Illness Script Formation in Diagnostic Reasoning Within Advanced Practice Nursing Education

Christina Nordick, DNP, FNP-BC

Improving Diagnosis in Healthcare

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Employer – University of St Francis, Joliet, IL

Improving Diagnosis in Healthcare

Objectives

1. Participants will be able to articulate highlights of the report related to improving diagnosis in healthcare
2. Participants will be able to accurately describe the diagnostic reasoning process.
3. Participants will be able to identify the components of an illness script.
4. Participants will be able to create an illness script with assistance of a common healthcare problem.

Improving Diagnosis in Healthcare

- History
  - 2000 – *To Err is Human: Building a Safer Health System*
    - Focus - Safety and quality of care
  - 2015 – *Improving Diagnosis in Healthcare*
    - Focus – Reducing diagnostic error
      - Diagnostic errors are difficult to study
        - » 1. Scarce
        - » 2. Undependable measurements
        - » 3. Retrospective identification

****Most clinicians will have a *meaningful* diagnostic error sometime in their career***

Diagnostic Error Defined

- "The failure to establish an accurate and timely explanation of the patient's health problems"

OR

- "The failure to communicate that explanation to the patient."

(National Academy of Sciences, Engineering, and Medicine, 2015, p. 25)

Statistics

- Five percent of US outpatient visits result in diagnostic error.
  - Provider office visits - 928.6 million outpatient visits/year = 46.4 million diagnostic errors ? ! ? (CDC, 2012).
  - Postmortem examination – 10% of patient deaths
  - Medical record reviews – 6-17% of hospital adverse effects
- Diagnostic errors – leading type of paid malpractice claims with the highest total payments

(National Academy of Sciences, Engineering, and Medicine, 2015)

Enhancing Health Care Professional Education and Training that Supports Diagnosis

IOM contends that ALL health care professional education lacks sufficient development of clinical reasoning and understanding through the cognitive processes in which decisions are made.

(National Academy of Sciences, Engineering, and Medicine, 2015)

2. Enhancing Health Care Professional Education and Training that Supports Diagnosis

- Recommendation 2a: Educators should ensure that curricula and the training programs across the career trajectory:
  - Address performance in the diagnostic process
    - Clinical reasoning, teamwork, communication with patients, their families, and other health care professionals, appropriate use of diagnostic tests and application of these results on subsequent decision making and use of HIT.
  - Employ educational approaches that are aligned with evidence from the learning sciences.

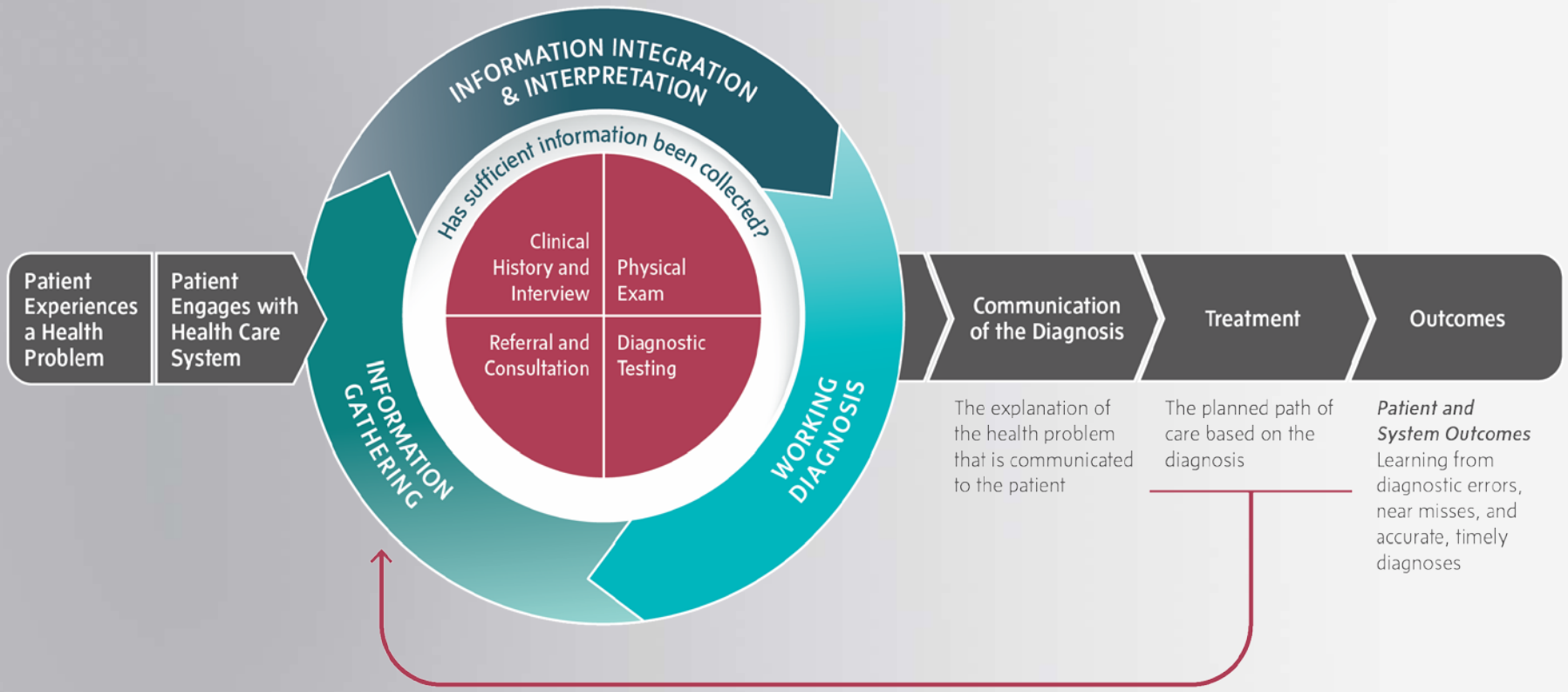
(National Academy of Sciences, Engineering, and Medicine, 2015, p. 31)

