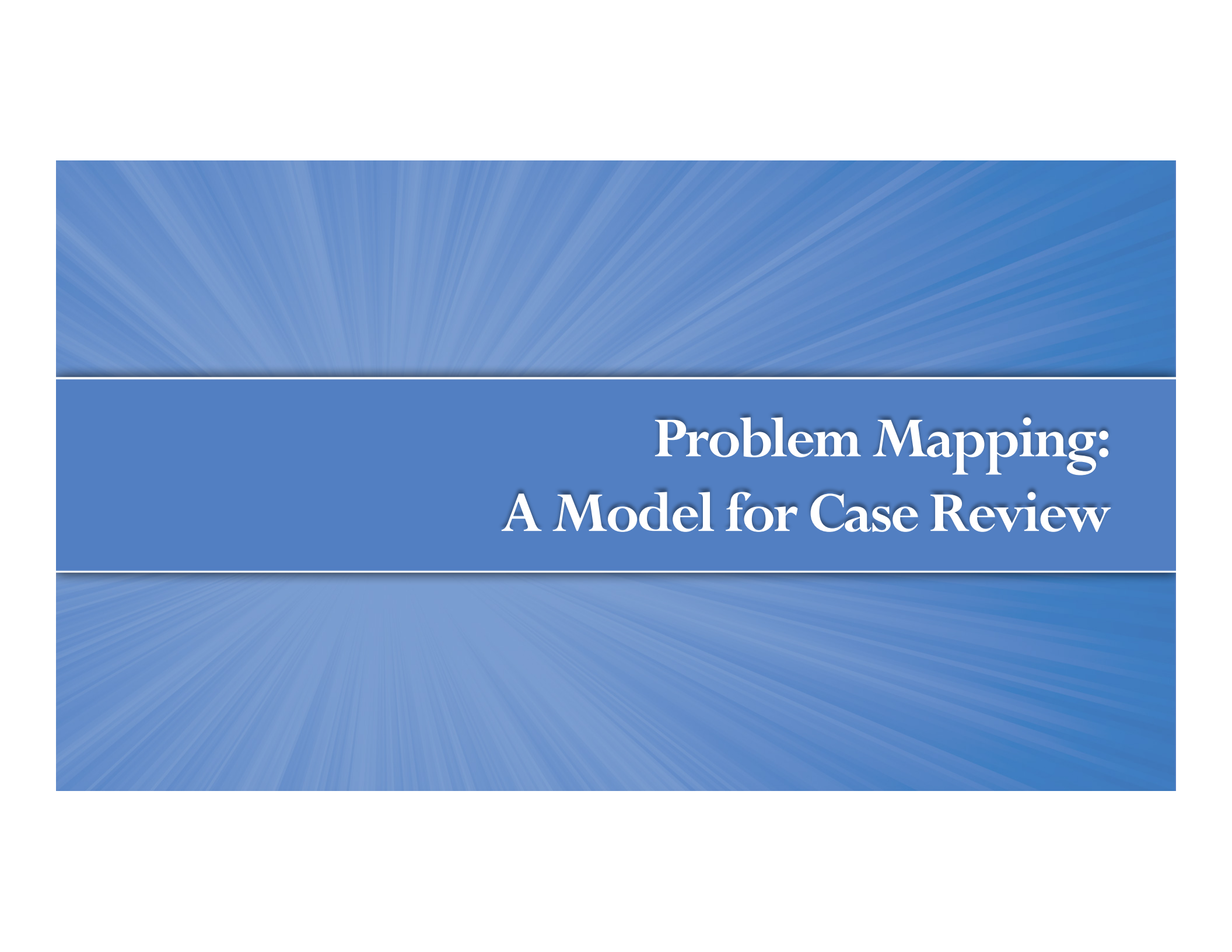


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Problem Mapping: A Model for Case Review

Goals for this Section:

