

Clinical Problem Solving

Module 4



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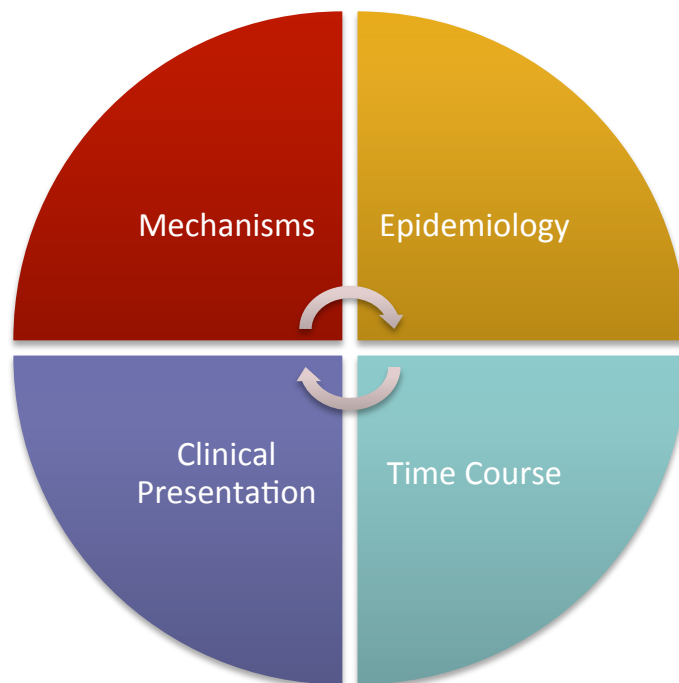
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Thanks and Acknowledgements

- This work would not have been possible without the intellectual efforts and collaboration of the following outstanding physicians and many students and residents
 - Frederick Williams, MD
 - Cynthia Ledford, MD
 - Judy Bowen, MD
 - Mitch Medow, MD

A brief review of Modules 1, 2, & 3

Disease Illness Script



Patient's Illness Script

Epid
Time Course
Syndrome
Other PMHx

Prioritized Differential Diagnosis

- Tier I Possibility: CLINICALLY HIGH LIKELIHOOD
 - Disease explains all of patient's major findings
 - Patient has all major manifestations of the disease.
 - They have no rejecting features and may have a key feature
- Tier II Possibility: CLINICALLY MODERATE LIKELIHOOD
 - Disease explains most of the patient's findings
 - Patient lacks some of the usual manifestations of the disease
 - They have no rejecting features
- Tier III Possibility: CLINICALLY LOW LIKELIHOOD
 - Patient has single or few features of the disease in question
 - Patient has a rejecting feature of the disease in question.