Improving Diagnosis in Health Care

- Instruction and practice on generating and refining a differential diagnosis
- Generate illness scripts
- Develop an appreciation on how diagnostic errors occur and how to mitigate them
- Engage in metacognition and de-biasing strategies

(National Academy of Sciences, Engineering, and Medicine, 2015

The Diagnostic Process



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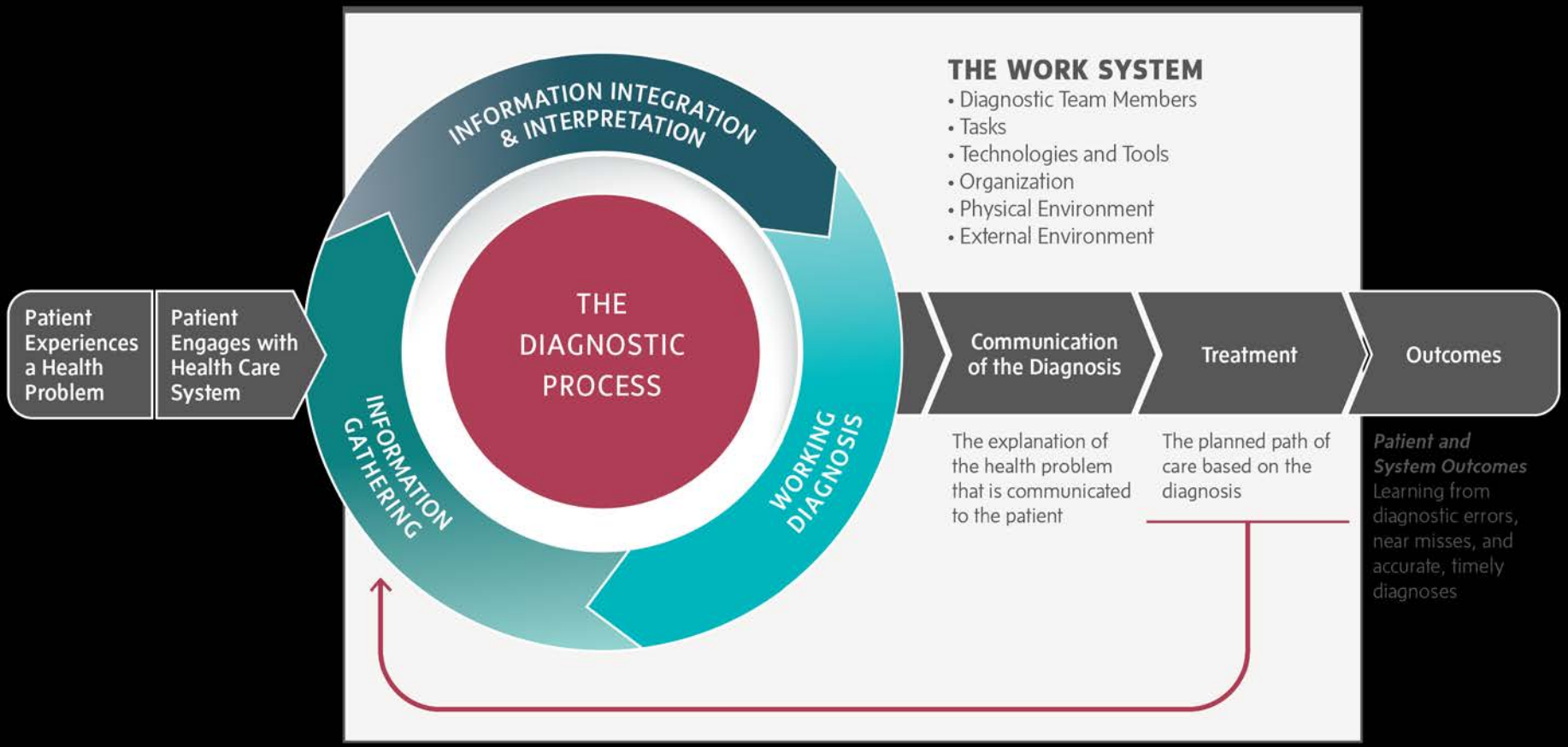
SOURCE: National Academies of Sciences, Engineering, and Medicine. 2015. *Improving Diagnosis in Health Care*. Washington, DC: The National Academies Press.