- Discuss the importance of case review for learning and quality improvement
- Discuss challenges to performing unbiased review
- Appreciate the dynamic nature of patient illness scripts in complex cases
- Describe a tool that focuses case reviews through a CPS lens
- Describe how this tool can be used retrospectively and prospectively

The Role of Case Review in Medicine

- Identify, evaluate and remediate medical errors
- Popular/Effective teaching modality
- Redirect “stalled work-ups”

Challenges to Case Review

- Preparer biases
- Information presented without attention paid to chronicity of the case
- Misrepresent the authentic clinical situation as it happened in real time

The Dynamic Illness Script

- Most cases present in a string of “Information Bundles” separated in time and space
- Each “Information Bundle” = updates to the patient’s illness script
- Each update is a “fork in the road”
 - opportunity for improved understanding
 - opportunity to be misled

Example: Case 1 Slippery Ice

Case: A child is brought in by his parents complaining of arm pain after falling while ice skating

Physical Exam: child appears in pain, clear bony deformity to the left forearm

Studies: Xrays of the arm show a displaced fracture of the left ulna and radius

Diagnosis: Displaced fracture of the left wrist

Epi: Young child, ice skater

Duration: Acute

Symptoms:

Forearm pain

Bony deformity

Xrays show a fracture

Diagnosis: Fracture

Case 1: Slippery Ice

- “Good information” in the initial bundle
 - Allowed for quick pattern recognition
- All subsequent information fit initial working diagnosis
- No discordant or distracting information

Example Case 2: Acute Long-standing Shortness of Breath

Initial Presentation

Chief Complaint: A 65 yo woman presents to the ED for “feeling terrible”

HPI: she complains of shortness of breath, productive cough and fevers for three days

Exam: Rhonchi at the left base

Labs and Imaging: Leukocytosis and CXR with clear consolidation in LLL

Diagnosis: Community Acquired Pneumonia (“CAP”)

A Few Days into Therapy for CAP

HPI: fevers and leukocytosis improved but patient still with dyspnea, dry cough

Further History: Pt now recalls having increasing SOB with dry cough over the last 2 months

Re-examination: Rhonchi have resolved, crackles throughout bilaterally

Further History: Recently bought a parakeet

Further Studies: CT chest consistent with hypersensitivity pneumonitis

Diagnosis: Hypersensitivity pneumonitis

Case 2 Patient Illness Script

Epidemiology: 66 yo woman previously healthy

Duration: Acute/subacute

Symptoms:

Prodromal Cough
Shortness of Breath
Dry Cough
Fever
Dyspnea on Exertion
Rhonchi in LLL
Diffuse Crackles
Leukocytosis
CT scan c/w ILD
LLL opacity on CXR

DX: Community Acquired Pneumonia

DX: Hypersensitivity Pneumonitis (HP)

Case 2:

1. Information came in multiple bundles separated by time
2. Symptoms/Complaints were “Layered” with acute and chronic symptoms
3. Initial diagnosis “challenged” by subsequent information

Case 2 Patient Illness Script

Epidemiology: 66 yo woman owns a bird

Duration: Chronic

Symptoms:

Dry Cough

Dyspnea on Exertion

Recent Acute Lobar Pneumonia

Diffuse Crackles

CT with interstitial lung disease

DX: Community Acquired Pneumonia

DX: Hypersensitivity Pneumonitis (HP)

Why did you ever treat her for community acquired pneumonia?

Was this 2 diagnoses or one?

She clearly had (HP) on her chest X-Ray, how could you have missed it?!

What is Problem Mapping?

