - 70-100 IU/kg IV bolus when
 - Enoxaparin
 - 0.5 mg/kg IV bolus

Life Threatening conditions in patient with chest pain



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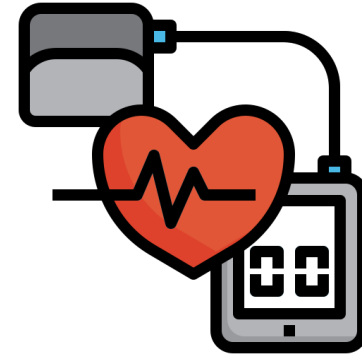
Acute pulmonary embolism

06

Acute pericarditis & tamponade



Diagnosis



Symptom

Abrupt onset of thoracic or abdominal pain with Sharp, tearing character

CXR

Mediastinal and/or aortic Widening on CXR

Physical exam

Variation in pulse and/or Blood pressure

Management



- IV opiate analgesia
- Decrease aortic wall stress
 - Control HR
 - IV b-blocker, nondihydropyridine CCB
 - Target HR 60 bpm
 - Control BP
 - Target : near normal
- Refer

Life Threatening conditions in patient with chest pain



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Acute pericarditis
& tamponade



Acute pulmonary embolism



- Clinical presentation
 - Sudden dyspnea
 - Acute chest pain
 - Pre-syncope or syncope
 - Hemoptysis
- Risk stratification
 - Shock or hypotension → high risk

Refer

Life Threatening conditions in patient with chest pain



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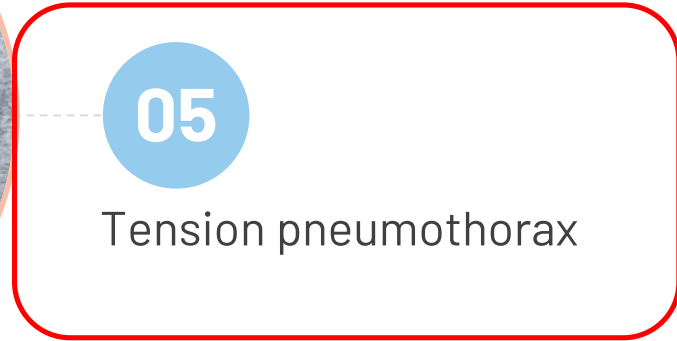
Rupture esophagus

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Tension pneumothorax

06

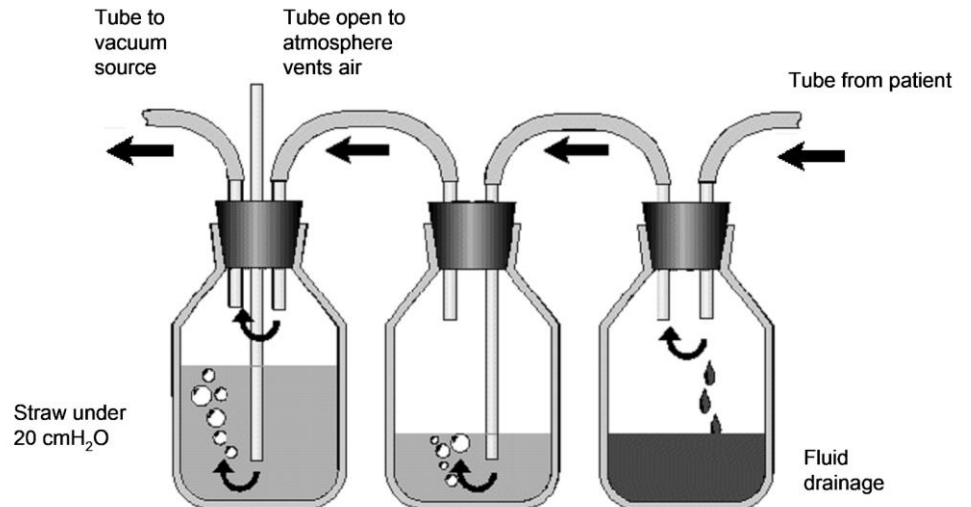
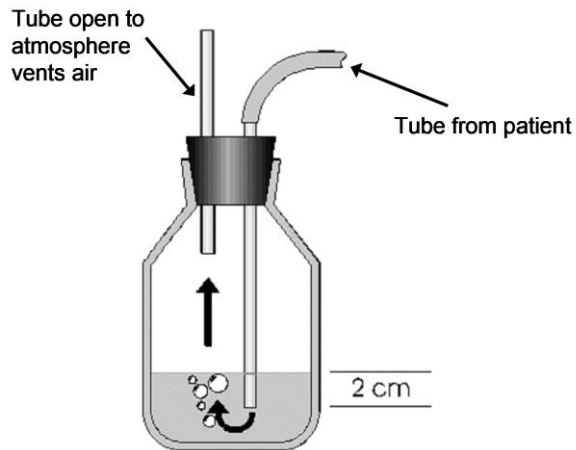
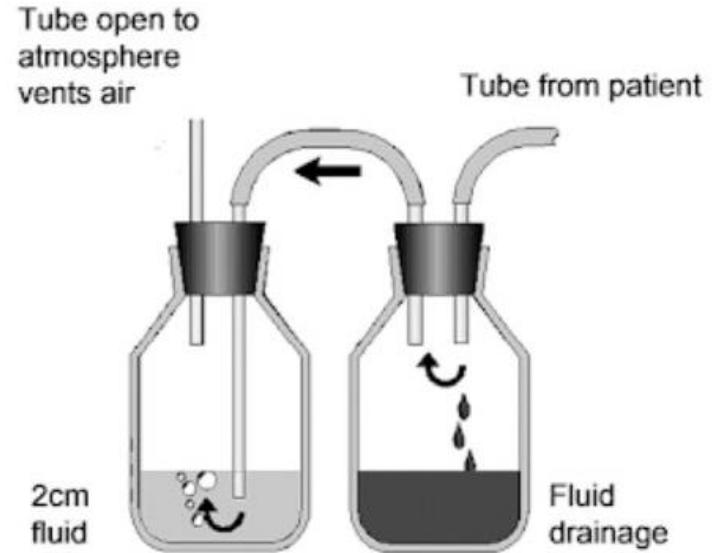
Acute pericarditis & temponade



