



School of Continuous  
Professional Development

MAYO CLINIC

# URGENT CARE UPDATES 2023

May 4-6, 2023





School of Continuous  
Professional Development

# CLEARING THE AIR

UNDERSTANDING THE SCIENCE AND  
TREATMENT OF COUGH

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# DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIP(S) WITH INELIGIBLE COMPANIES

- Nothing to disclose

# REFERENCES TO OFF-LABEL USAGE(S) OF PHARMACEUTICALS OR INSTRUMENTS

- Nothing to disclose

*All relevant financial relationships have been mitigated.*

# LEARNING OBJECTIVES

Describe the pathophysiology of cough

Describe the most common etiologies of cough

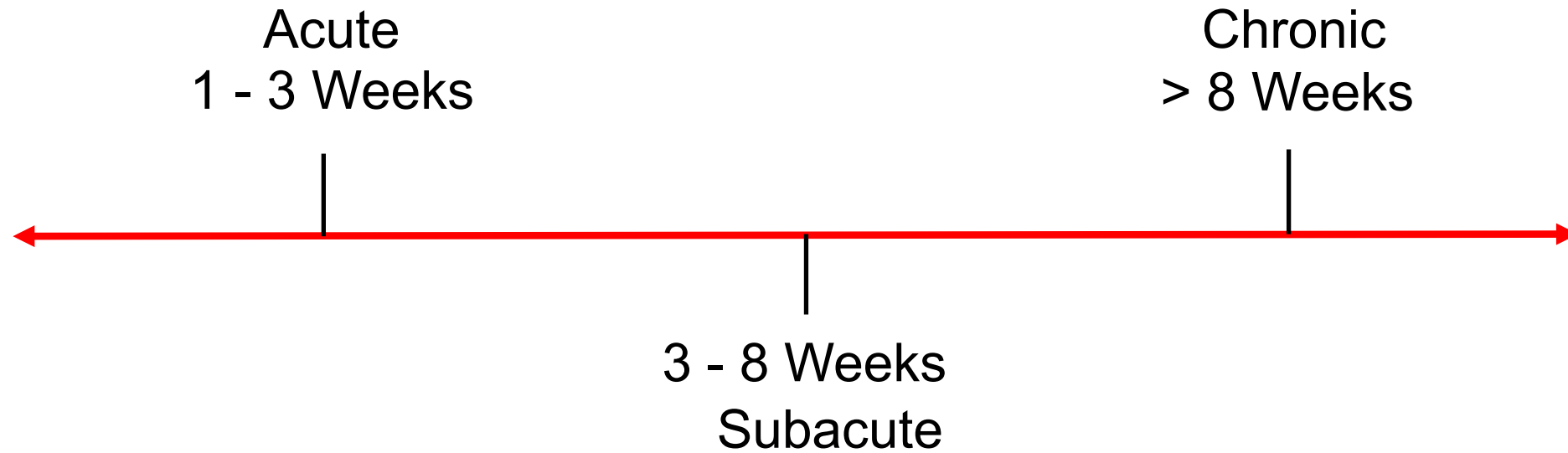
Explain diagnostics and therapies for cough