Where Failures in the Diagnostic Process Occur

- Failure of Engagement
- Failure in Information Gathering
- Failure in Information Integration
- Failure in Information Interpretation
- Failure to Establish an Explanation for the Health Problem
- Failure to Communicate the Explanation



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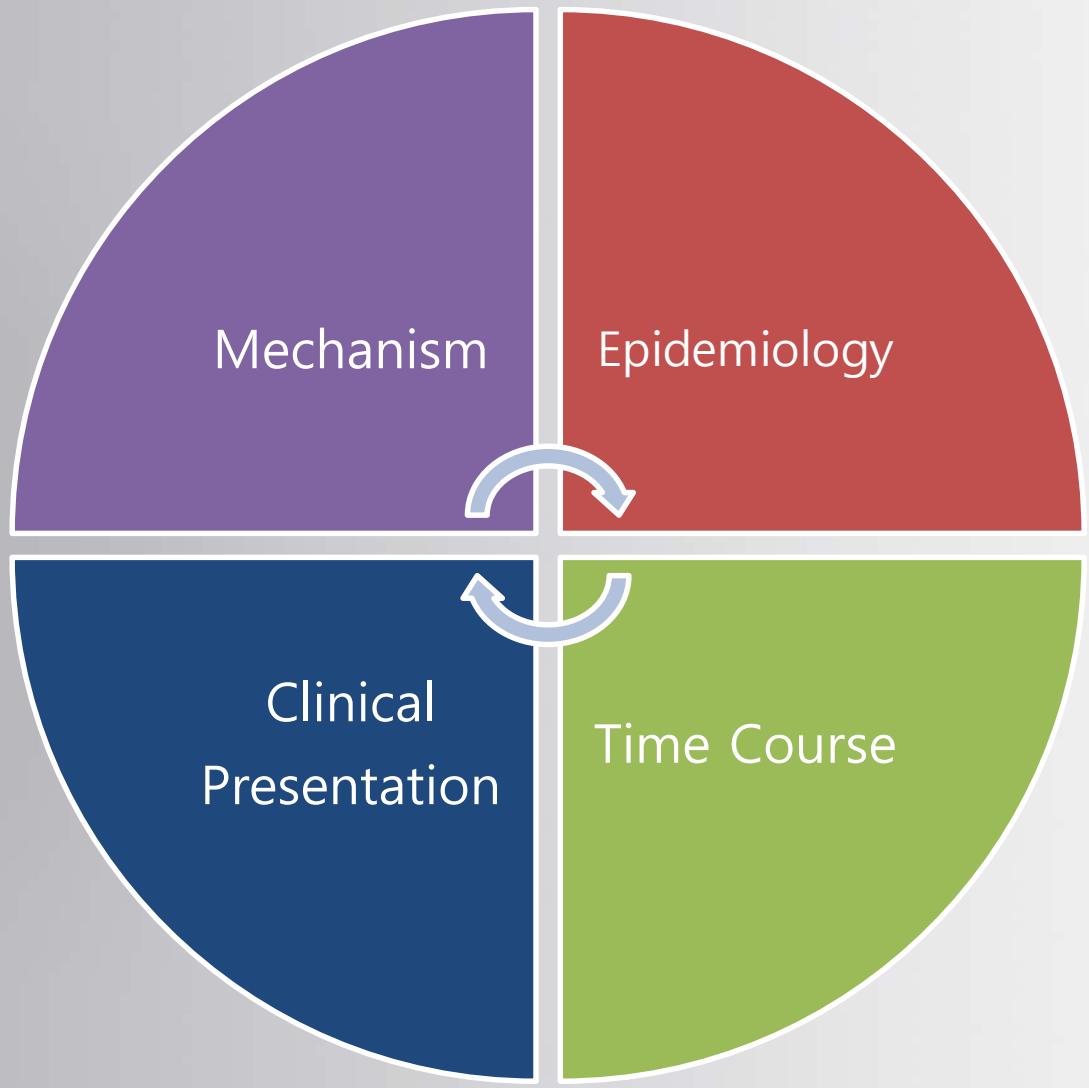
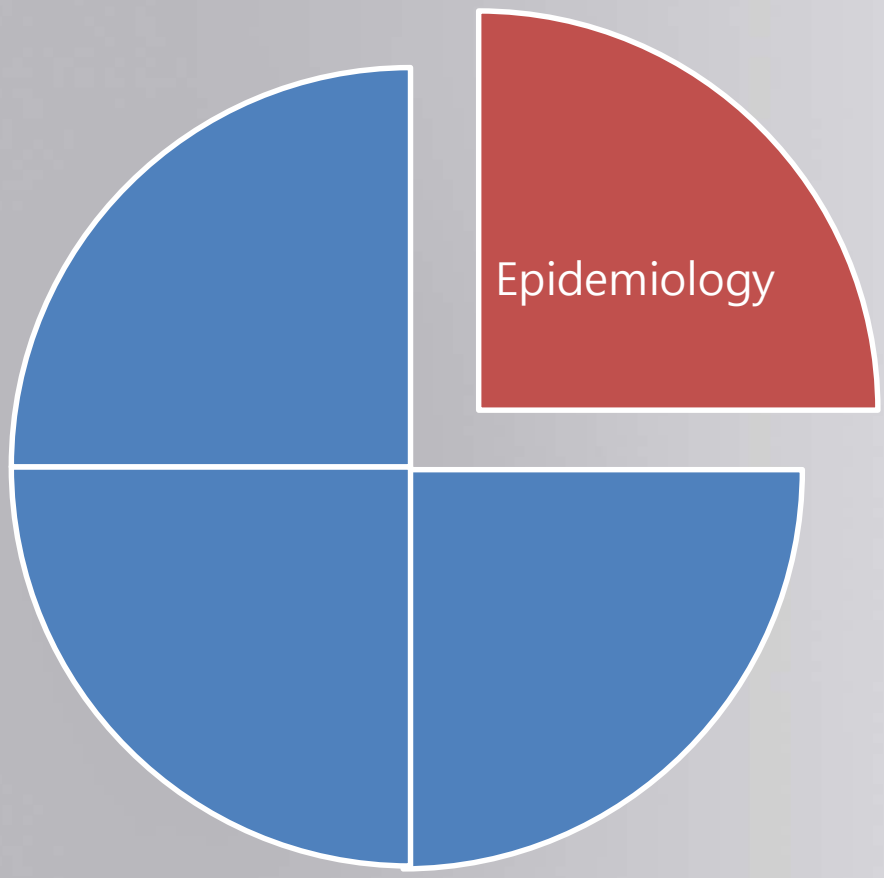
Diagnostic Reasoning Process

