



Objectives

By the end of this module, you should be able to create and use a prioritized differential diagnosis in the management of patients presenting to the Emergency Department with chest pain.

1. Construct a differential diagnosis prioritized based on threats to life and limb
2. Construct an accurate problem-focused history and physical examination based on the differential diagnosis, including pertinent positive and negative findings, and use to re-prioritize differential diagnosis
3. Create a diagnostic plan based on prioritized differential diagnosis with regard to pretest probability, indications, costs and risks

Preparatory Work

Before continuing, review the following:

- [Overview of the Approach to the ED Patient](#)
- [Making and using a Differential Diagnosis](#)
- The CDEMcurriculum.org website

Work in teams of 2-3 to complete this. Then share your answers and we'll discuss the thought process.



Construct a Differential Diagnosis

You're working in the Emergency Department when the paramedics roll in. The drop off a 57 year-old male presenting with a chief complaint of **chest pain**. His triage vitals signs are:

BP: 120/80, HR 95, T 98, R 15, O2 sat 100%.

You see them wheel him to the room. He appears uncomfortable, diaphoretic and ashen colored.

As you walk to the room, a list of the critical diagnoses you need to address for a patient of this age, sex and chief complaint should pop into your head. List them here.

One of the keys to functioning in the Emergency Department is the ability to make a good differential diagnosis. This differential will guide your history, physical and management. This differential diagnosis should include all the catastrophic diseases (threats to life and limb) which can present with that complaint.

Come up with at least 5 things that can kill someone presenting with chest pain. There are often more than five, but for this exercise come up with at least five. Hint: acid reflux is not one.

1	
2	
3	
4	
5	
6	
7	

If you're having difficulty coming up with this list, I suggest you look at the "Approach To" sections on www.CDEMcurriculum.org. There you will find a differential diagnosis for 10 common presenting complaints.



Construct an accurate problem focused history and physical

This differential diagnosis is the crux of our entire process. You'll use this to determine which questions to ask on your history and what to look for on the physical exam. Now make a list of historical factors that would increase your suspicion for that disease (in the row with a plus) or decrease your suspicion (in the row with a minus). Do the same with your physical exam. You can refer to www.CDEMcurriculum.org's "Specific Diseases" section for help with this.

	Diagnosis	History	Physical
1		+	+
		-	-
2		+	+
		-	-
3		+	+
		-	-
4		+	+
		-	-
5		+	+
		-	-
6		+	+
		-	-
7		+	+
		-	-

These illness scripts guide your history and physical exam. Keeping your evaluations focused will get you in and out of the room in a reasonable amount of time. If you spend 20-30 minutes in a room, we'll be paging you to come out!



History

The pain started while he was cooking breakfast about 40 minutes ago. He was cooking bacon and eggs at the time, and subsequently threw up the eggs. He describes the pain as a dull pressure in the middle of his chest. It is constant, non-radiating, and nothing seems to make it any better or worse. He does report the pain takes his breath away. He has never had pain like this before. He vomited only once and has no abdominal pain. He denies trauma.

He has had no fever or cough. He has no back pain. He has had no recent immobilization, recent travel or recent treatment for malignancies. He has never had a PE or DVT in the past, nor does he have leg swelling. There has been no trauma.

He has a past medical history significant for hypertension, diabetes and arthritis. His prior surgeries include an appendectomy and an ACL replacement in college. He cannot recall his medications but states he is compliant with them... most of the time. He is allergic to penicillin and iodine.

Physical Exam

BP: 120/80, HR 95, T 98, R 15, O2 sat 100%.

- General appearance: He appears uncomfortable, diaphoretic and ashen colored.
- HEENT: normo-cephalic and atraumatic head. He is non-icteric and pupils seem appropriately sized and reactive. His ears have no gross deformity. His throat and neck are unremarkable.
- Chest: he has normal breath sounds, symmetric on both sides. His sternum is minimally tender to palpation.
- CVS: Normal rate, rhythm and heart sounds
- Abdomen: soft, non-tender, no rebound or guarding
- Extremities: no edema, symmetric in size and appearance
- Neurologic: no gross deficits and he seems to be moving all extremities, no slurred speech, no facial droop

After your focused history and physical, you should prioritize your differential diagnosis based on likelihood. How would you rank your differential diagnosis and why?

1		<i>no, low, med, or high AND why?</i>
2		<i>no, low, med, or high AND why?</i>
3		<i>no, low, med, or high AND why?</i>
4		<i>no, low, med, or high AND why?</i>
5		<i>no, low, med, or high AND why?</i>
6		<i>no, low, med, or high AND why?</i>
7		<i>no, low, med, or high AND why?</i>



Create a diagnostic plan

Your history and physical comprise your initial evaluation. Once you have this information, you should have an idea of how likely it is that your patient has any of the diagnoses in your differential. For this exercise, let's say this probability is either no, low, medium or high.

Given your pretest probability for each diagnosis, write in the test you would need to rule-in that diagnosis in the row with the plus (+). Write in the test you would need to rule-out that diagnosis in the row with the minus (-). If you chose "no," then you are no longer considering this diagnosis and so shouldn't be doing any testing.