Discuss indications for higher level of care

# COUGH

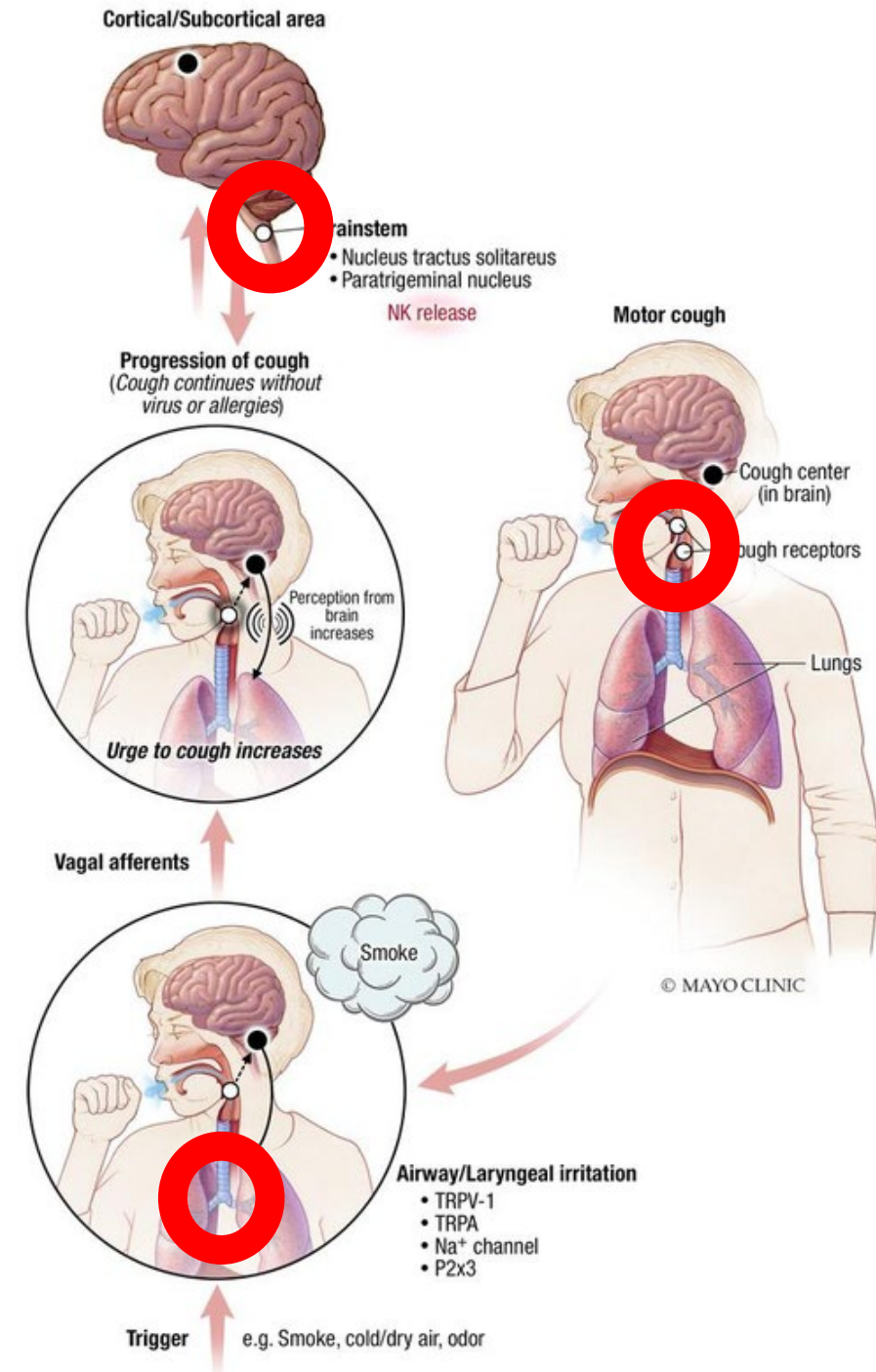
Definition

Epidemiology



# Location of cough receptors

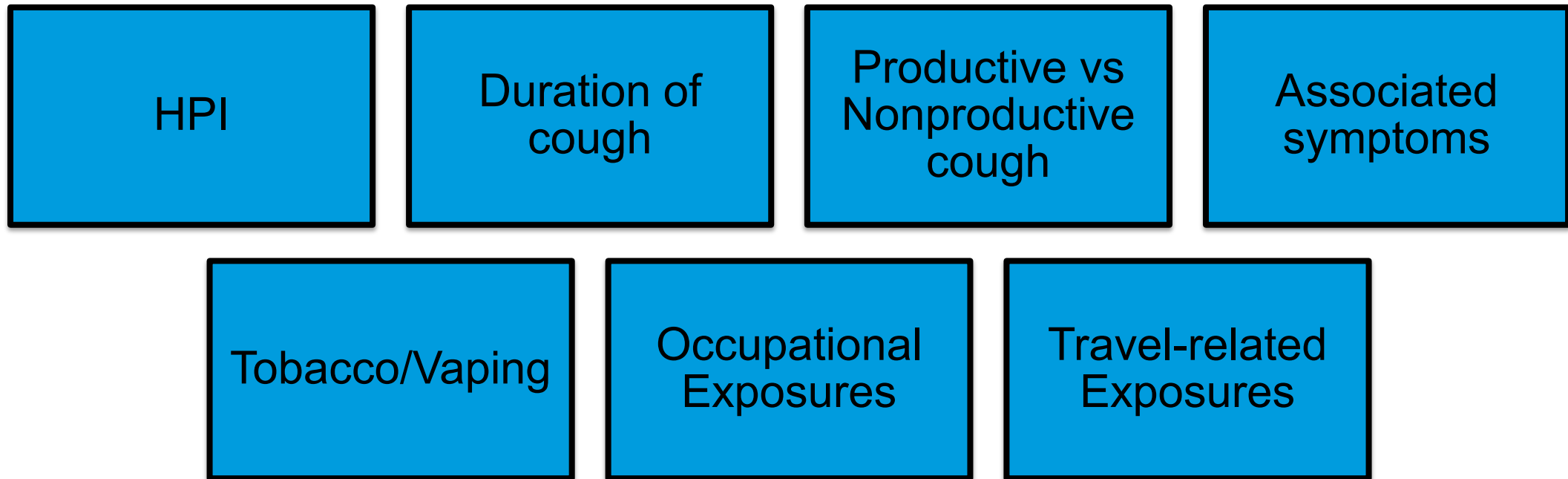
## Triggers – Mechanical vs Chemical



# CAUSES OF ACUTE COUGH



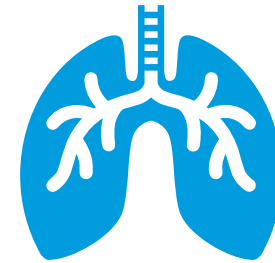