A visual representation of a complex case

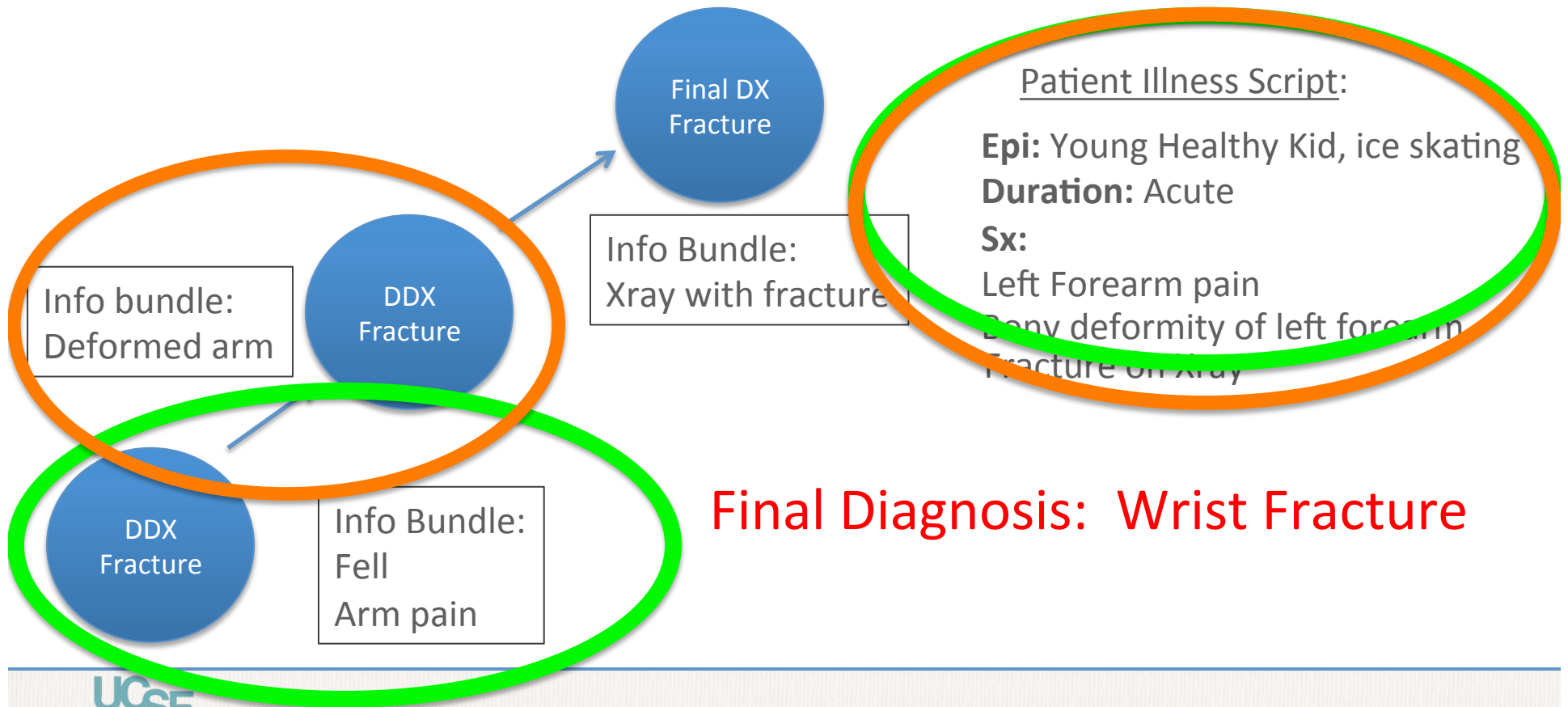
Adds the extra dimension of chronology to a case

Puts the focus on “clinical moments”