Management



- Needle thoracostomy
- ICD
- Refer



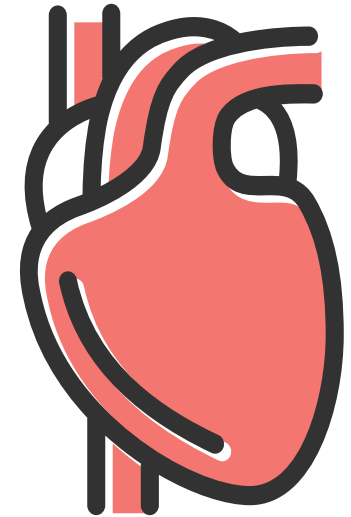
SCOPE OF THE TOPICS



CHEST PAIN

HYPERTENSIVE EMERGENCY

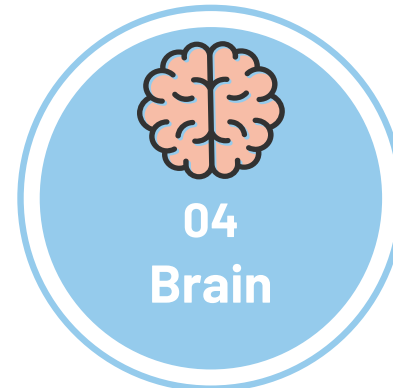
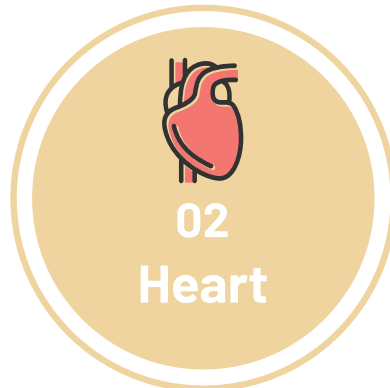
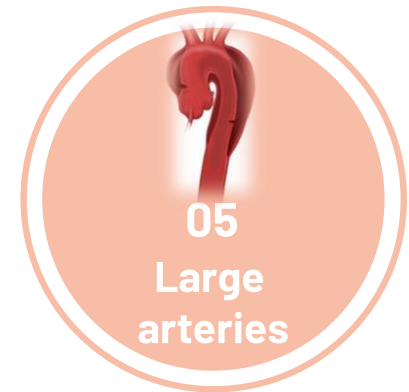
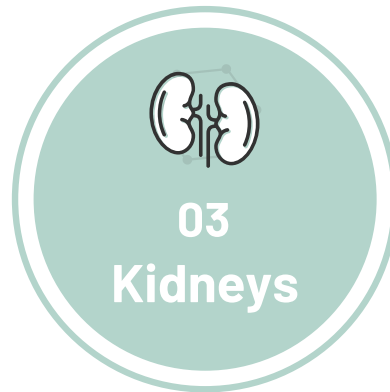
TACHY/BRADYCARDIA



