Shoulder Pain scenario:
A 27-year-old female presents to an outpatient clinic with shoulder pain.

Using the Epi-logical approach, what should be the probable diagnoses?

A clinician should consider all diagnoses on the differentials list because the clinician does not have any additional information available yet. Among these, degenerative causes of pain may be somewhat less likely because of the patient's age.

How should a clinician address urgent/emergent situations?

The patient's vitals are BP: 120/70, HR 89, O2sat 100%, T 98, and BMI 29. The patient appears to be in no acute distress, but she is uncomfortable and holding her right arm by her side with the left hand wrapped around her right deltoid area.

The patient does not seem like she is in any urgent/emergent situation, which in this case would be cardiac ischemia causing shoulder pain because her age, gender, normal vital signs, and normal appearance reduce this likelihood. The patient's posture leads the clinician to suspect that a pathology outside of her shoulder (cervical radiculopathy, cardiac ischemia) may not be as likely as an intrinsic shoulder pathology.

Weighing and Removing Anchor Bias

The Clinician's Questions	**The Patient's Responses**	**How does this information help with diagnostic reasoning?**
When did the pain start?	It started about 4 months ago.	Chronic causes of pain are more likely. Based upon the general discussion above about this clinical mind map, a clinician must also continue to consider acute causes if the onset of pain was sudden and/or related to the injury.
How did the pain start? Was it sudden? Do you remember any injury? Or has it been more gradual?	It was definitely subtle in the beginning, but it has been bothering me enough to the point that I can't take it anymore. I don't remember injuring it.	Chronic causes are much more likely than acute injury related causes.
I see that you are holding your shoulder due to discomfort. Where exactly does it hurt?	It's my entire right shoulder. It's all over, especially when I try to use my arm.	Impingement and biceps tendonitis are more likely. Osteoarthritis, rotator cuff tear and adhesive capsulitis are also somewhat likely, but not as much due to patient's relatively young age.
Does anything make this pain better or worse?	Working in my office or at home in the back yard makes it worse, and keeping it still	Both impingement and biceps tendonitis get aggravated with range of motion related activities, and therefore are

	makes it easy to tolerate the pain.	still more likely. *(The patient is a good historian. A clinician can ask about specific movements that aggravate her pain.)*
Does movement in any particular direction make it worse, such as overhead movement is worse than pushing or pulling? *(A clinician can gesture with their own shoulder movement at this point to help the patient understand the question.)*	Yes, overhead movement is definitely worse. I took a tram coming here this morning, where I had to grab onto an overhead metal bar. That is why it is really hurting now. But pushing and pulling are not fun either.	Impingement is more likely than biceps tendinitis.
Now, a clinician can start asking the rest of the medium yield questions, such as the quality, character, severity, and radiation of the pain. However, thinking about these questions more carefully reveals that although these are very valuable questions, they do not necessarily help with diagnostic reasoning at this point. This is because the clinician already has a high index of suspicion for a very few diagnoses, and these questions will not differentiate among those few diagnoses at this point. Regardless, to remove anchor bias and to be thorough, the clinician should ask these questions.		
What is the quality, severity and character of the pain? Does it seem to radiate from the back of your neck to your shoulder or anywhere else?	The pain is dull, and it gets really sharp when I move my arm. It is anywhere from 4 to 8 on a scale of 1 to 10, and it does not radiate.	The character of the pain somewhat increases the likelihood of impingement. The lack of radiation of the pain decreases the likelihood of cervical radiculopathy, which was already low.
Do you have any numbness or tingling anywhere around your shoulder or arm?	Not really.	Cervical radiculopathy continues to be less likely.
At this point, a problem focused physical exam will provide helpful information for the clinician to arrive at the diagnosis.		
Inspection	Symmetrical contour and no signs of atrophy.	Chronic degenerative conditions are unlikely. Although the clinician classified the patient's pain to be somewhat chronic, she has continued to use her shoulder muscles, and her condition has not led to atrophy.
Active range of motion	Normal on the left. Limited on the right	Impingement, rotator cuff tear, and adhesive capsulitis are likely, with impingement being the most likely, based

		upon the previously gathered information.
Passive range of motion	Normal on the left. Reduced to 90 degrees abduction on the right, beyond which the patient feels pain.	Impingement is more likely than either adhesive capsulitis or biceps tendinitis.
Neer and Hawkin signs	Positive.	Impingement is the most likely diagnosis.
Tests to check strength SITS	Negative, but could not fully elicit due to pain.	Rotator cuff tear is unlikely.

The clinician has sufficient evidence to suspect that the patient has subacromial impingement because she is young, has subacute pain, which is sharp and particularly worse with overhead abduction, and her physical exam is consistent with the suspicion. At this point, if available at the outpatient setting, a Neer test can be performed as a diagnostic as well as a therapeutic measure. The relief of the pain with a lidocaine injection in the Subacromial space confirms the diagnosis.

Impingement refers to the impingement of rotator cuff tendons under the acromion and is different from a layman's terminology of nerve impingement, which usually refers to the impingement of spinal nerve roots. Examples of spinal nerve impingement are cervical radiculopathy and sciatica.