

Clinical Reasoning – the basics

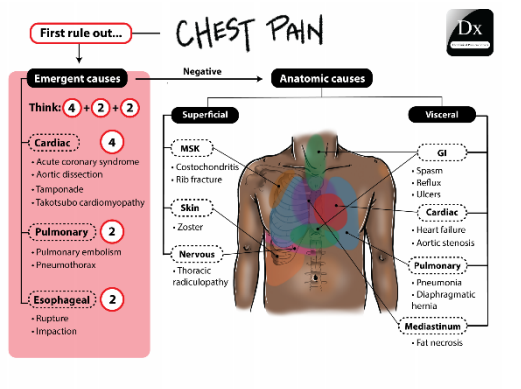
Language

1) Problem Representation (one-liner) – summary of the most salient features of a case

- a. Answers 3 questions:
 - i. Who is the patient? (demographics, risk factors)
 1. “64-year-old man with metabolic syndrome...”
 - ii. Time-course/tempo of illness (e.g. acute, episodic, waxing/waning, chronic)
 1. “...presents with *episodic*...”
 - iii. Clinical syndrome (chest pain, polyneuropathy, sepsis)
 1. “...*typical angina*”
- b. Form it **early**
 - i. the chief concern is the first PR!
- c. PR **identifies** the diagnostic schema/approach you deploy
- d. **Evolves** as case unfolds – e.g. add relevant exam/labs to clinical syndrome
 - i. E.g., adding “elevated JVP, pitting edema, and elevated BNP” to a syndrome of exertional dyspnea
- e. **OK to consider multiple PR in the same patient when dx is unclear**
 - i. “fever+rash” vs “spring water+diarrhea” vs “fever+ESR+liver injury”

2) Diagnostic Schema – organizational tool to systematically approach to a problem/syndrome

- a. Categories or, “buckets” of disease – individual diagnoses populate each category
 - i. E.g. AKI → pre-renal (CHF, shock), intra-renal (tubular, glomerular), post-renal (stone, tumor, BPH, meds)
- b. Organizational variety – anatomy vs pathophys mechanism vs mix → **customizable!**
- c. Can be used as early as the first problem representation



3) Illness Script – mental flashcard for a specific diagnosis (knowledge storing tool/reference)

- a. WHO (epidemiology), HOW does it work (pathophys, clinical presentation/course), DX/RX (testing, treatment)
- b. Use it to test a particular diagnosis against your PR
- c. Improves with time/experience
 - i. Reading, case conferences, pattern recognition

Appendicitis

Epidemiology: Ages 10-30, M>F, no other RFs

Pathophysiology: obstruction of lumen appendix

History: acute central abdominal pain → RLQ, N, V

Exam: fever, marked tenderness RLQ

Imaging/Labs: Sometimes WBC, often CT+

Treatment: Appendectomy

COMMUNITY ACQUIRED PNEUMONIA

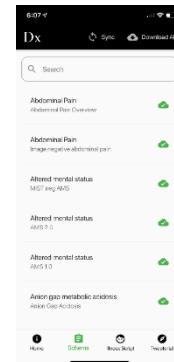
Micro Virus • Influenza • Coronavirus • Adenovirus • RSV	Bacteria • S. Pneumo • M. Pnp • Legionella • MRSA • Pseudo	Clinical Manifestations Fever, Rigors, Malaise Cough +/- Sputum Shortness of breath Rash (Mycoplasma) Diarrhea (Legionella)	Diagnosis 1. Clinical syndrome → “inflammation + lung” 2. CXR infiltrate → CT in select cases
Risk Factors All • Increased age • COPD/asthma • ETOH, Tobacco • CHF, CVA, DM	Pseudomonas • Bronchiectasis • Colonization • Immunosuppressed • Multi-lobar	Natural Course Clinical Stability vs Days “No improvement?” → See Also: failure schema	Treatment Outpatient Amoxicillin/Clavulanate Amoxicillin Macrolide or Doxycycline Macrolide Doxycycline Respiratory Fluoroquinolone
Pathophysiology Droplets → Nasopharynx → Microaspiration → Pneumonia Immune function ↓ → Clearance	MRSA • Post-flu • Colonization • IVDU	Complications • Parapneumonic eff. (Empyema) • Bacteremia • ARDS • Endo/Pericarditis • Lung Abscess • Necrotizing PNA	Inpatient • Severe • B-lactam + Macrolide • B-lactam + Macrolide • Resp PQ • B-lactam + Resp PQ • Pseudomonas (see notes) • MRSA (see notes) • Anti-Pseudomonal B-lactam • Vanc • Linezolid

- 4) **Cognitive Autopsy** – active reflection on the reasoning process
 - a. Ask yourself:
 - i. What did I do correctly?
 - ii. Any mis-steps?
 - iii. What lessons did I learn?
 - iv. What knowledge gaps did/can I fill?
 - v. How is/was the patient affected?
 - b. Do this periodically, regardless of whether you get or miss the diagnosis
 - i. Reinforces good practices, course-corrects others
 - ii. Can do this: solo vs w/co-resident vs w/attending vs w/team

Resources

- 1) **Exercises in Clinical Reasoning** <https://clinicalreasoning.org/>

- a. Concepts in detail w/examples

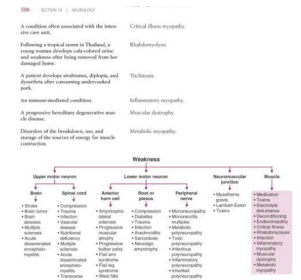
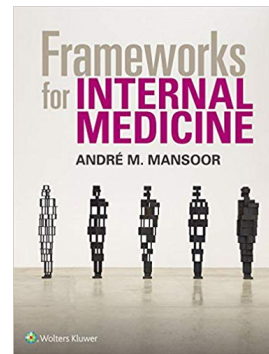


- 2) **The Clinical Problem Solvers** www.clinicalproblemsolving.com

- a. Schemas, illness scripts
- b. Podcast episodes – case solves and explanation of various schemas
- c. Virtual Morning Report – live morning reports 3x/week for case discussion
- d. App – consolidates schemas, scripts, other resources; GREAT for wards

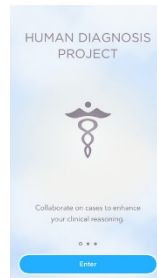
- 3) **Frameworks for Internal Medicine**

- a. Excellent reference
- b. Case-based
- c. Step-wise building of detailed frameworks/schemas



- 4) **Human Diagnosis Project app**

- a. Daily cases to practice your reasoning
- b. Peer-reviewed, referenced teaching points
- c. 5-7 mins/case



- 5) **Other Podcasts**

- a. The Curbsiders
- b. CORE IM (specifically Hoofbeats thread)
- c. The Curious Clinicians
- d. The Cardio Nerds

- 6) **Twitter**



- a. Free Open Access Med-Ed (#FOAMed)
- b. Handles to check out:
 - i. UCSD People: @ucsdim, @LizzyHastie, @DocScribbles, @DirkGainesMD, @photon_ick, @LukewebsterMD, @Darcy_ID_doc, @AnandJag1,
 - ii. Other People: @rabihmgeha, @DxRxEdu, @sargsyanz, @tony_breu, @JenniferSpicer4, @AaronBerkowitz, @MedTweertorials
 - iii. Podcasts: @CPSolvers, @COREIMPodcast, @thecurbsiders, @IMreasoning, @runthelistpod, @Curiousclinpod, @cardionerds