Diagnosis



- Very high BP: $> 200/120$ mmHg
- Associated with target organs damage



Management : BP lowering



Clinical presentation	Time line and target BP	1st line treatment	Alternative
Malignant hypertension with or without TMA or acute renal failure	Several hours, MAP -20% to -25%	Labetalol Nicardipine	Nitroprusside Urapidil
Hypertensive encephalopathy	Immediate, MAP -20% to -25%	Labetalol Nicardipine	Nitroprusside
Acute ischaemic stroke and BP >220 mmHg systolic or >120 mmHg diastolic	1 h, MAP -15%	Labetalol Nicardipine	Nitroprusside
Acute ischaemic stroke with indication for thrombolytic therapy and BP >185 mmHg systolic or >110 mmHg diastolic	1 h, MAP -15%	Labetalol Nicardipine	Nitroprusside
Acute haemorrhagic stroke and systolic BP >180 mmHg	Immediate, systolic BP 130 < BP < 180 mmHg	Labetalol Nicardipine	Urapidil
Acute coronary event	Immediate, systolic BP <140 mmHg	Nitroglycerine Labetalol	Urapidil
Acute cardiogenic pulmonary oedema	Immediate, systolic BP <140 mmHg	Nitroprusside or Nitroglycerine (with loop diuretic)	Urapidil (with loop diuretic)
Acute aortic disease	Immediate, systolic BP <120 mmHg and heart rate <60 b.p.m.	Esmolol and Nitroprusside or Nitroglycerine or Nicardipine	Labetalol or Metoprolol
Eclampsia and severe pre-eclampsia/HELLP	Immediate, systolic BP < 160 mmHg and diastolic BP <105 mmHg	Labetalol or Nicardipine and Magnesium sulphate	

BP, blood pressure; HELLP, haemolysis, elevated liver enzymes and low platelets; TMA, thrombotic microangiopathy.