- **Presenting problem – the critical starting point**
  - What are the acute through chronic conditions which the Chief Complaint can be attributed to? (initial hypotheses)
  - Identify EACH of these conditions by epidemiology, time course, typical features and mechanism of illness
    - **Creation of an illness script**

Illness Scripts



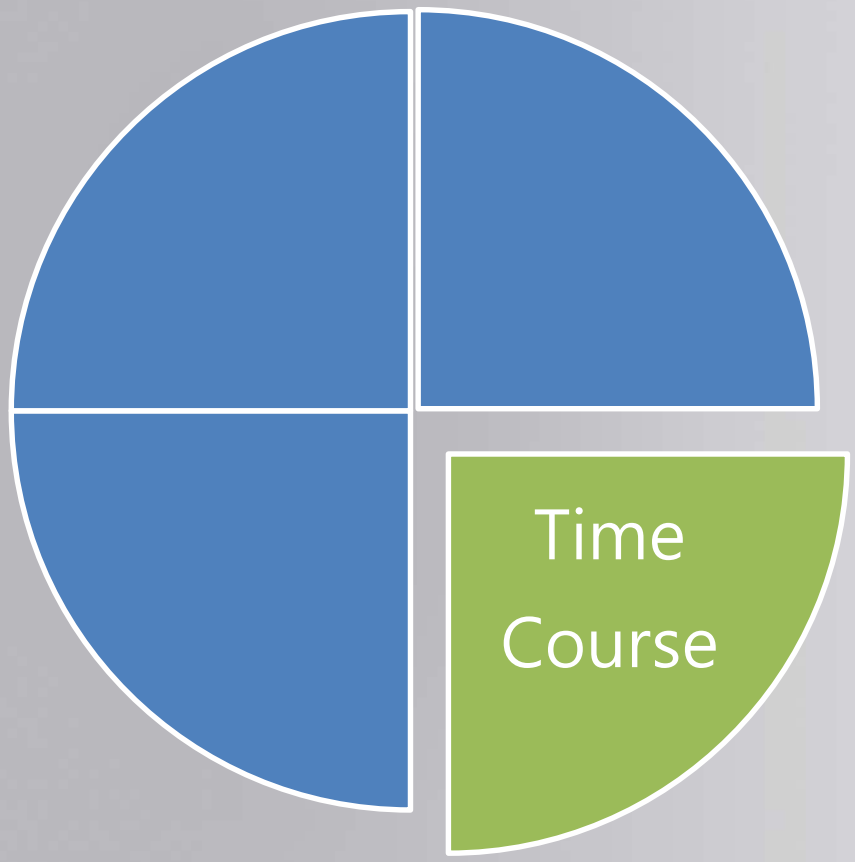
Illness Script - Epidemiology



- Demographics
  - Age
  - Race or ethnicity
  - Gender
- Risk Factors
  - Predisposing conditions
- Exposures
  - Travel
  - Occupation
  - Activities (sexual & hobbies)
  - Pets
  - Close contacts

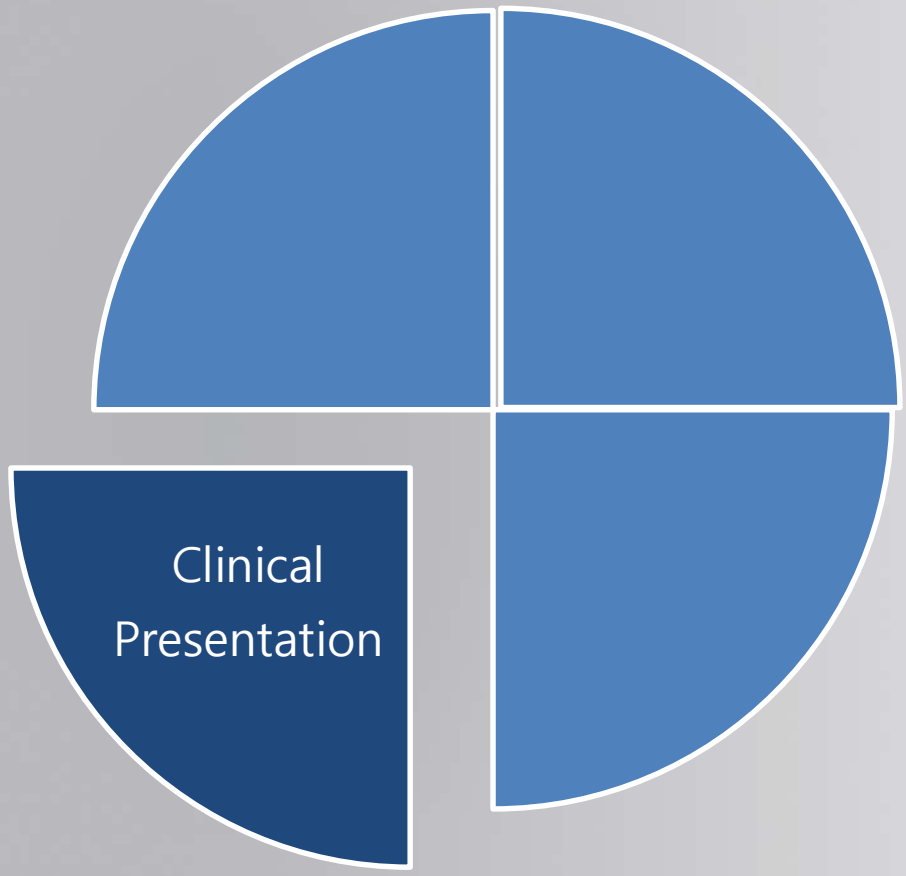
Important to differentiate between "important" and "not important"