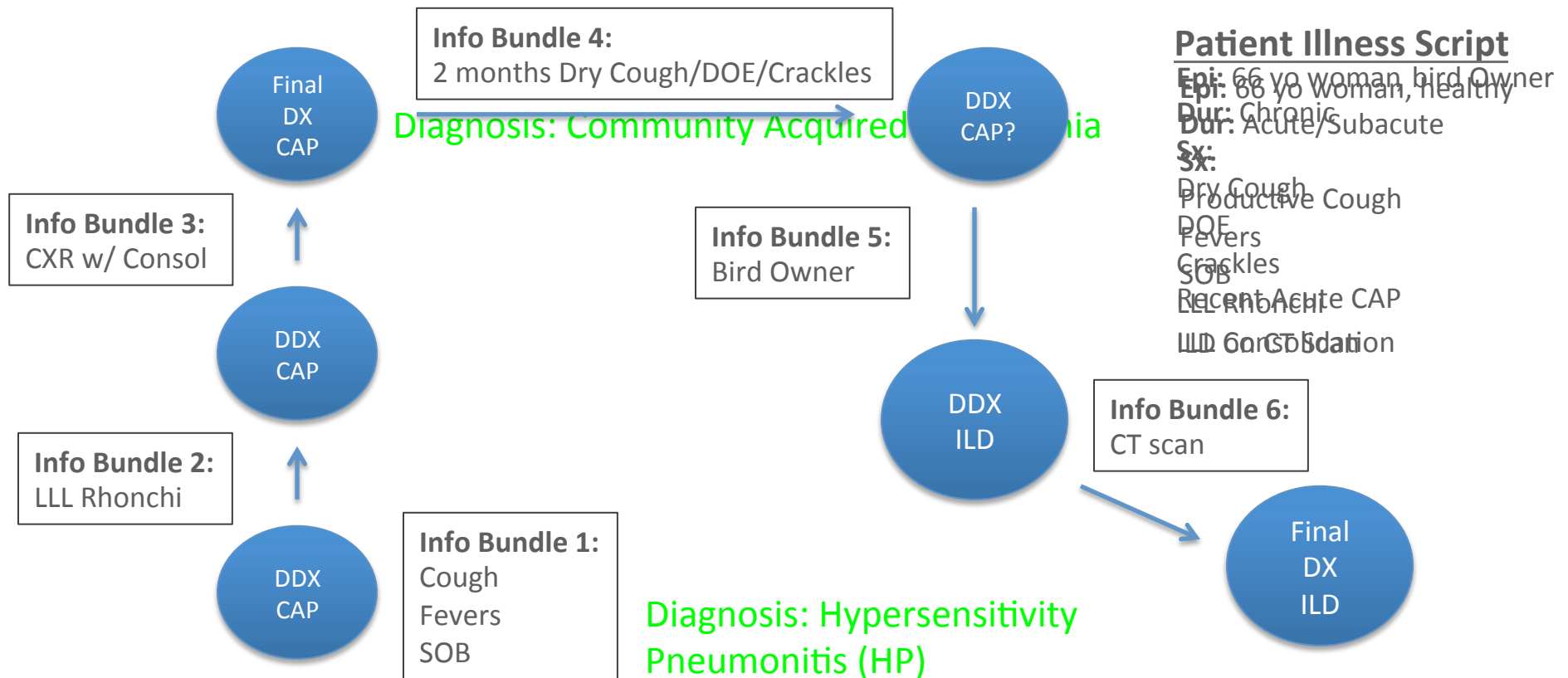
- data available
- patient’s illness script
- working diagnosis