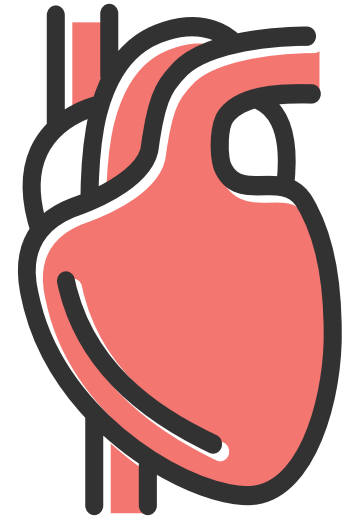
SCOPE OF THE TOPICS



CHEST PAIN

HYPERTENSIVE EMERGENCY

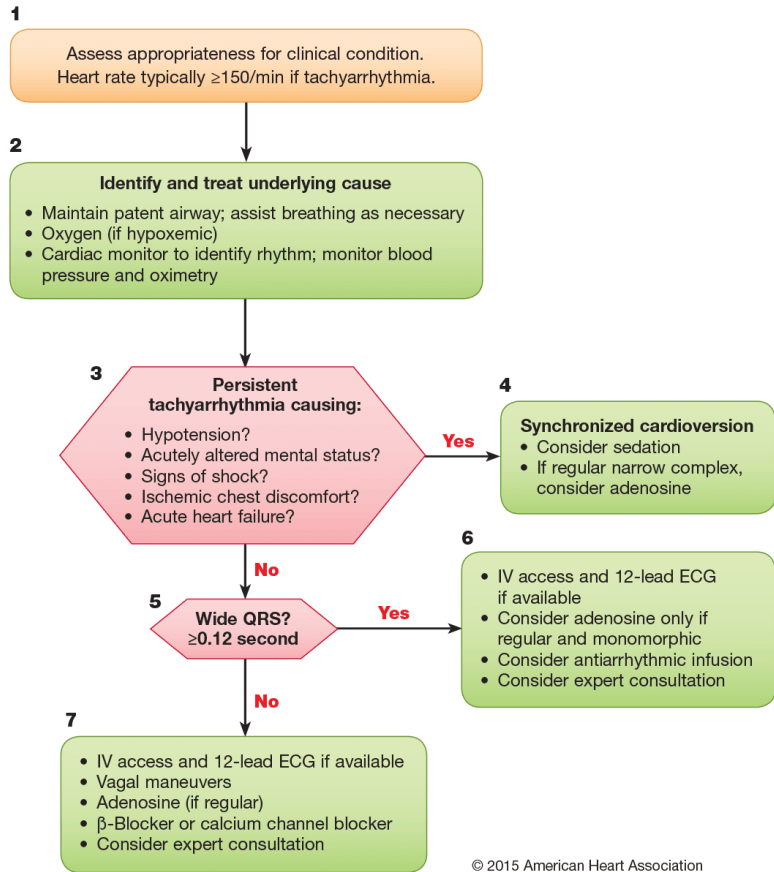
TACHY/BRADYCARDIA



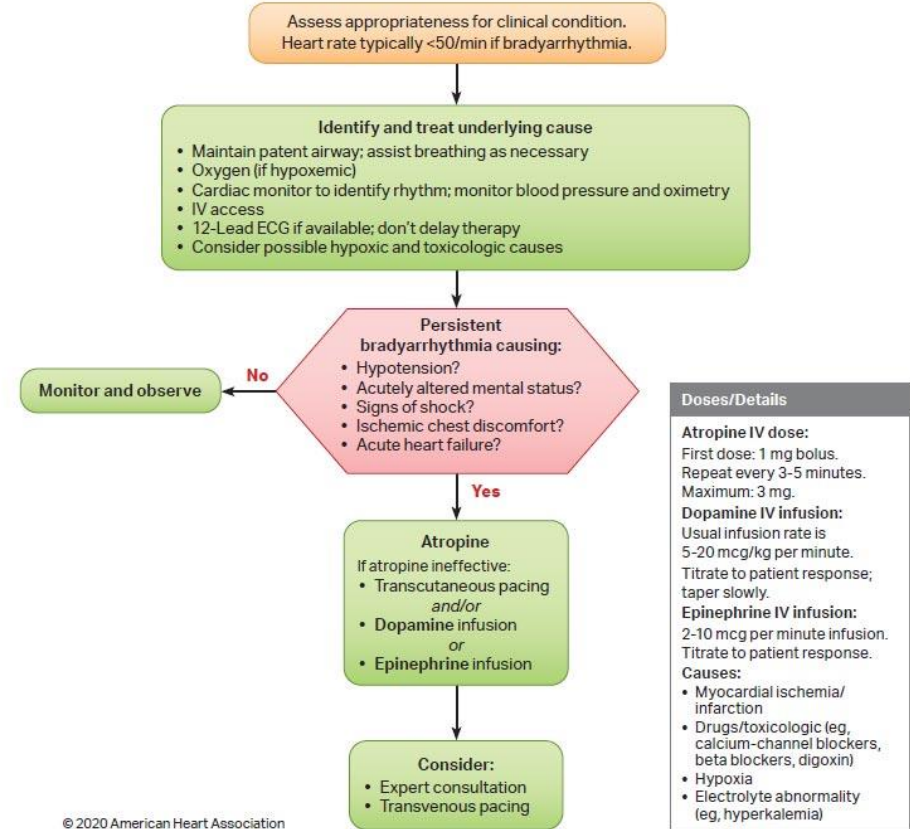
Tachycardia & Bradycardia



Adult Tachycardia With a Pulse Algorithm



Adult Bradycardia Algorithm





02

RESPIRATORY SYSTEM

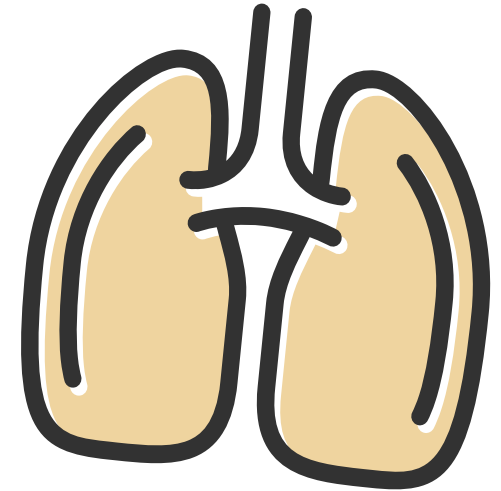
SCOPE OF THE TOPICS



Hemoptysis

Respiratory failure

Transport critically ill patient



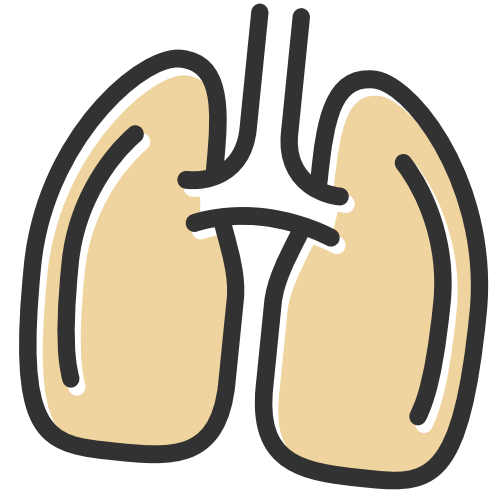
SCOPE OF THE TOPICS



Hemoptysis

Respiratory failure

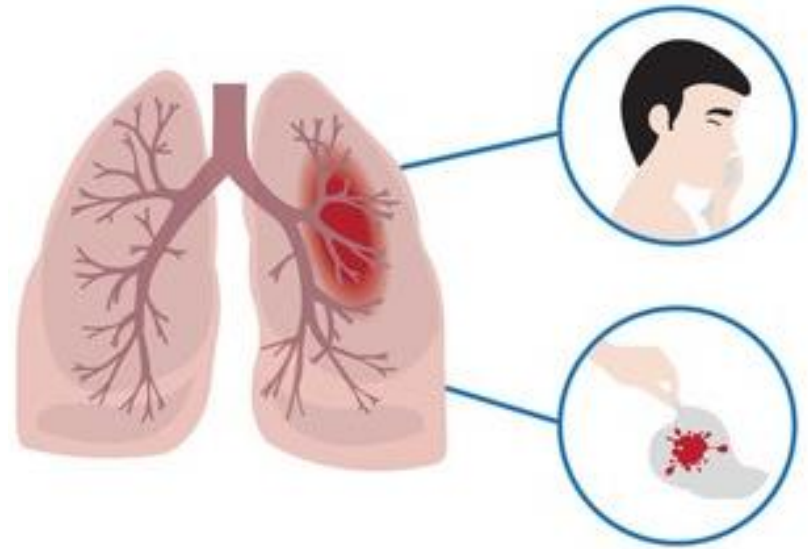
Transport critically ill patient



