臨床邏輯推理與病歷書寫

Clinical Reasoning and Chart Writing

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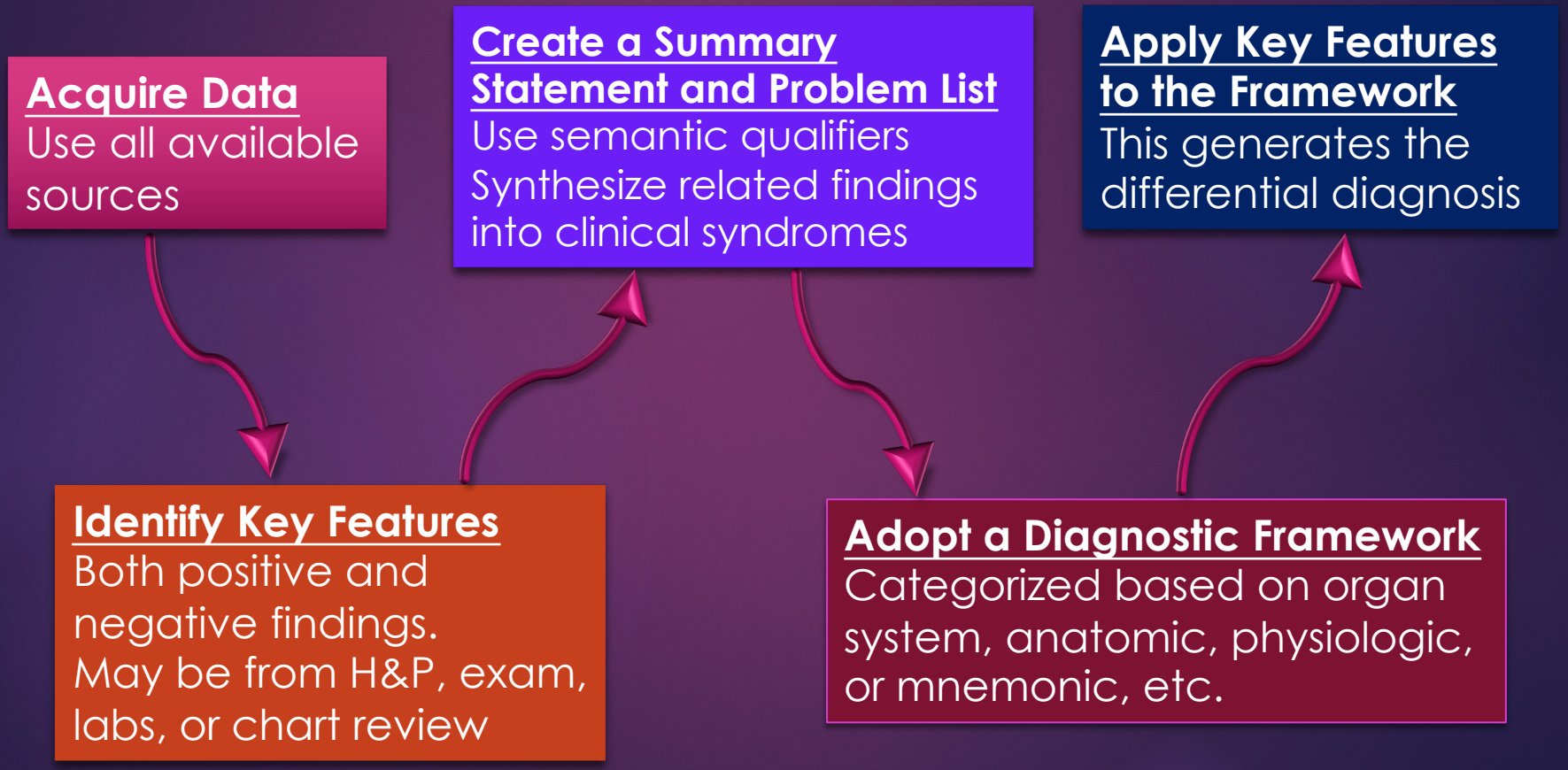
Clinical reasoning involves…

- Interpretation of subjective data
- Evaluation of the accuracy and validity of data
- Synthesis of individual pieces of data into higher order groups
- Determination of the relevance of scientific literature for a specific clinical situation
- Clinical evaluation of the arguments for and against diagnosis
- Application of biostatistics
- Integration of different types of knowledge into a complete decision making process

5 Steps to a Differential Diagnosis



A Case…

- A man presents with acute shortness of breath
- What might his diagnosis be?