Clinical Moments become our points for intervention and improvement

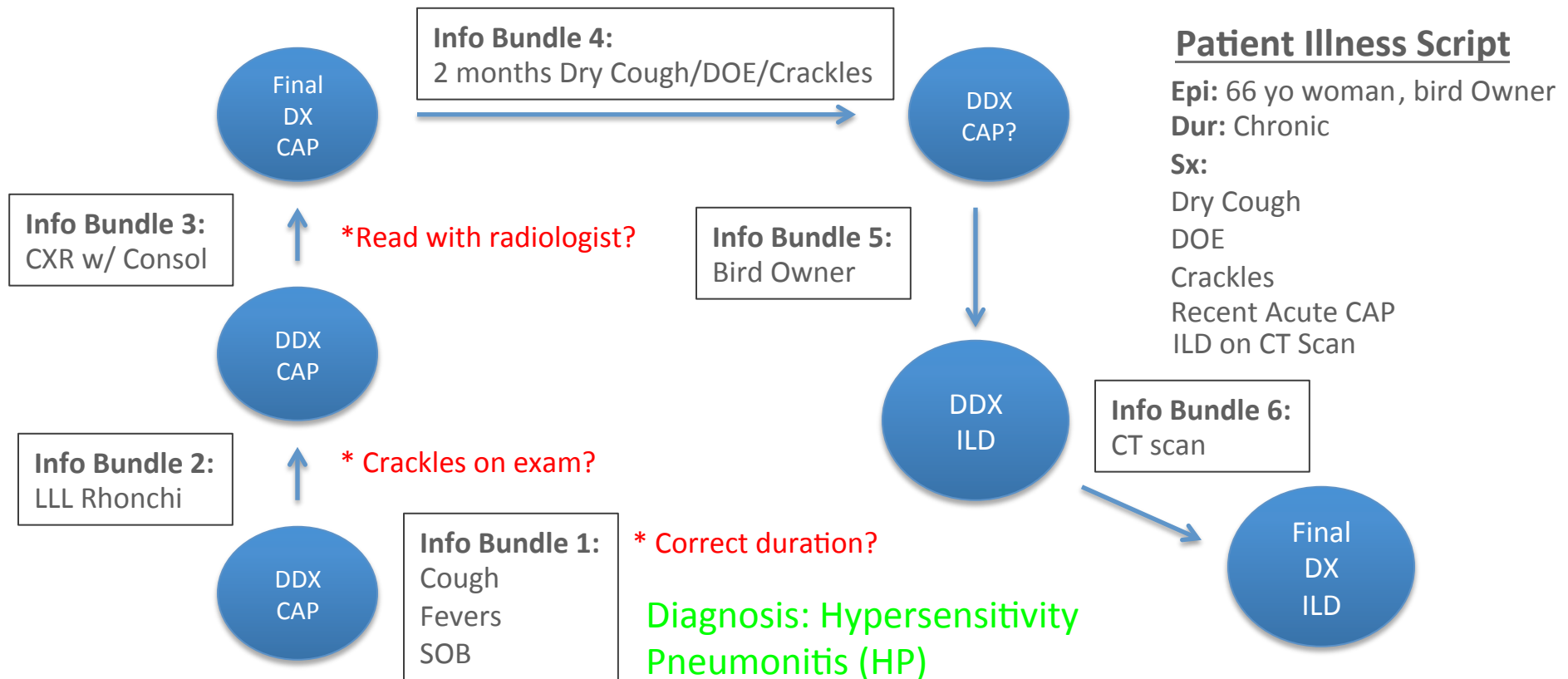
Problem Map of Case 1



Problem Map Case 2



Problem Map Case 2



How Problem Mapping Could Be Used

Root-Cause analysis

A structure for organizing data

Identify points of possible cause

Preparing a teaching case

Outline a case review and identify teaching points before writing the script

Real time during a case conference

Summary after a case review

Real-time Clinical Use

Reframing a patient and re-examining thinking a “stalled” work-up

Daily progress notes specifically outlining current thinking

Summary

- Case review plays many important roles in error-analysis, education and quality improvement
- Having a structured approach to case review may help avoid common biases and strengthen your review
- Problem Mapping is a way to accurately characterize a case's “clinical moments” and identify points for action

Quiz 5.5

- Problem Mapping
 1. Shows students which problems to study
 2. Is a visual demonstration of the impact of information on decision making
 3. Is typically used prospectively.

Key Issues from Module 5

- Diagnostic Error is common and can occur during any step in the Dx and Thx process
- Knowledge gaps cause errors when people are unaware of how diseases usually present
- Knowledgeable physicians can still make errors because of their cognitive biases
- Problem Mapping can help uncover hidden biases and other cognitive errors

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End of Module 5