Hemoptysis



- Massive hemoptysis
 - 100-600 ml
 - Respiratory compromise
- Need ICU admission
- Cause of death : asphyxia
- Management
 - Identify bleeding side → bleeding lung down
 - Maintain airway → ETT No.8 up
 - When bleeding come from one lung → one lung intubation to non-bleeding side
 - Consider sedation in agitated patient



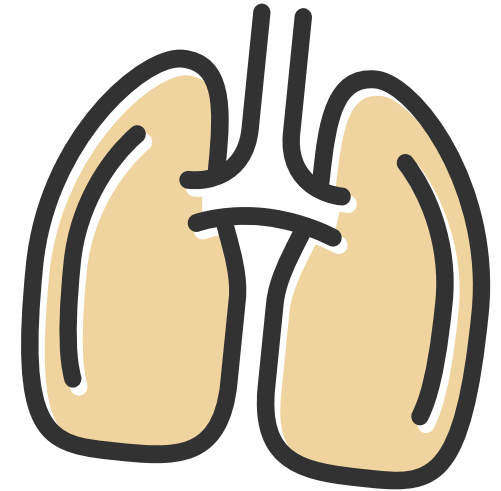
SCOPE OF THE TOPICS



Hemoptysis

Respiratory failure

Transport critically ill patient



Indication for intubation



- ไม่หายใจ
- หายใจไม่พอ
 - Rapid shallow breathing
 - Abdominal paradox
 - Slow shallow breathing
 - Air hunger
- Shock + หอบ