Acquire Data

Acquire Data and Analysis of Symptoms

- LQQOPERA
- OPQRST
- CHLORIDE FPP
- TINA
- Who, When, Where, What, How, Why

LQQOPERA

- L - Location (位置)
- Q - Quality (型態)
- Q - Quantity/time course (歷時長短)
- O - Onset mode (發作形式)
- P - Precipitating factors (情境或誘發因素)
- E - Exaggerating factors (加重因素)
- R - Relieving factors (緩解因素)
- A - Accompanying symptoms (伴隨症狀)

OPQRST

- O- Other symptoms associated with the main complaint
- P - Provocative and palliative features - what makes it better or worse?
- Q - Quality/Quantity - nature of the pain, color and amount of sputum, amount of weight loss
- R - Region/Radiation/Referral - where is the pain located; does it radiate or is it referred elsewhere?
- S - Severity - How bad is it? How much does it interfere with normal activity?
- T - Timing
  - Including time and speed of onset, duration, frequency; whether it is constant or intermittent; worsening, improving, or staying the same; temporal relationship to other symptoms, eg, the sequence in which they appeared

CHLORIDE FPP

- Ch (Character) - What is the symptom like?
- L (Location) - Where is it?
- O (Onset) - When did it start?
- R (Radiation) - Does it go anywhere else?
- I (Intensity) - How bad is it, scale 1-10, affecting ADL?
- D (Duration) - How long does it last? How has it changed/progressed since it stated?
- E (Events associated) - What were you doing/where were you when the symptom began/what else was going on?
- F – Frequency
  - Has this happened before? How often does it happen?
- P - Provocative factors
  - What helps?
- P - Palliative factors
  - What makes it worse?

TINA: elements in assessment

- T - Timing
  - Onset, duration, pattern, progression
- I - Influences
  - Precipitating, aggravating and relieving factors
- N - Nature
  - Character, severity, site, radiation, volume
- A - Associations
  - Symptoms, relationship