Illness Script – Time Course



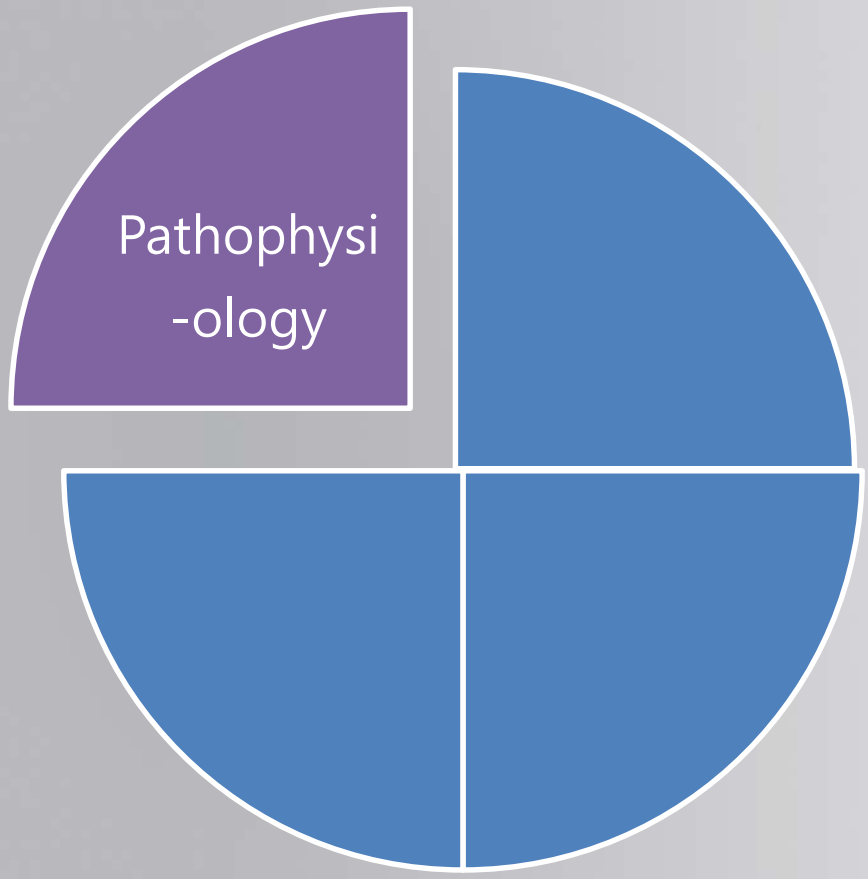
- Duration of Prodromal Symptoms
  - Hyperacute
  - Acute
  - Subacute
  - Chronic
- Pattern of Prodrome or Symptoms
  - Constant
    - Worsening or stable
  - Episodic
    - Waxing and waning or intermittent

Illness Script – Clinical Presentation



- Classic Signs & Symptoms
  - Key and differentiating features
  - **Must have features** – without it the disease cannot be included in differential
  - **Rejecting features** – if present the diagnosis cannot be made
- Diagnostics