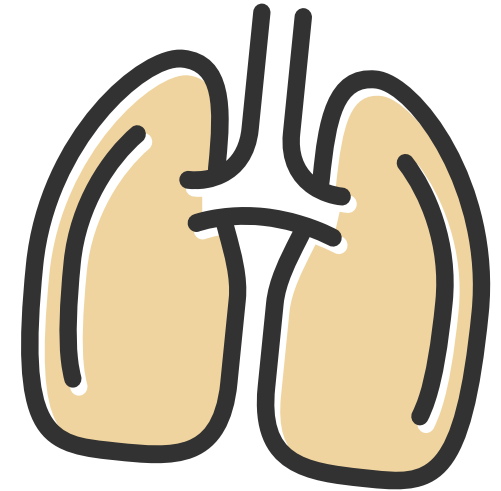
SCOPE OF THE TOPICS



Hemoptysis

Respiratory failure

Transport critically ill patient



หลักการขนย้ายผู้ป่วย



- แจ้งหน่วยงานที่จะรับทราบและเตรียมพร้อม
- รักษาอาการให้คงที่ก่อนการขนย้าย
- ป้องกันอันตรายจากการเคลื่อนย้าย
- เฝ้าระวังและดูแลตลอดการเคลื่อนย้าย
- เตรียมรับมือภาวะฉุกเฉินที่อาจเกิดขึ้น
- มีผู้ดูแลที่เหมาะสมไปด้วย
- เอกสารบันทึกอาการของผู้ป่วย



Transfer intubated patient



Airway

ETT mark?

1

3

Circulation

IV site

Ventilation

Adequate oxygen
Ambule bag

2

4

Monitor

BP, HR, O₂sat

Stethoscope

Transfer intubated patient



- Medication

Consider to stop

- Muscle relaxant
- Parenteral nutrition
- Insulin
- Hydrocortisone

Do not stop

- Vasopressor
- IV fluid

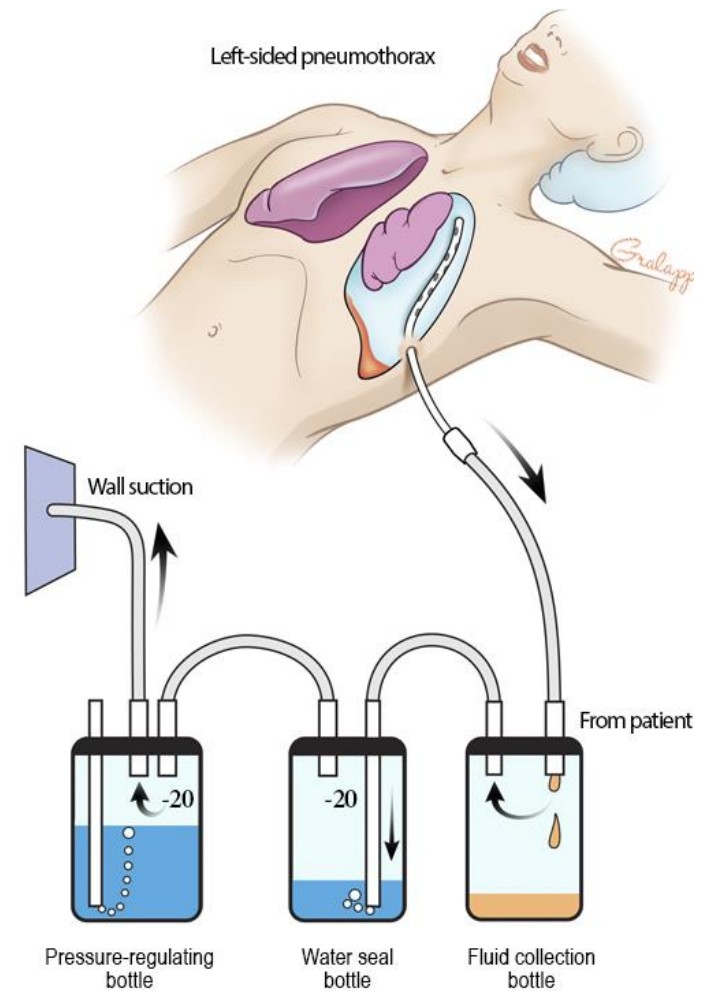
Prepare

- Resuscitation drug

Transfer ICD patient



- Check skin marking and good strap
- Pneumothorax
→ should not clamp
- Hemothorax or effusion
→ clamp



**THANK
YOU**