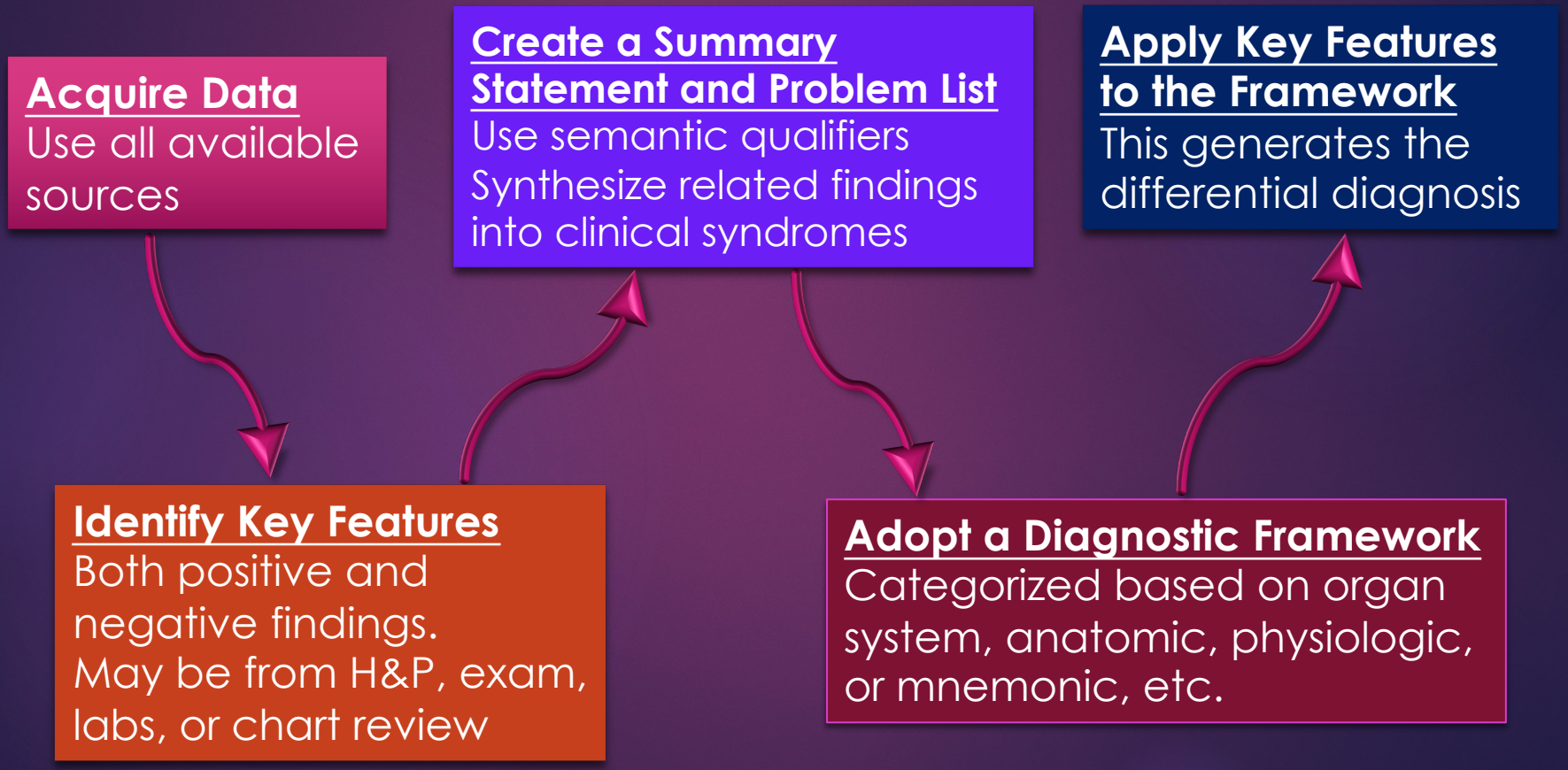
A Case …

- CC:
  - A 42 y/o man with a history of diabetes and hypertension presented to the ER with dyspnea for 30 minutes
- HPI:
  - The patient was in his usual state of health until 2 days ago, when abrupt onset of dyspnea developed. He had no associated symptoms, including no chest pain, palpitations, or lightheadedness. After about 5 minutes, the dyspnea spontaneously resolved.
  - Today, while walking outside, it occurred again but this time did not resolve. After 30 minutes without improvement, his wife called 911.
  - He reported no recent cough, change in weight, or sick contacts.

A Case …

- PMH:
  - Diabetes
  - Hypertension
- Meds:
  - Lisinopril
  - Amlodipine
  - Insulin
- Social history:
  - Restaurant manager
  - Lives with wife
  - No recent travel
  - Rare alcohol use
  - No smoking history
- Family history:
  - No systemic illness
- ROS:
  - as per HPI, o/w non-contributory

5 Steps to a Differential Diagnosis



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Identify Key Features

“Key Feature”

Any element of a patient’s presentation which might help to distinguish one diagnostic possibility from another