# EVALUATION OF ACUTE COUGH



# EVALUATION OF COUGH



**Identify Red Flags**



**Chest X-Ray**

# SYSTEMATIC APPROACH TO CHEST X-RAY INTERPRETATION

**R**otation

**I**nspiration

**P**rojection

**E**xposure

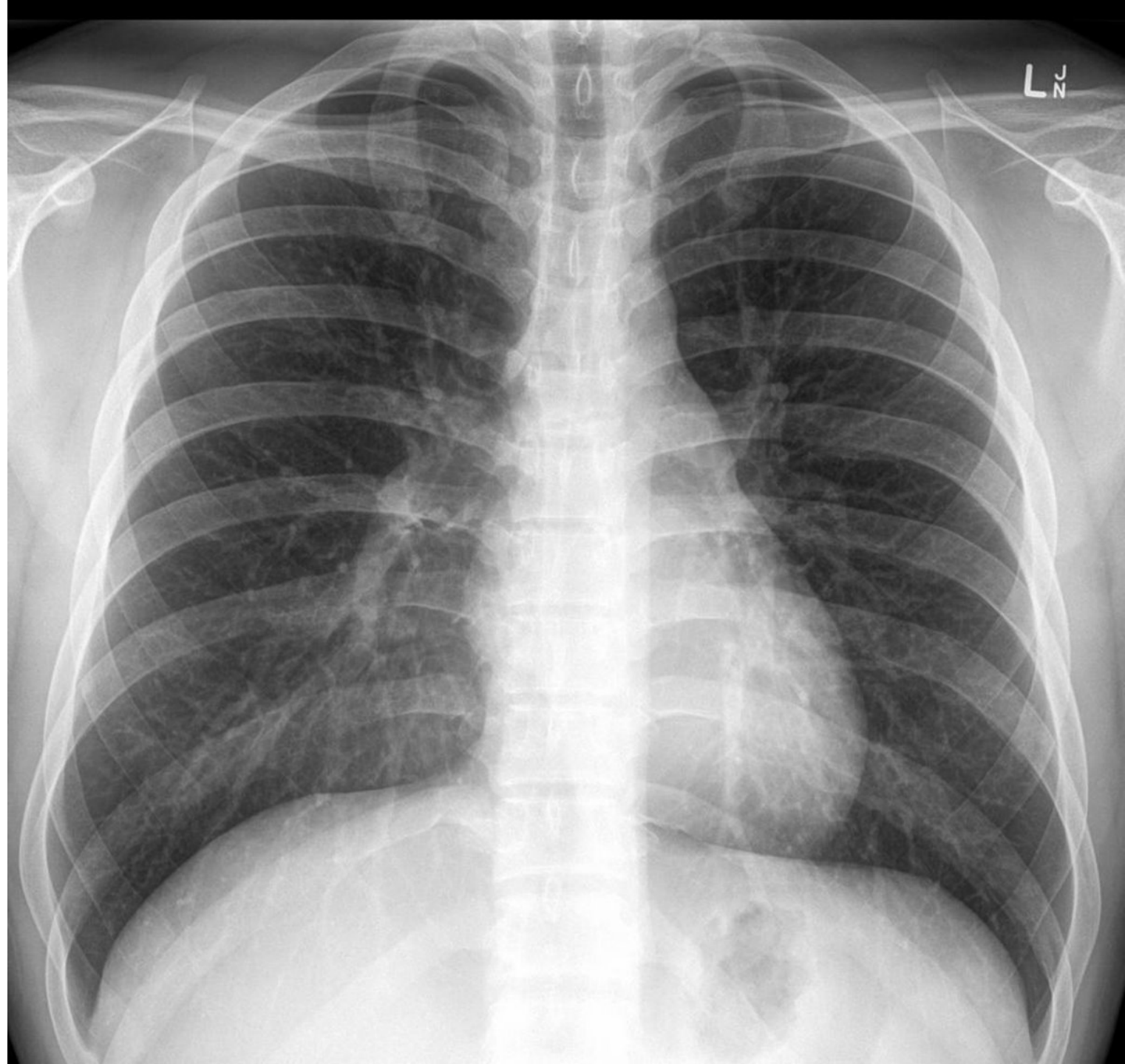
**A**irway

**B**reathing

**C**ardiac

**D**iaphragm

**E**verything



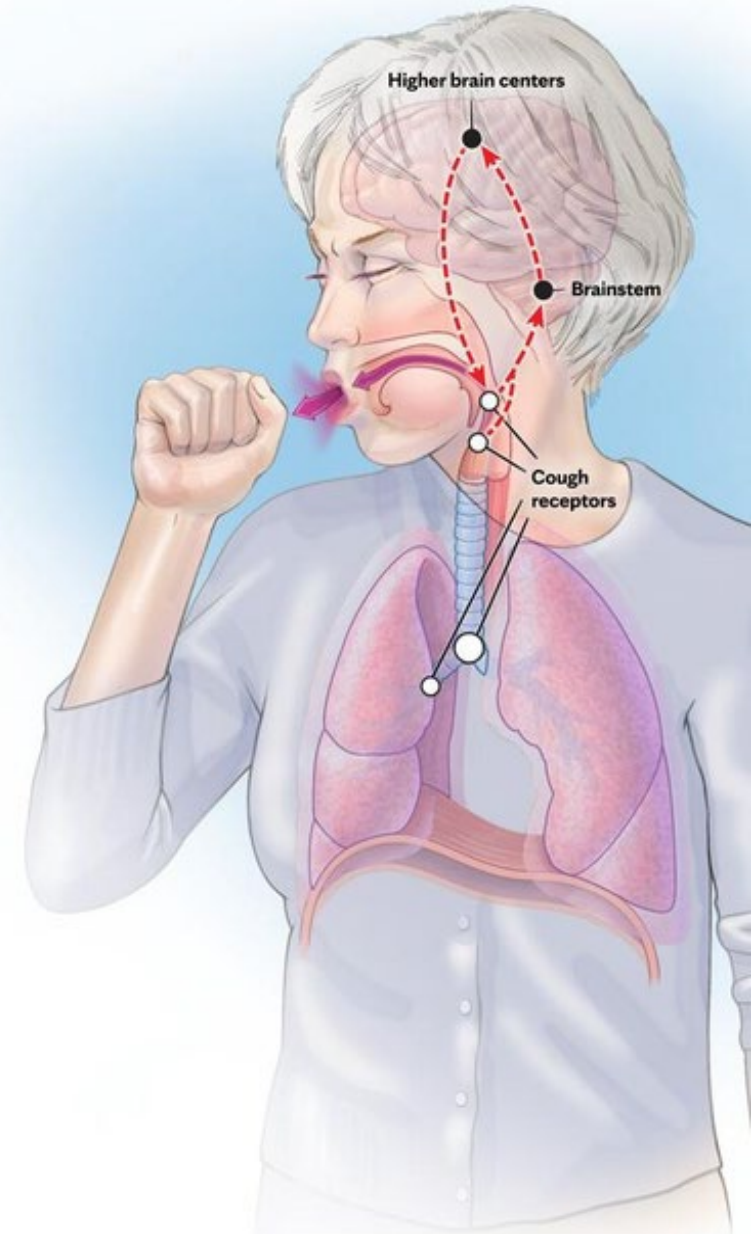