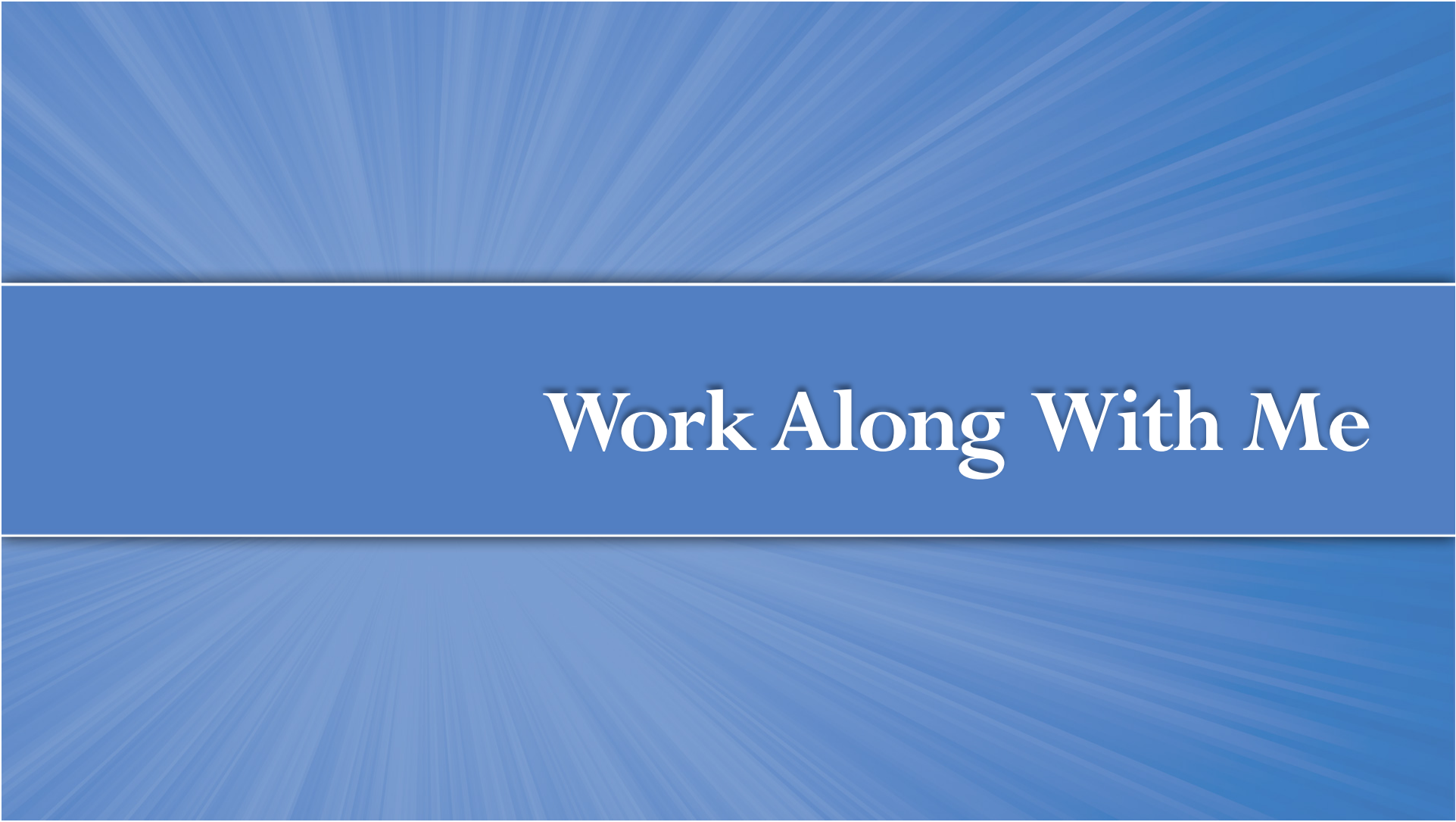
Tiering clarifies pretest probability

Tier	Categorical Probability	Numerical Probability	Comment
I	VERY LIKELY	> 90%	Defining Feature(s)
	LIKELY	67-90%	
II	UNCERTAIN	34-66%	
III	UNLIKELY	10-33%	Rejecting Feature
	VERY UNLIKELY	< 10%	

New Content : Module 4

Objectives for Module 4

- Learn how to use correctly use diagnostic tests to evaluate your differential diagnosis.
 - Review test characteristic statistics of: sensitivity and specificity
 - Review test performance statistics: positive predictive value and negative predictive value using pre test probability.
- Use your tiered differential diagnosis to interpret diagnostic test results.
- Describe how errors occur if testing is used without understanding these concepts.

The background of the slide is a solid blue color with a subtle sunburst or radial pattern emanating from the center. The pattern consists of many thin, light blue lines radiating outwards, creating a sense of depth and movement.

Work Along With Me

Mrs. Triglioni

- Mrs. Triglioni is a 48 yo woman who underwent knee reconstructive surgery 3 weeks ago. She has been doing well until she developed sharp chest pain in her left back and some breathlessness. She is a visiting nurse and she checked her pulse oximeter and found her oximetry was 94%. She has a mild cough and a low grade fever. She has had swelling and redness in her leg up to the mid thigh but was told that was to be expected after surgery.
- PMHx: Hypertension SHX: married, 2 children Allergy: CONTRAST
- MEDS: aspirin daily since surgery and Percocet for pain

She calls you and asks for advice about what to do. Do you think that this is a muscle strain from using crutches or should she have some sort of test?

Process her problems and make
prioritized ddx

Marie Triglioni: Pre Test Probability ?

Patient Illness Script

Epidemiology: 48 yo woman 3 weeks postoperative from knee surgery

Time Course: Acute

Syndrome Statement: pleuritic chest pain, dyspnea, non productive cough and probable hypoxia associated with unilateral leg swelling and erythema

Other History: Hypertension

Tier 1

Acute PE

Tier II

HA Pneumonia

Tier III

Muscle Strain

Quiz 4.1

- What advice should you give Mrs. Triglioni?
 1. Increase your dose of pain medication and call me in the morning
 2. Use a heating pad on your back
 3. Return to the Emergency Room for an evaluation.

The next conversation

- You call Mrs. Triglioni and tell her that she should proceed to the Emergency Room. She is reluctant to do so and asks if you are really certain that she might have had a pulmonary embolism.
- You consult your references and find a clinical decision support tool: The Well's Criteria. You decide to check your clinical problem solving skills with the experts.

Ms. Trigiloni: Tier I of PE

True Pretest Probability: Use Well's Criteria

- | | | |
|--|------|---|
| ○ Clinical s/s of DVT: swollen leg | +3 | ✓ |
| ○ PE is #1 Dx or equally Likely?: Tier I | +3 | ✓ |
| ○ HR > 100 | +1.5 | |
| ○ Immobilization for 3 days or surgery w/in 4 weeks | +1.5 | ✓ |
| ○ Previous DVT/PE | +1.5 | |
| ○ Hemoptysis | +1 | |
| ○ Malignancy w/treatment within 6 months | +1 | |
| ○ None of these criteria | +0 | |

Her Score: 7.5 pts: HIGH risk of PE

Reinforcing your work

- You decide to make sure that this wasn't just a fluke so you pull out Mrs. Garcia's case, where you had listed Pulmonary Embolus as a Tier 1E diagnosis— you had thought it was really a Tier III diagnosis.
- You use the Well's Criteria on Mrs. Garcia's clinical information.

Ms. Garcia: Tier Ie of PE

True Pretest Probability: Use Well's Criteria

○ Clinical s/s of DVT	+3	×
○ PE is #1 Dx or equally Likely?	+3	×
○ HR > 100	+1.5	✓
○ Immobilization for 3 days or surgery w/in 4 weeks	+1.5	×
○ Previous DVT/PE	+1.5	×
○ Hemoptysis	+1	×
○ Malignancy w/treatment within 6 months	+1	×
○ None of these criteria	+0	

Her Score: 1.5 pts: Unlikely risk of PE: < 3%

Congratulations!
You are Making Good Decisions!