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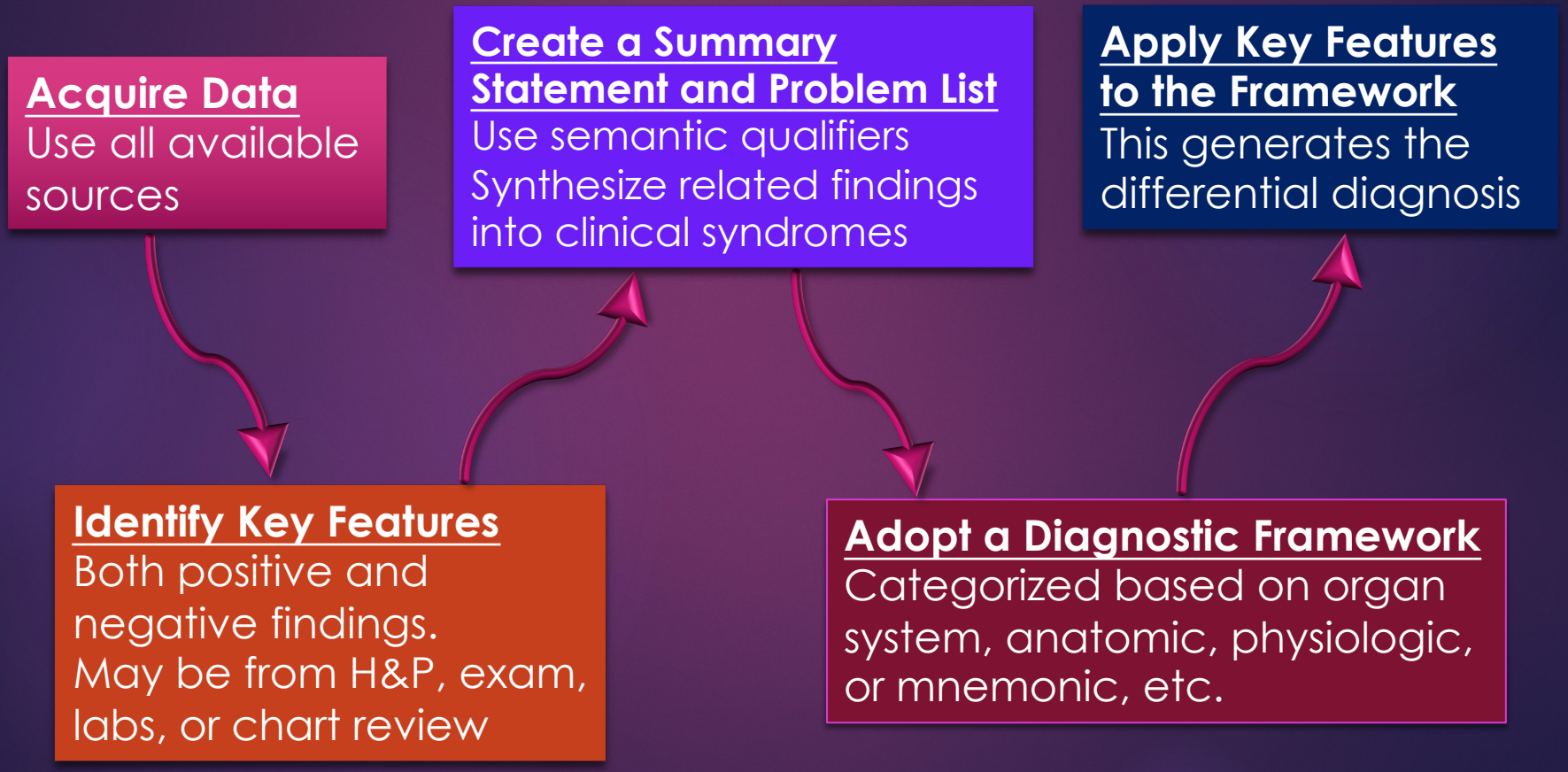

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Create a Summary Statement and Problem List

Summary statement and semantic qualifiers

A summary statement is a concise summary of the most important key feature of a presentation (symptoms, signs, tests), which helps the clinical reasoning process by prompting the clinician to identify what's most important and to properly frame the case before generating a working diagnosis, problem list, and plan.

They also are an essential component of rapid communication during hospital rounds, handoffs, and consult calls.

Structure of a Summary Statement

Age and gender + Highly relevant PMH and social history + Summary of primary symptoms using semantic qualifiers + Summary of objective findings with interpretation and grouping into clinical syndromes when relevant

Who is the patient

What is their disease

Example of Summary Statement

A 67 y/o man presents to the ER, reporting "I passed out yesterday".

- Key features from the history:
  - Older age
  - Happened while walking
  - No prodrome
  - No seizure-like movements
  - No incontinence
  - No palpitations
  - Worsening lightheadedness, fatigue, DOE for 1 month
  - History of hypertension, CAD, and Af
  - Prior smoker
  - Recent increased metoprolol dose
- Key exam findings:
  - Regular bradycardia
  - No orthostasis
  - Unremarkable cardiac and pulmonary exams
- Key test results:
  - Normal routine labs
  - ECG with Af, complete heart block, and a junctional escape rhythm

Example of Summary Statement

Age and gender + Highly relevant PMH and social history + Summary of primary symptoms using semantic qualifiers + Summary of objective findings with interpretation and grouping into clinical syndromes when relevant

A 67 y/o man presents to the ER, reporting "I passed out yesterday".

