

Teaching of Tomorrow    November 18, 2017

## Using Deliberate Practice To Teach Problem Solving

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Where we're headed

# Clinical Reasoning

Deliberate  
Practice

Just-in-Time  
Teaching

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**WHEN** do you begin to think?



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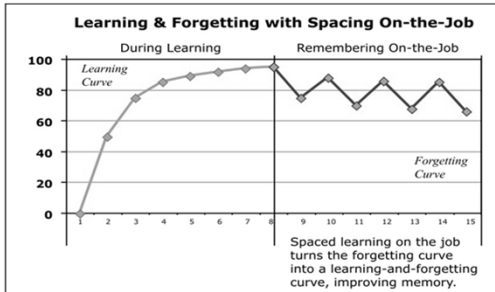
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## What is lost?

- Opportunity to practice recalling DDx



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## What is lost?

- Opportunity to practice recalling DDx
- Poor selection of questions and PE
- Inefficient problem-solving



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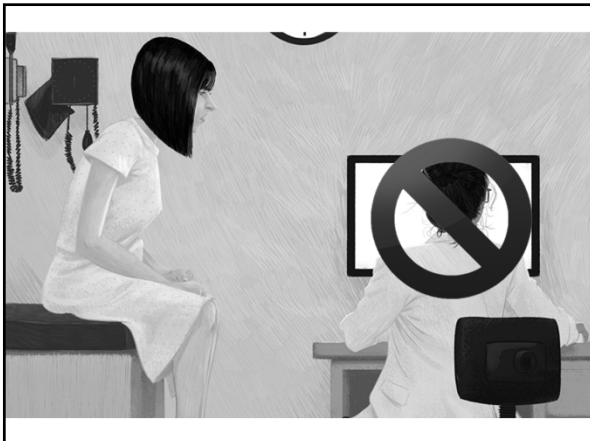
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## Practice Makes Perfect?

- ~~Practice makes perfect~~
- Practice makes permanent
- Only perfect practice makes perfect

*John Pelley*



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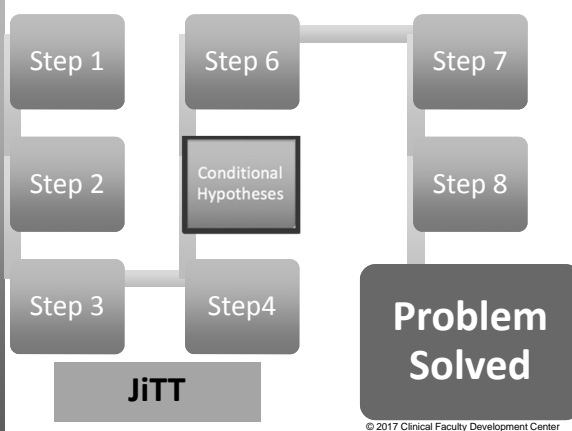
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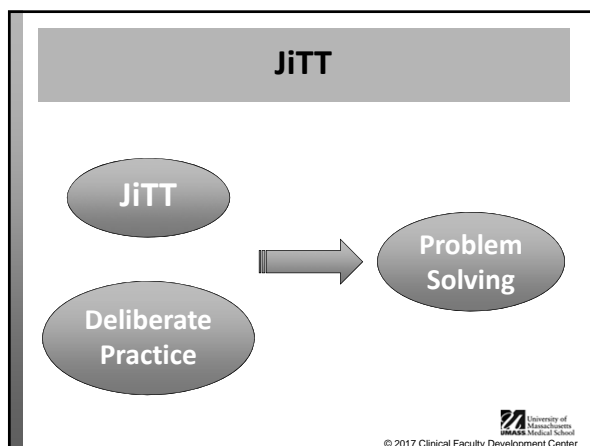
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## Objectives

1. List, describe, and then teach:  
**3 Problem-Solving “micro-modules”**
2. Utilize strategies to:  
**Teach CPS *at the point of care***



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## Your Experiences

- Your students’ problem-solving pitfalls?



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## Key Elements of the Clinical Diagnostic Reasoning Process

Judith Bowen, MD  
NEJM 2006; 355:2217-2225



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## Key Elements of the Clinical Diagnostic Reasoning Process

Judith Bowen, MD  
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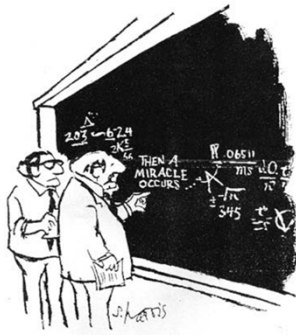
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**Diagnosis**