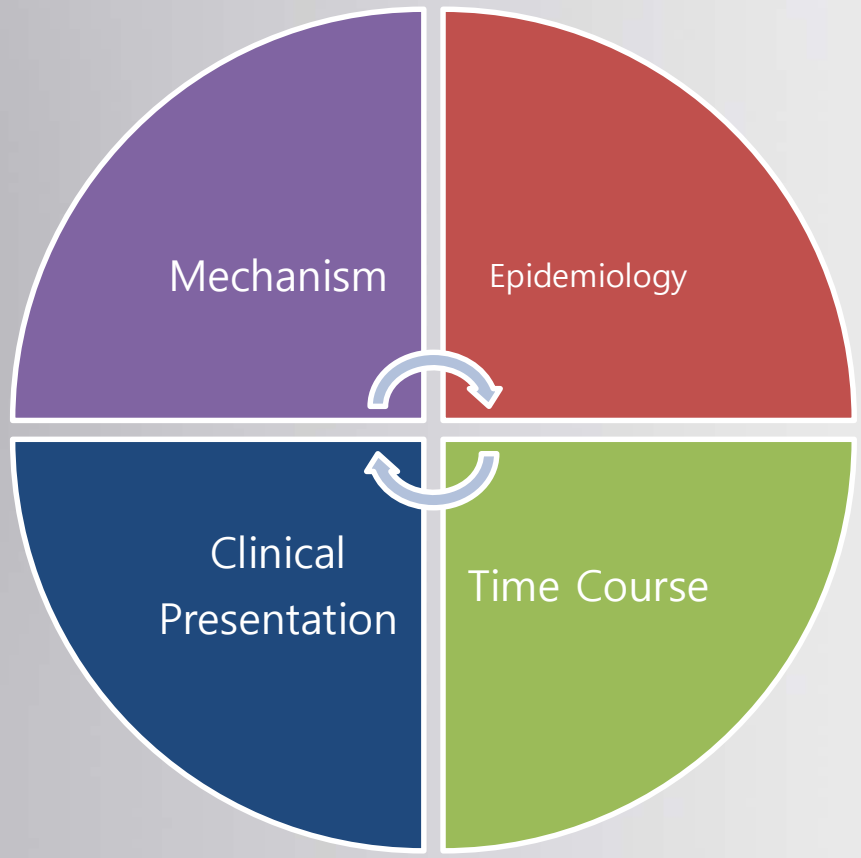
Illness Script - Pathophysiology



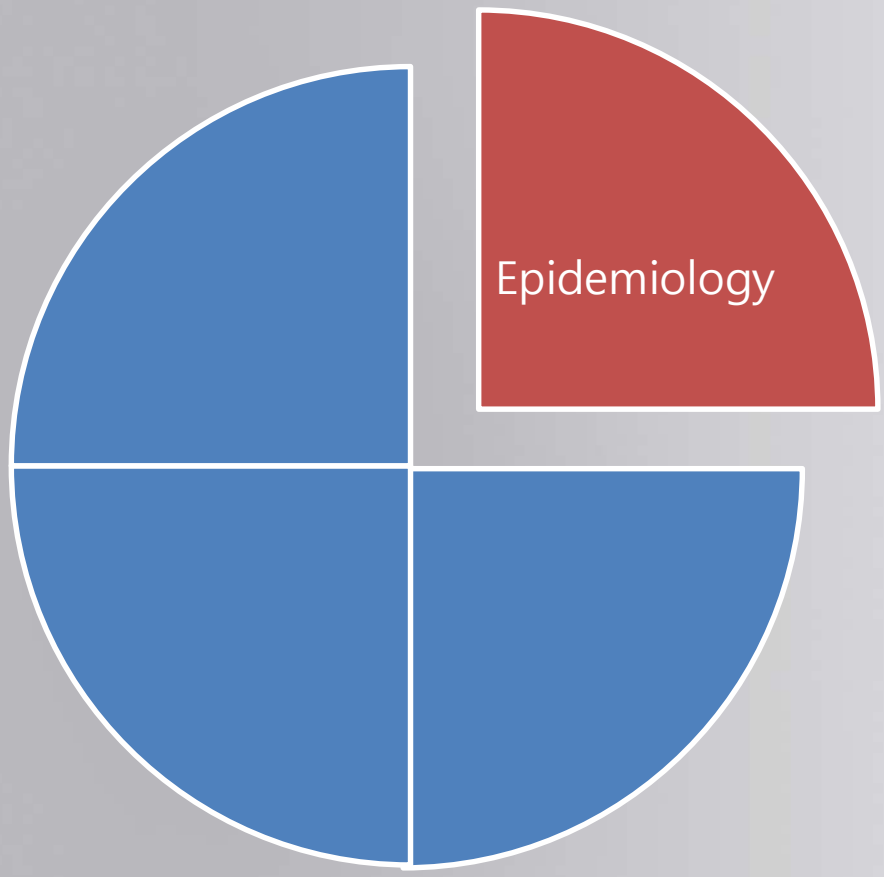
- The biomedical causes of the disease
- Known derangements including:
  - Anatomy
  - Physiology
  - Immunology
  - Biochemical pathways
  - Genetics, epigenetics, metabolomics
- Known environmental contributors including:
  - Microbiology
  - Toxins
  - Pharmacology

Illness Script Practice

- Let's do this together….. Consider CAP



Illness Script - Epidemiology



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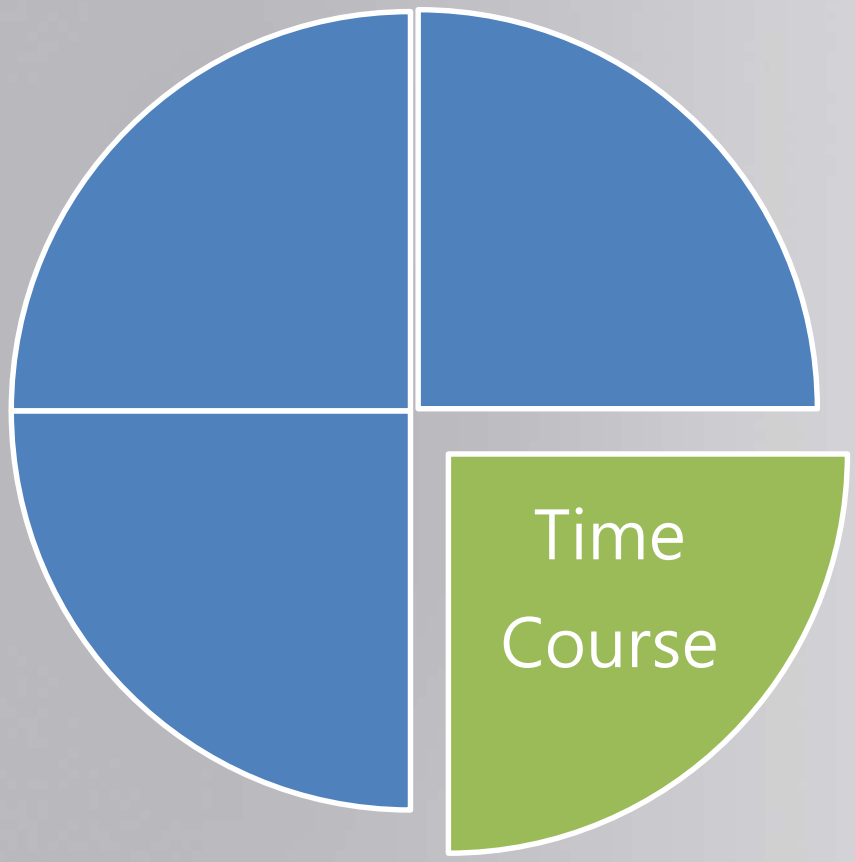