# TREATMENT OF ACUTE COUGH

Dextromethorphan

Benzonatate

Guaifenesin

Opiates



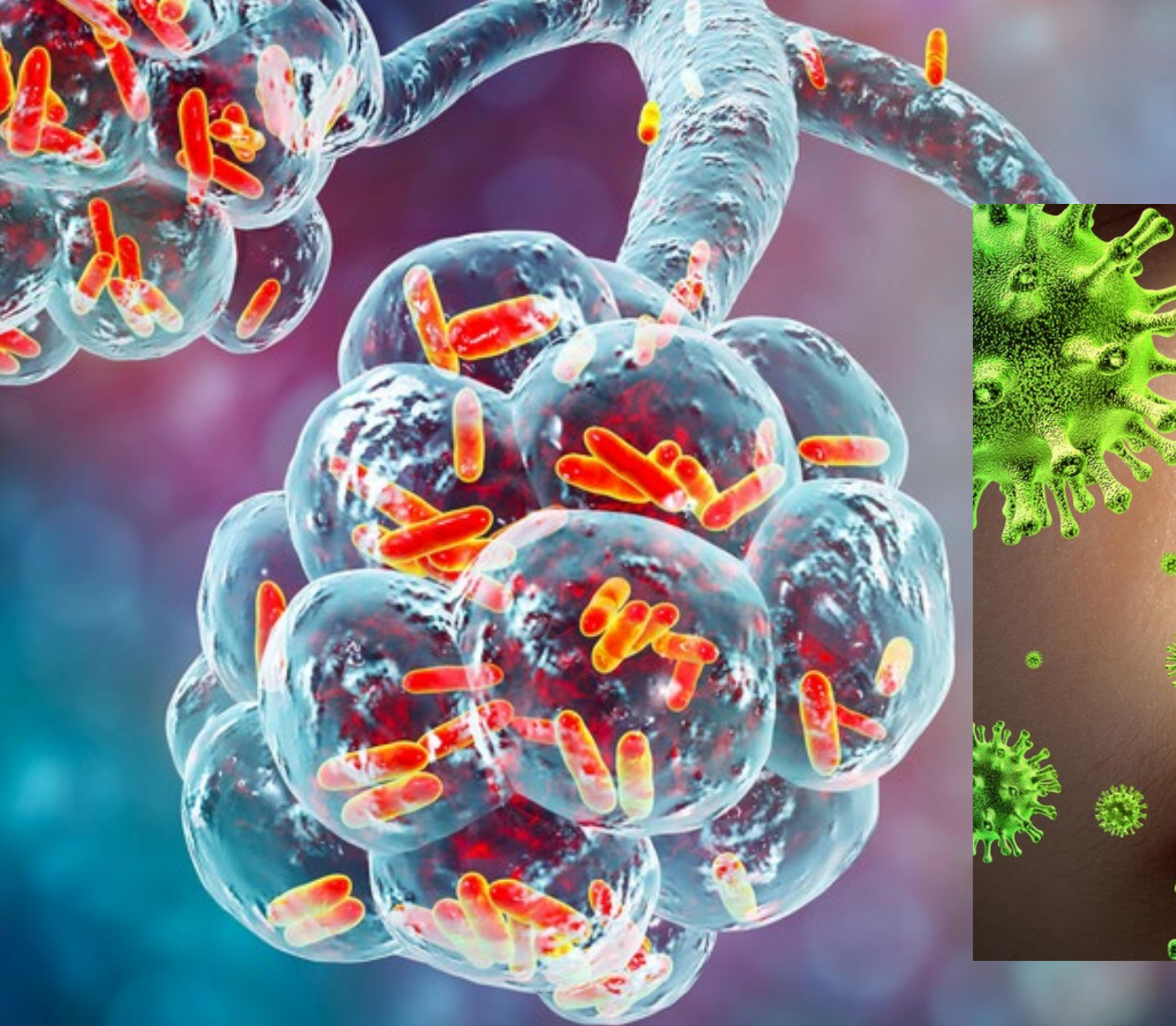
# ACUTE BRONCHITIS

Definition

Epidemiology

Pathophysiology





# ACUTE BRONCHITIS

History

Physical Exam Findings



# CLINICAL DIAGNOSIS OF BRONCHITIS

Imaging - Chest X-rays