- In summary, the patient is a 67 y/o man with a history of multiple cardiovascular risk factors, atrial fibrillation, and a recently increased dose of metoprolol, who presents with subacute, progressive, episodic lightheadedness, fatigue, and dyspnea, followed by an episode of exertional syncope without prodrome yesterday.
- Physical exam is notably only for a regular bradycardia, routine labs are normal, and his ECG shows A-fib with complete heart block and a junctional escape rhythm.

Semantic Qualifiers

Words which concisely describe the characteristics of a symptom or sign in a patient's presentation

Used to compare competing diagnostic considerations

Often take the form of paired opposites

Common Semantic Qualifiers

Category	Options
Onset	Acute vs. chronic (vs. subacute)
Temporal course	Continuous/constant vs. episodic/intermittent Progressive vs. non-progressive/stable
Site	Unilateral vs. bilateral Symmetric vs. asymmetric Proximal vs. distal Diffuse vs. localized/focal Monoarticular vs. polyarticular
Presence of pain	Painful vs. painless
Symptom trigger	Post-prandial vs. exertional vs. pleuritic vs. positional
Other	Productive vs. non-productive (for cough)9 Bloody vs. non-bloody (for emesis and diarrhea)

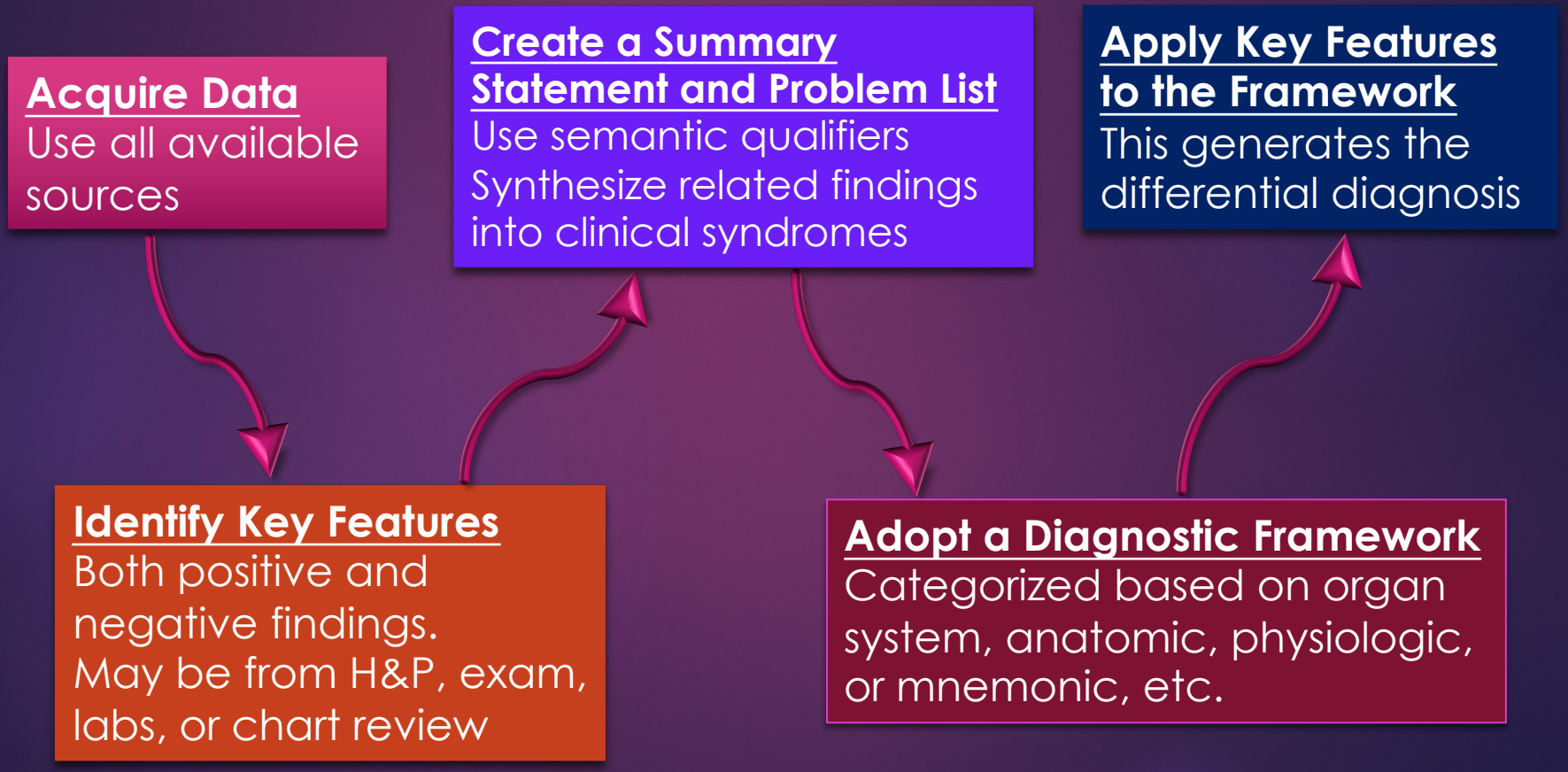
Examples of Using Semantic Qualifiers

"For the last 30 minutes, my chest has hurt whenever I take a deep breath." → Acute pleuritic chest pain

"Over the past several months, both legs have been getting weaker and weaker." → Chronic, progressive, bilateral lower extremity weakness

"I've had a couple episodes of diarrhea over the past 6 months with blood mixed in the stool. → Chronic, episodic, bloody diarrhea

5 Steps to a Differential Diagnosis



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Adopt a Diagnostic Framework

Diagnostic Framework

A categorized list of etiologies for a certain symptom, physical finding, or laboratory abnormality

Frameworks can be categorized based on organ system (most common), anatomic region, or physiologic mechanism

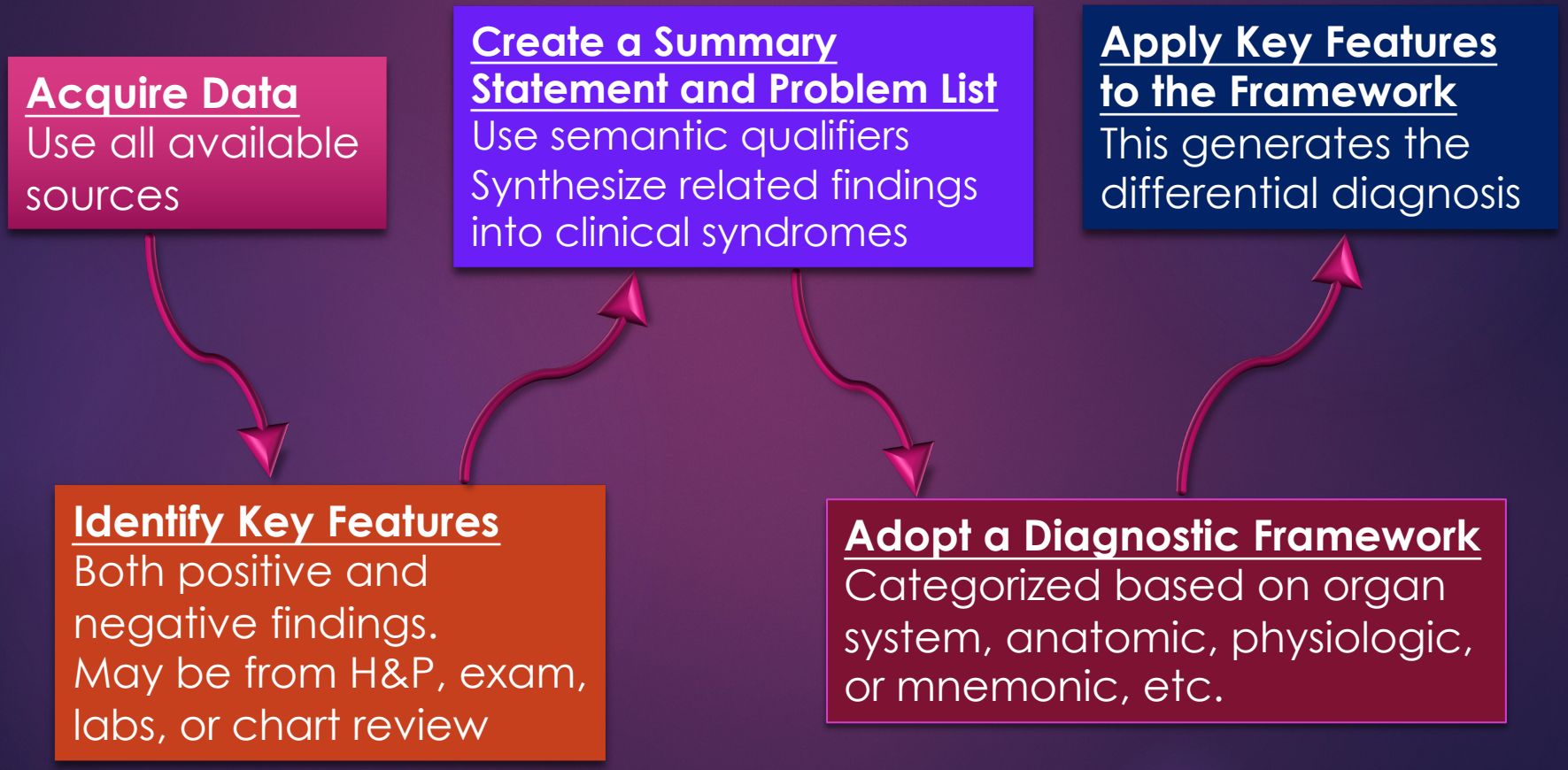
Diagnostic Framework for Acute Dyspnea – organ system