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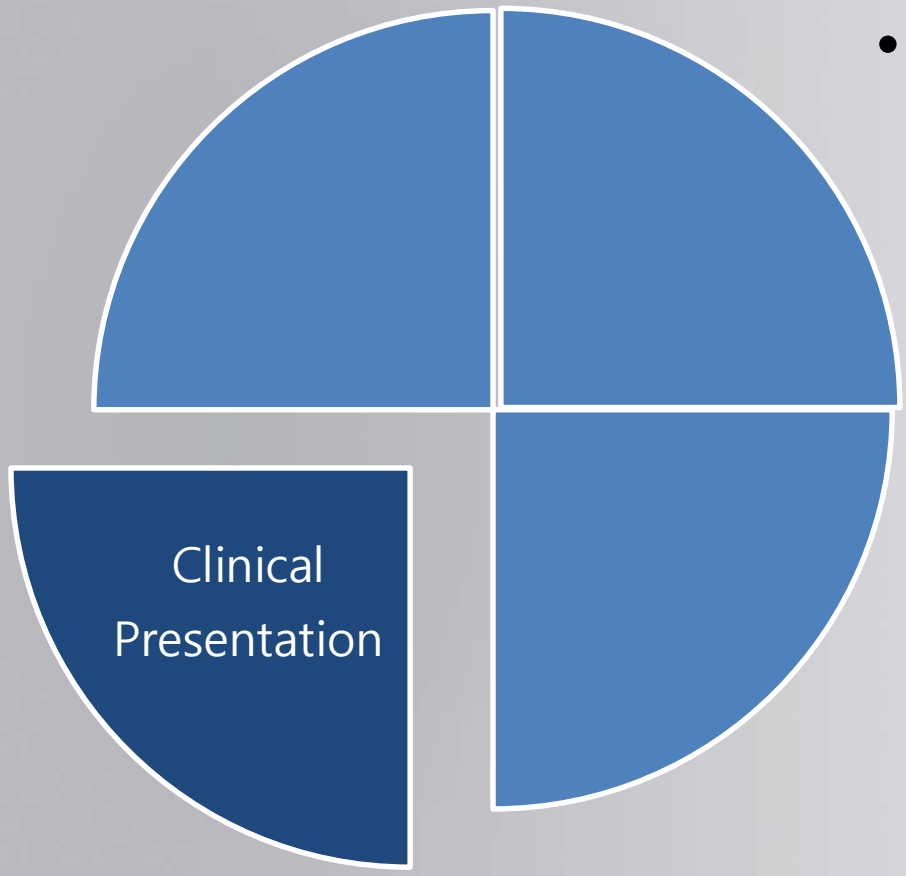

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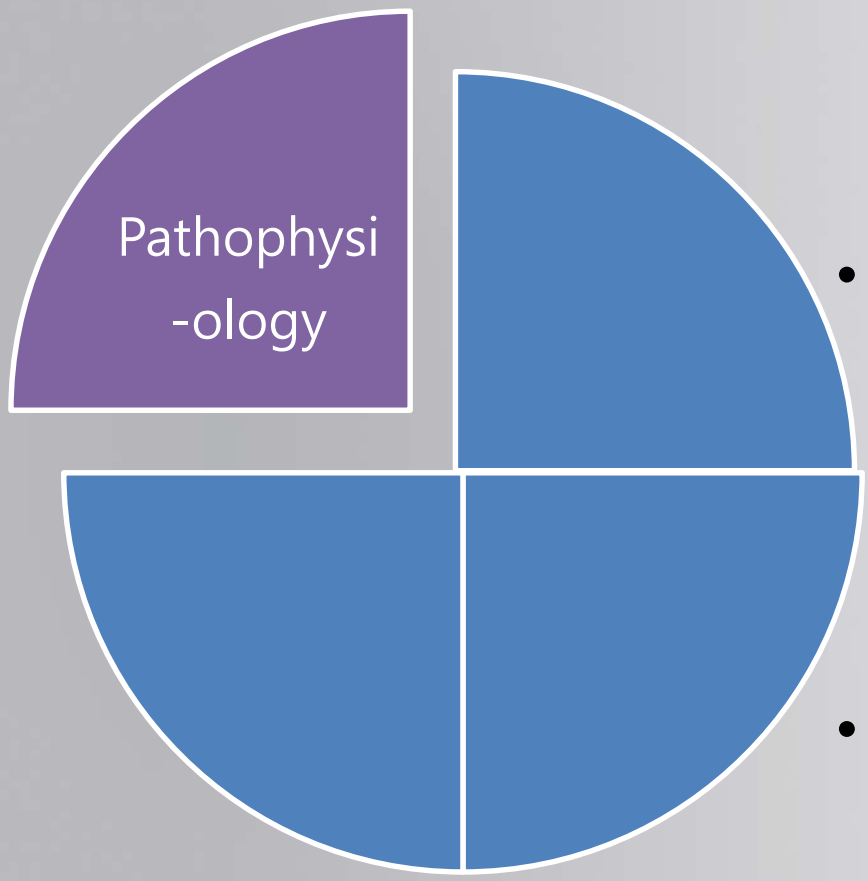