Diagnosis		pretest probability		
		Low	Medium	High
1		+	+	+
		-	-	-
2		+	+	+
		-	-	-
3		+	+	+
		-	-	-
4		+	+	+
		-	-	-
5		+	+	+
		-	-	-
6		+	+	+
		-	-	-
7		+	+	+
		-	-	-



BMP:

Na = 140
K = 4.0
Cl = 110
HCO₃ = 24
BUN = 12
Creat = 0.9
Glucose = 150

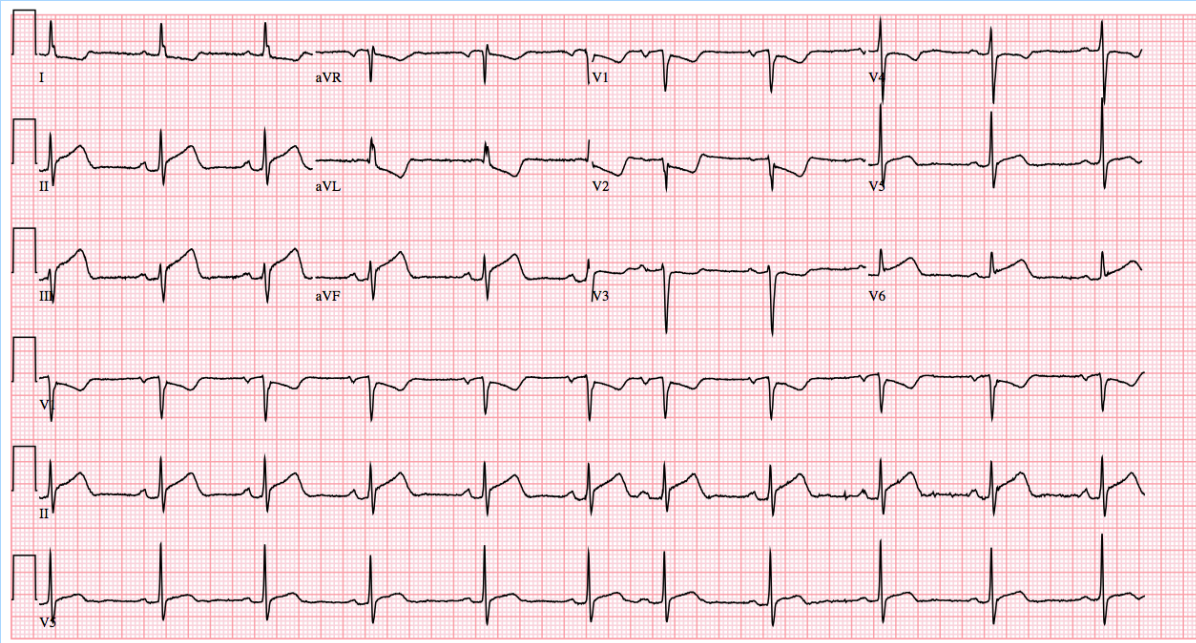
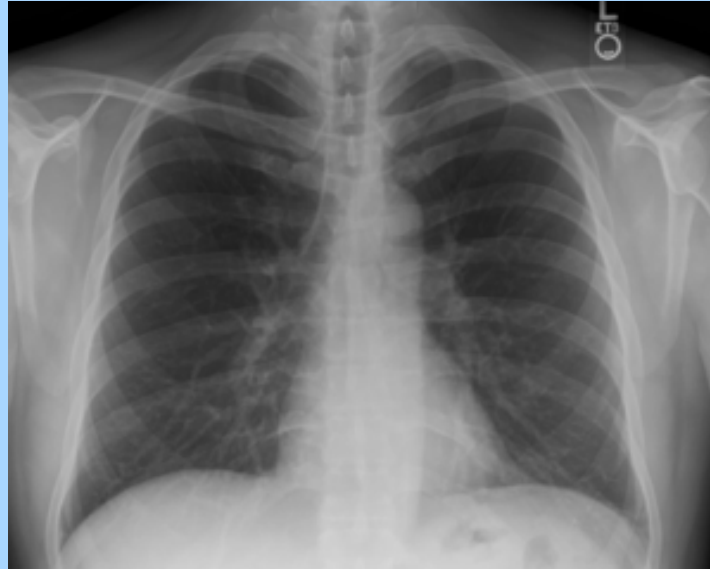
CBC:

WBC = 11.0
Hgb = 13.0
Hct = 39
Plts = 250

Troponin = 0.08

D-dimer = 0.6 (if you ordered it)

UA = negative





EMD 703: Emergency Medicine

create and use a prioritized differential diagnosis

Given this information, how would you prioritize your differential diagnosis now?

1		<i>no, low, med, or high AND why?</i>
2		<i>no, low, med, or high AND why?</i>
3		<i>no, low, med, or high AND why?</i>
4		<i>no, low, med, or high AND why?</i>
5		<i>no, low, med, or high AND why?</i>
6		<i>no, low, med, or high AND why?</i>
7		<i>no, low, med, or high AND why?</i>

And what would you do with your patient?