Labs

Microbiology Testing



# ACUTE BRONCHITIS

Clinical Diagnosis

Treatment

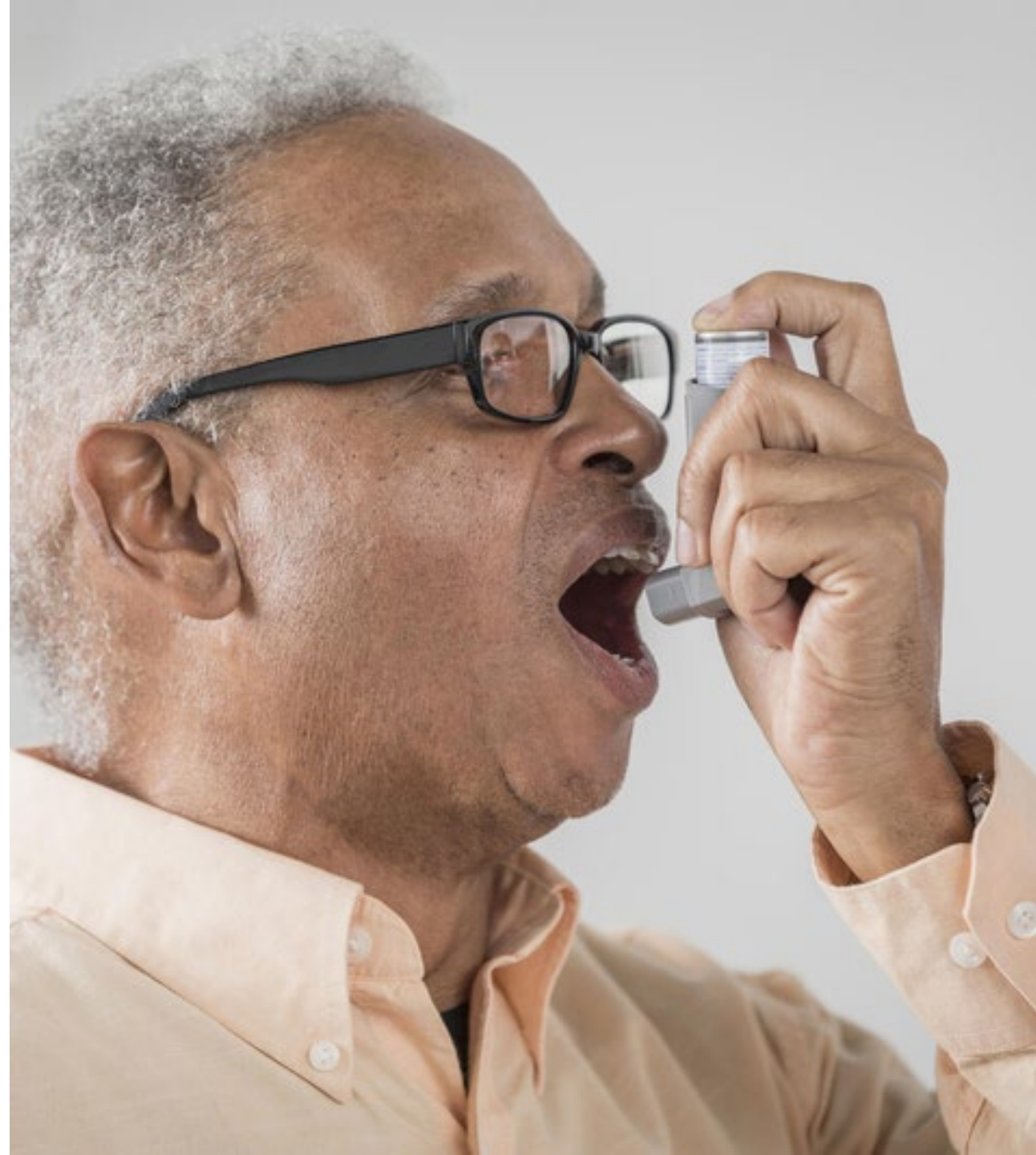


# ASTHMA

Definition

Epidemiology

Pathophysiology



# ASTHMA EVALUATION

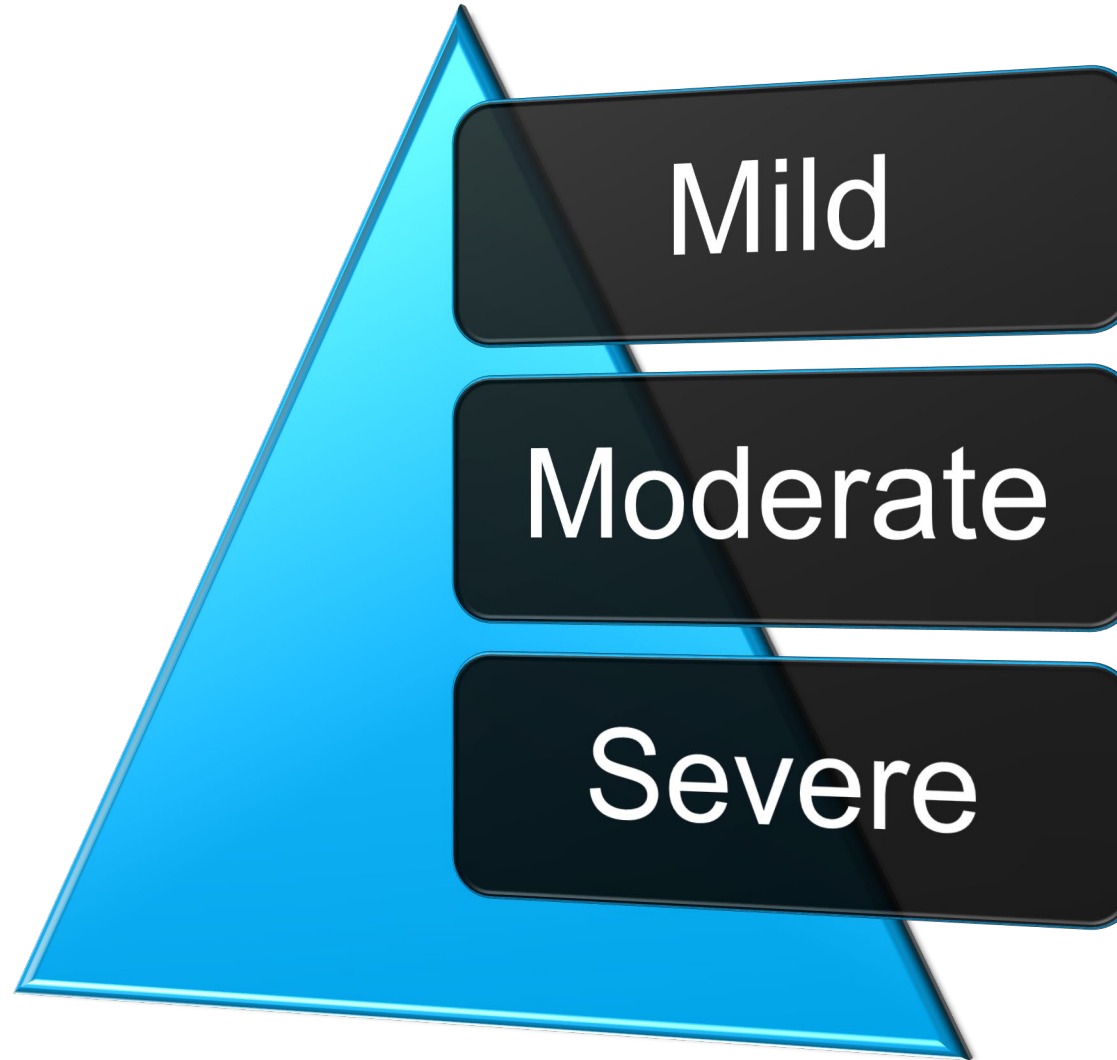
History

Triggers

Physical Exam Findings