**“I think you should be more explicit here in step two.”**

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**Patient's Story**

**Patient's Chart on Door**

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**Generate Hypotheses**



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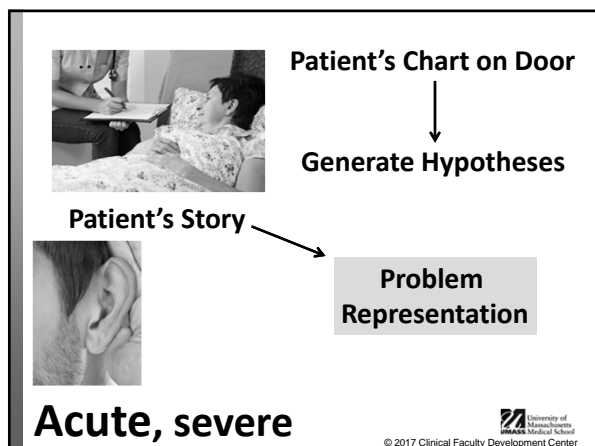
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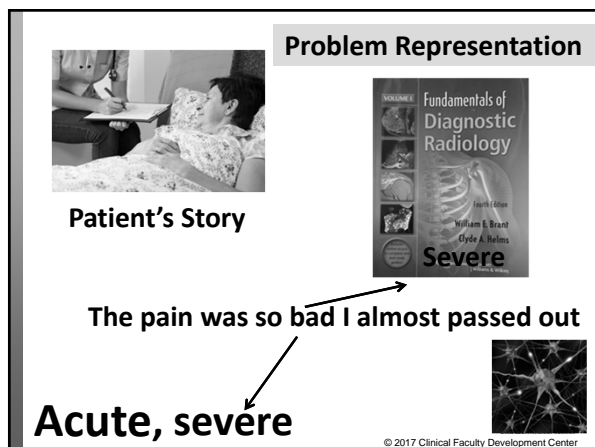
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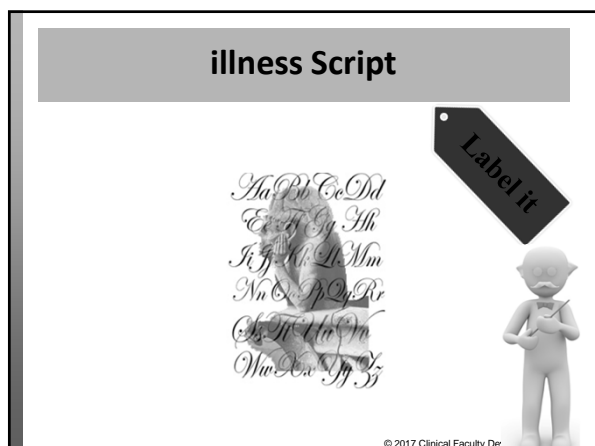
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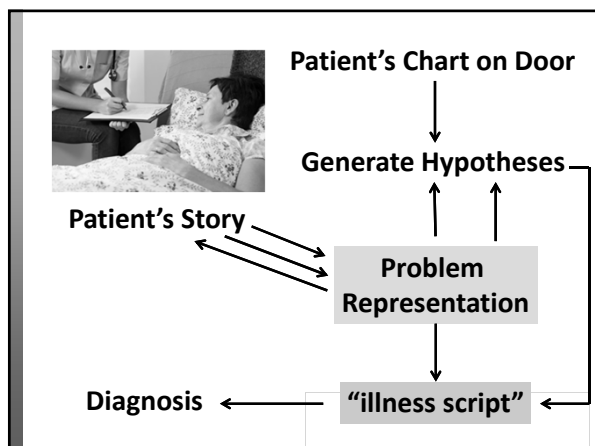
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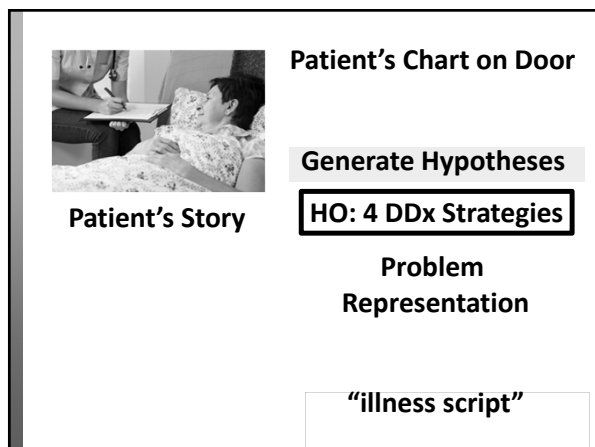
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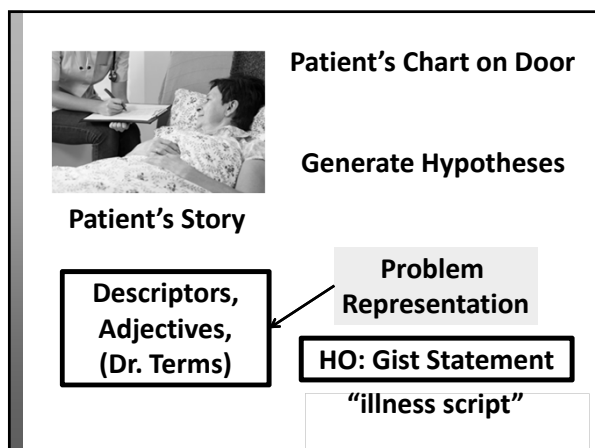
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**Patient's Chart on Door**