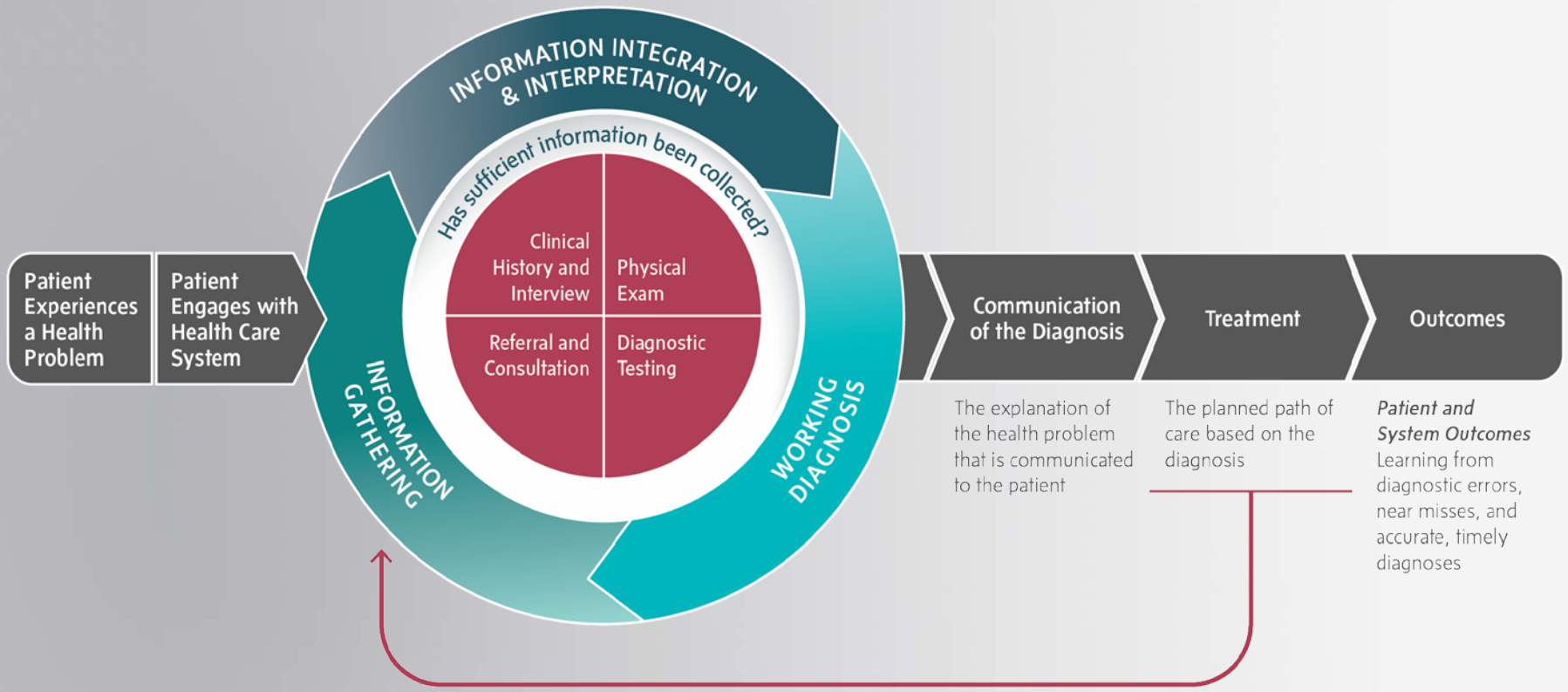
- The biomedical causes of the disease – almost all disorders have a component of inflammation and/or immunologic factors
- Known derangements including:
  - Anatomy
  - Physiology
  - Immunology
  - Biochemical pathways
  - Genetics, epigenetics, metabolomics
- Known environmental contributors including:
  - Microbiology
  - Toxins
  - Pharmacology

Next Steps:

- Compare data acquisition with illness script(s) in differential diagnoses deliberation (**What is the best fit?)**
- Involve the patient as a partner in the diagnostic decision process
- Use second opinions from colleagues or consultants
- Use diagnostic checklists (diagnostic "time-outs")

National Academy of Sciences, Engineering, and Medicine, 2015; Ely & Graber, 2016).

The Diagnostic Process



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How do we teach diagnostic reasoning?

1. Develop deeper conceptual learning

   - Relate new ideas to previous knowledge
   - Incorporate knowledge into conceptual systems
   - Develop and look for patterns and connecting principles
   - Consider new ideas critically
   - Understand argument structure and development
   - Reflect on how they learned and what is understood

Improving Education

2. Focus on Learning
   – Participatory learning
3. Creating Learning Environments
4. Building on Prior Knowledge
5. Reflect on One's Knowledge

Developing a comfort with uncertainty is an important component of clinical reasoning

(National Academy of Sciences, Engineering, and Medicine, 2015)

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KEEP CALM AND ASK QUESTIONS