Training Critical Thinking
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No disclosures
Metacognition - more than a fancy idea

Bloom’s Taxonomy

Create
- Produce new or original work
  - Design, assemble, construct, conjecture, develop, formulate, author, investigate

Evaluate
- Justify a stand or decision
  - Appraise, argue, defend, judge, select, support, value, critique, weigh

Analyze
- Draw connections among ideas
  - Differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test

Apply
- Use information in new situations
  - Execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch

Understand
- Explain ideas or concepts
  - Classify, describe, discuss, explain, identify, locate, recognize, report, select, translate

Remember
- Recall facts and basic concepts
  - Define, duplicate, list, memorize, repeat, state
Yerkes-Dodson Law

Performance

Optimal anxiety level for **difficult** tasks

Optimal anxiety level for **medium** tasks

Optimal anxiety level for **easy** tasks

Anxiety

Low

High
Yerkes-Dodson Law

OPTIMAL PERFORMANCE

Low

Focused & Engaged

Bored & Tired

Stressed & Restless

High
Grossman; On Combat

- Problem Solving
- Empathy
- Emotional Control
Under stress and discomfort, we default to familiar and comfortable routines to cope.
The new default

- Analyzing circumstances
- Evaluating Decision paths
- Creating Solutions
Clinical Decision-Making Process


**ACT**
- Executing the interventions in the treatment plan

**OBSERVE**
- Outside information
- Interaction with the environment
- Patient exam and assessment findings

**DECIDE**
- (What does it all mean?)
  - Identifying the desired end state
  - Treatment planning

**ORIENT**
- (Putting it into context)
  - Synthesizing previous knowledge
  - Normal Reference Ranges
  - Differential diagnostics
Problem Definitions

Excess or Deficit

Drill down until you cannot anymore!
Differential Diagnostics Exercise

1. Present the chief complaint only
   a. List possible causes (differentials)
   b. Prioritize the top 5 concerning causes

2. Request two (2) diagnostic findings
   a. Diagnostics should be based on how many possible causes can be narrowed with little information
   b. Reprioritize the list of possible causes

3. Repeat Step 2

4. List the 3 most concerning possible causes based on acuity
   a. initiate treatment plan
   b. Additional means to confirm suspicions
Differential Diagnostics Exercise

Complaint - Shortness of breath “can’t catch my breath”

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<th>HR</th>
<th>RR</th>
<th>SpO2</th>
<th>EtCO2</th>
<th>Temp</th>
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Cardiac Rhythm | Skin Parameters | Lung Sounds | Pupils
---|---|---|---
Sinus Tachy | WNL | localized wheezing | PERRL

Pulmonary Embolism
Quality Improvement - Evaluating decisions

Opportunity to train thinking!!

- My favorite question - WHY?!
- Context: OODA Loop
- Differential before treatment plan

“What were you trying to accomplish with that decision?”
Starting point

- Practice Opportunities
  - You included

- Awareness
  - Eyes on you

- Shift your focus
  - Process vs Product

- Choose your words
  - Growth Mindset
CHANGE YOUR WORDS
CHANGE YOUR MINDSET

FIXED

I'M JUST NOT GOOD AT THIS!
I GIVE UP!
I'll never be as smart!
THIS IS TOO HARD!
I'm never going to get this!
I CAN'T MAKE THIS ANY BETTER!

GROWTH

I'LL USE SOME OF THE STRATEGIES I'VE LEARNED!
I CAN ALWAYS IMPROVE. I'LL KEEP TRYING!
This may take some time and effort!
I NEED TO FIGURE OUT WHAT I DID WRONG AND GET SOME HELP!
I'M ON THE RIGHT TRACK!
WHAT AM I MISSING?
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Closing Thoughts

We exist in a high-stress, high stakes, time-competitive operating space where we cannot bank on success as a coincidence.

If we want to be professionals, we have to practice being professionals.
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