Pulmonary	Cardiovascular	Miscellaneous
Pleura pneumothorax pleural effusion	Pericardium pericarditis pericardial effusion	Anemia
Airways COPD-AE asthma-AE mucus plug	Myocardium myocarditis acute heart failure	Acute neuromuscular disease
Alveoli pneumonia aspiration pneumonia inhalation injury	Valves endocarditis acute valve rupture	Renal failure
Interstitium interstitial lung disease	Conduction system bradyarrhythmia tachyarrhythmia	Metabolic acidosis
Vessels pulmonary embolism	Vessels acute coronary syndrome hypertensive emergency	Upper airway obstruction
		Anxiety (panic attack)

Diagnostic Framework for Acute Dyspnea – physiologic mechanism

Hypoxemia	Hypercapnia	Acidemia	Poor O2 delivery (without hypoxemia)	Miscellaneous
Pulmonary edema - cardiogenic - non-cardiogenic	COPD-AE	Ketoacidosis	Anemia	Acute coronary syndrome (AMI)
Pneumonia	Asthma-AE	Lactic acidosis	Low output heart failure	Upper airway obstruction - Anaphylaxis - Angioedema - Infection
Pulmonary embolism	Acute neuro, neuromuscular disease - Myasthenia gravis - Transverse myelitis - Guillain-Barre syndrome		Obstructive shock - Massive PE - Tamponade - Tension pneumothorax	
Pleural effusion				Anxiety
COPD-AE				
Interstitial lung disease				
Pneumothorax				
Atelectasis				
Mucus plug				

5 Steps to a Differential Diagnosis



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Apply Key Features to the Diagnostic Framework

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- COPD exacerbation
- Asthma exacerbation
- Mucus plugging
- Bradyarrhythmia
- Tachyarrhythmia
- Acute coronary syndrome
- Anxiety (panic attack)

Differential Diagnosis

A list of diagnoses which could reasonably explain a specific patient's presentation, based on information available at the time.

It is usually placed in the order of estimate descending probability (i.e. the most likely diagnosis is listed first).

Sometimes, it will include 1-2 unlikely diagnoses if the consequences of missing those are particularly severe.

Diagnostic Frameworks vs. Differential Diagnoses

Diagnostic frameworks

- Symptom-specific
- Is not influenced by the details of the patient's presentation
- Comprehensive (> 20 diagnoses)
- Typically organized by organ system, anatomic region, or physiologic mechanism

Differential diagnosis

- Patient-specific
- Is very dependent on the details of the patient's presentation
- Focused (4-6 diagnoses is typical for most presentations)
- Typically listed in descending order of probability

Any Questions or Comments