**Generate Hypotheses**

**Patient's Story**

**Problem  
Representation**

**Who gets it?  
Pathophys  
Clinical Consequences**

**HO: Illness Scripts**

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## Summary



- **Micro-Modules**
- **Directly relevant to Pt**

- **Needs Assessment**
  - This is what this student needed at this time
- **JITT**



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**Questions?**

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## Illness Script - Gout

- **Epidemiology:**
  - 30 – 60 yo; male; Alcohol/red meats/diuretics
- **Pathophysiology:**
  - Abnl Uric acid metabolism → precipitation of crystals in joint → Inflammation
- **Clinical Consequences:**
  - Hx: Acute, recurrent, severe, mono-articular, classically 1<sup>st</sup> MPJ.
  - PE: Red, hot, swollen, tender



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## Illness Script - Arthritis

	Gout	Septic Arthritis	Lyme	RA
Epidem	You are trying to <i>distinguish</i> between these conditions			
Pathophys				
Hx:				
PE:				

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## Illness Script - Arthritis

	Gout	Septic Arthritis	Lyme	RA
Epidem	Wine, red meat		Tick bite	Auto-immune
Pathophys				
Hx:	Recurr Severe Noctrn	Not Recurr Severe Const	Not Severe	Insidious
PE:	Usually single	Single unless GC		Symmetric

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### Illness Script PEARLS

1. Look for signs and symptoms that are sensitive and/or specific

Not all signs and symptoms are created equal!



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### Illness Script Compare Sources

#### Source 1: Cholecystitis

Prolonged (> 4-6 hrs), Steady, severe, RUQ or epigastric pain, fever, guarding, + Murphy, and leukocytosis.

#### Source 2: Cholecystitis

May reveal fever, Murphy sign (specific/not sensitive), often with guarding or rebound, typically leukocytosis



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### Illness Script Compare Sources

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#### Source 2: Cholecystitis

May reveal fever, Murphy sign (specific/not sensitive), often with guarding or rebound, typically leukocytosis

**Singer: 36/40 NO fever**



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## Illness Script Compare Sources

### Source 1: Cholecystitis

Prolonged (> 4-6 hrs), Steady, severe, RUQ or epigastric pain, fever, guarding, + Murphy, and leukocytosis.

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May reveal fever, Murphy sign (specific/not sensitive), often with guarding or rebound, typically leukocytosis

**UTD: Murphy 48% sensitive**

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## Illness Script PEARLS

1. Look for signs and symptoms that are sensitive and/or specific
2. "Paint a picture" of the patient

### Appendicitis:

Fever, RLQ pain, N/V, guarding and rebound



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## Let's solve some problems

*36 yo African Man with Intractable Vomiting*

- What strategies are used in our own CPS?
- How would you teach this?



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### Case Cont'd: Problem List

- Who *teaches* students to write a problem list?
- Who wrote a problem list for our case?



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### Problem List

1. Vomiting
2. Weight loss
3. Prolonged QTc
4. Dehydration



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### Elaborated Problem List

1. **Severe, Chronic** (1 month), **non-bloody, non-bilious** Vomiting
2. **Significant** (20 lb - cachectic) **unintentional** weight loss **predating** the vomiting
3. Prolonged QTc
4. Dehydration



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### Case: Generate DDX for each Problem

1. Severe, chronic, NB/NB **Vomiting**
2. Significant unintentional **Weight Loss** preceding vomiting
3. Prolonged QTc



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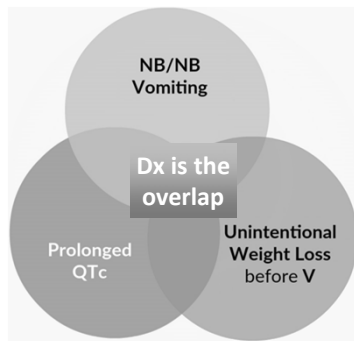
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### Case: DDX - Venn



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### JiTT Q's for this Case

- What JiTT questions do you want to ask?
- What does this case trigger in terms of what you might want to teach to a:
  - Pre-clinical student
  - 3<sup>rd</sup> or 4<sup>th</sup> year med student
  - Resident



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## Review

- What would you like to try that is new from this session?



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## Summary: Micromodules

- Generate conditional hypotheses
- Differential Diagnosis Strategies
- Problem Representations
- Illness Scripts
- Problem Lists



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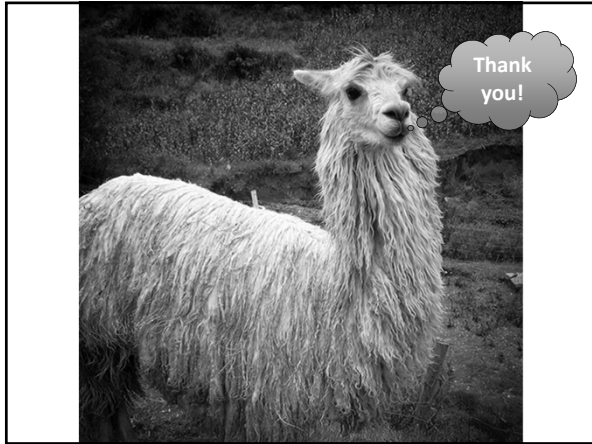
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