# CLASSIFICATION OF ASTHMA SEVERITY





# CLINICAL DIAGNOSIS OF ASTHMA

Imaging

Peak Flow Meter

EKG

Labs

# ASTHMA TREATMENT

## 1<sup>st</sup> Line treatment

Oxygen

Beta 2 Agonist

Anticholinergic

Corticosteroids

## 2<sup>nd</sup> Line Treatment

Epinephrine

Indications for ER transfer



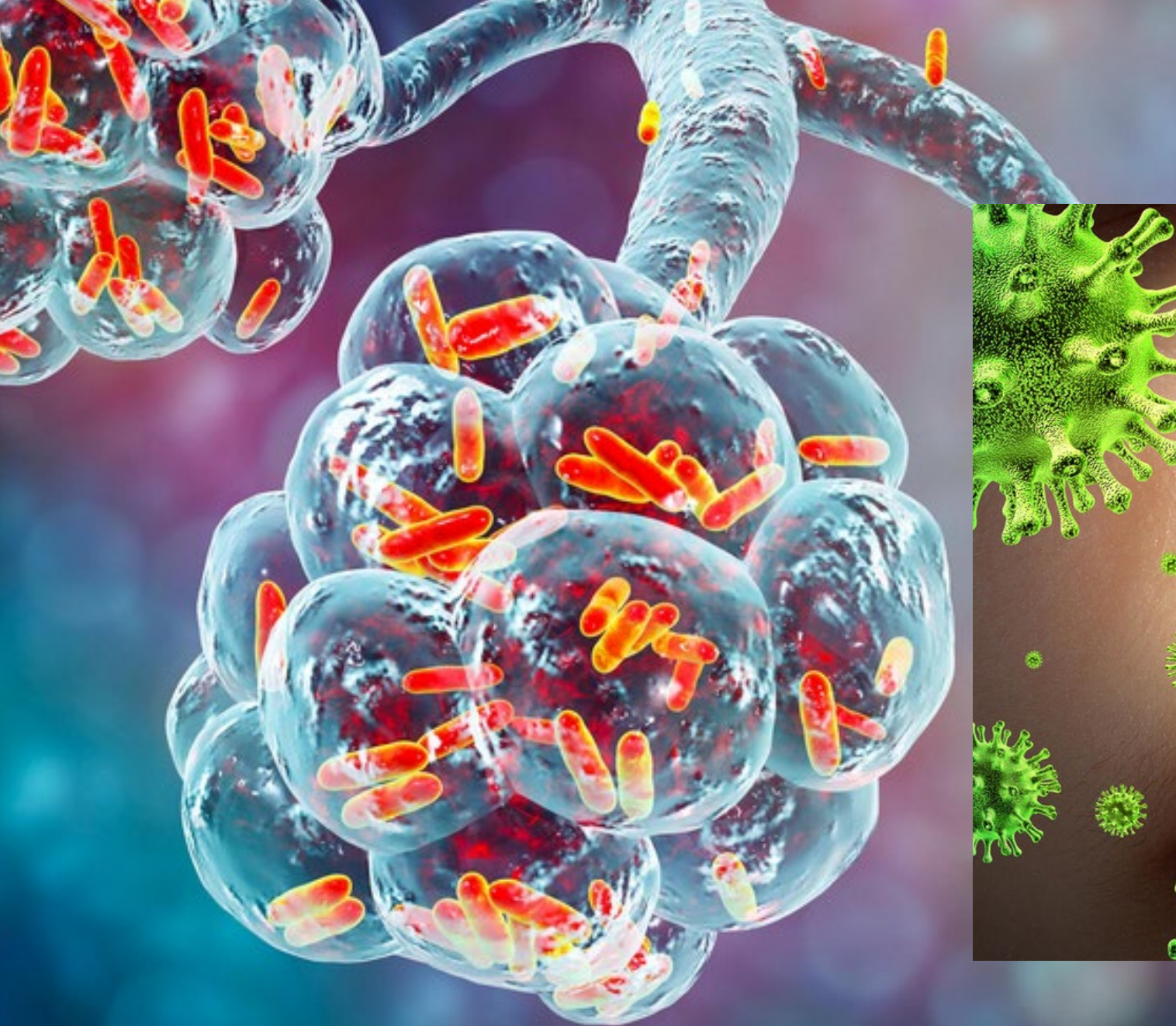
# PNEUMONIA

Definition

Epidemiology

Pathophysiology





# PNEUMONIA EVALUATION

History

Risk Factors

Physical Exam Findings



# DIAGNOSIS OF PNEUMONIA

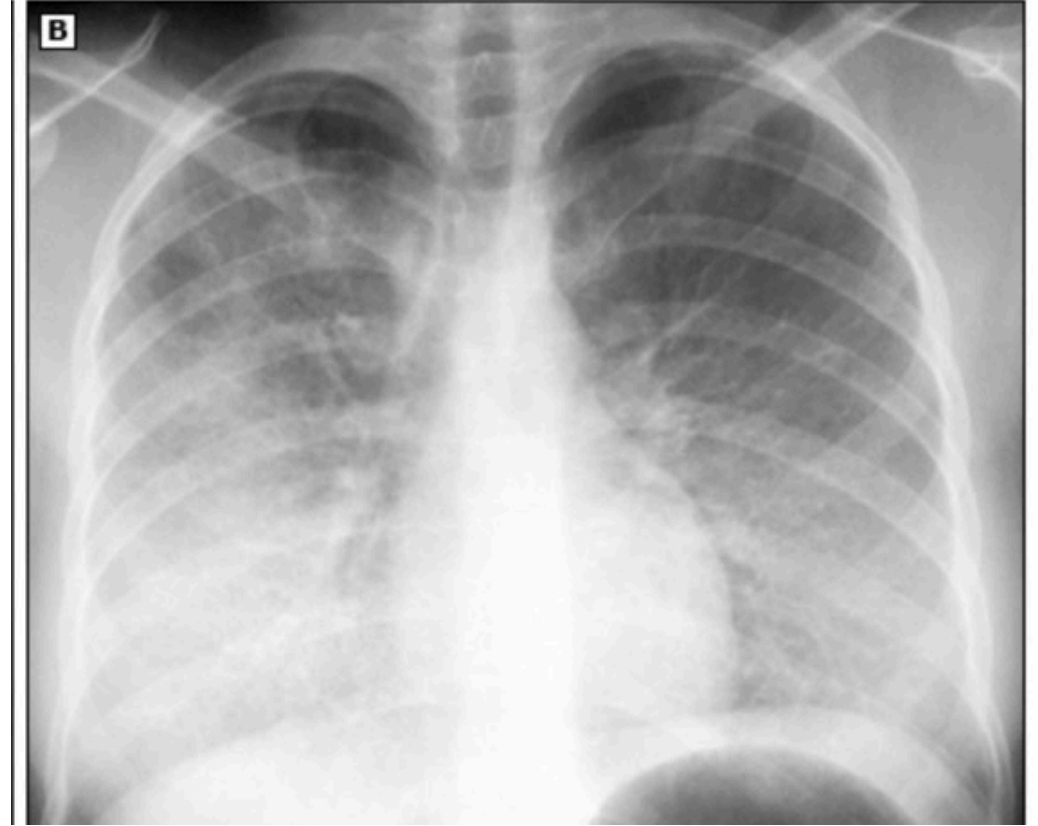
Imaging

EKG

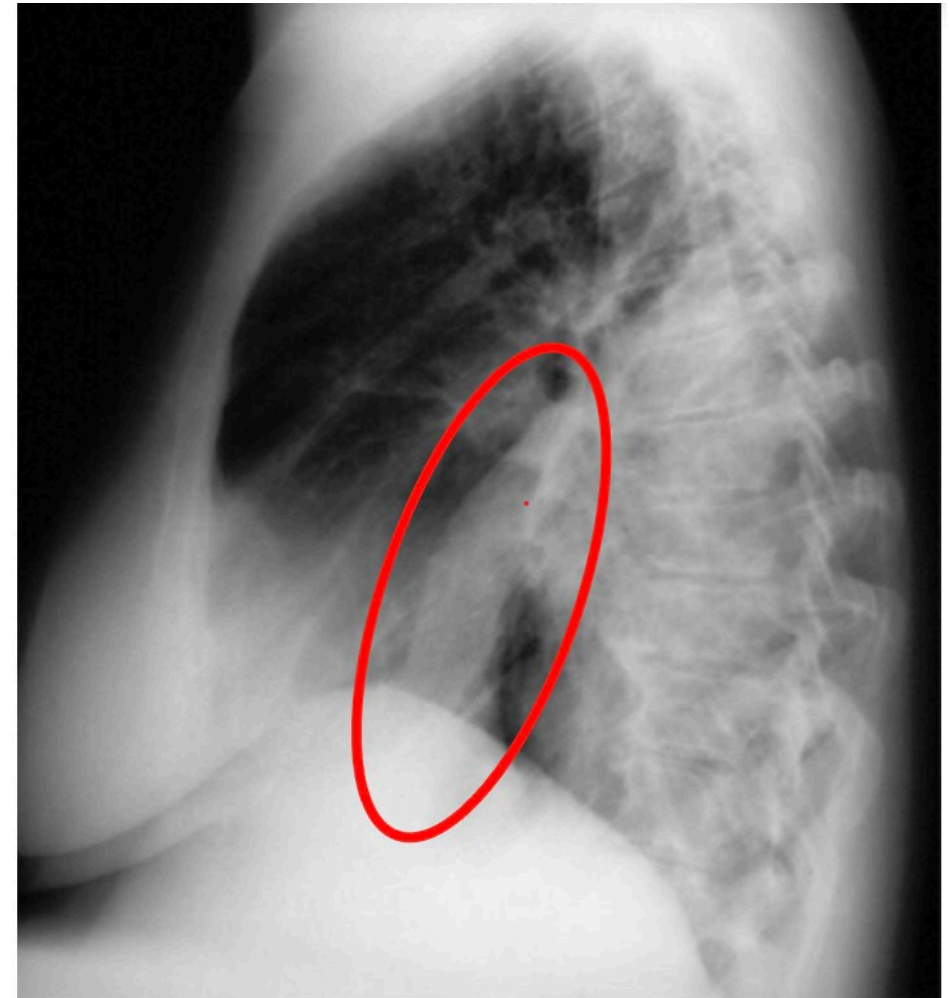
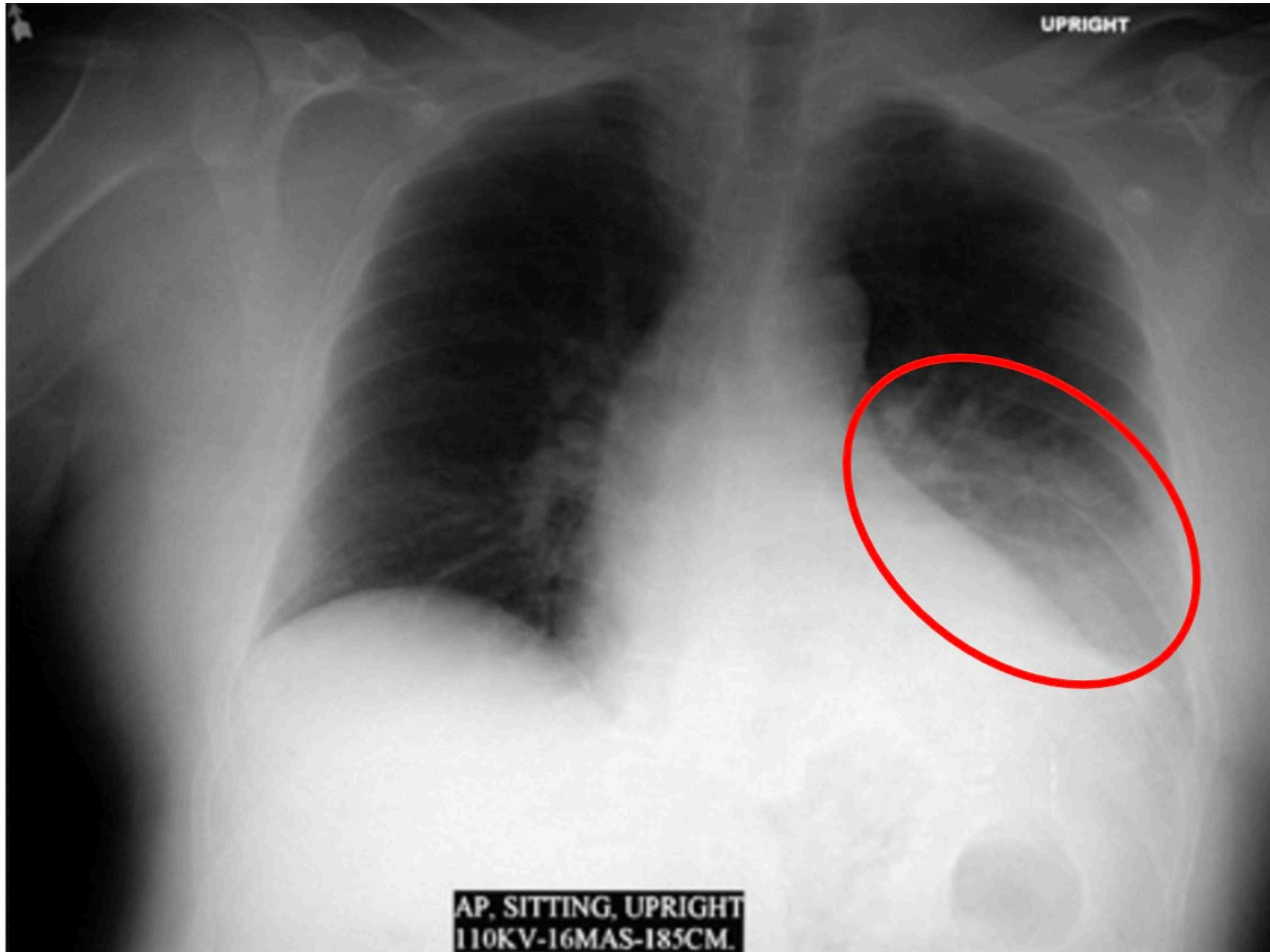
Pulse Oximetry

Labs

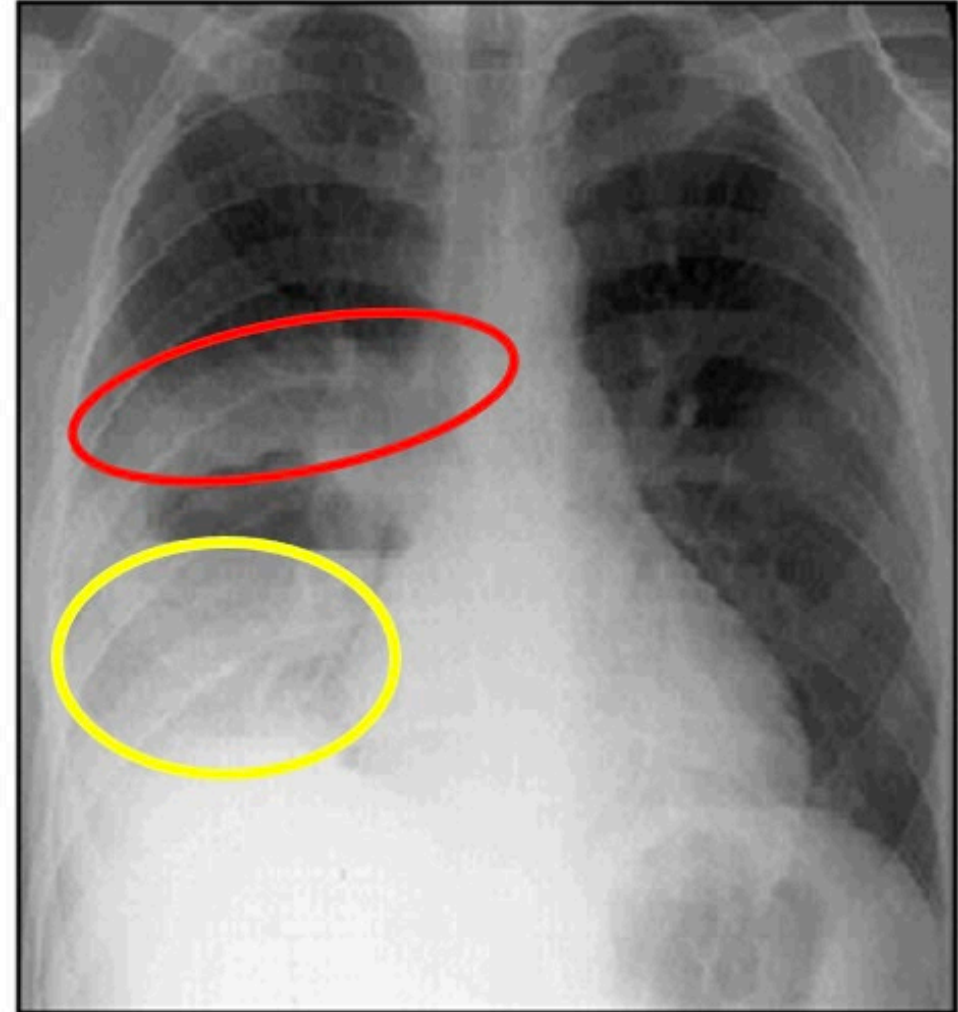
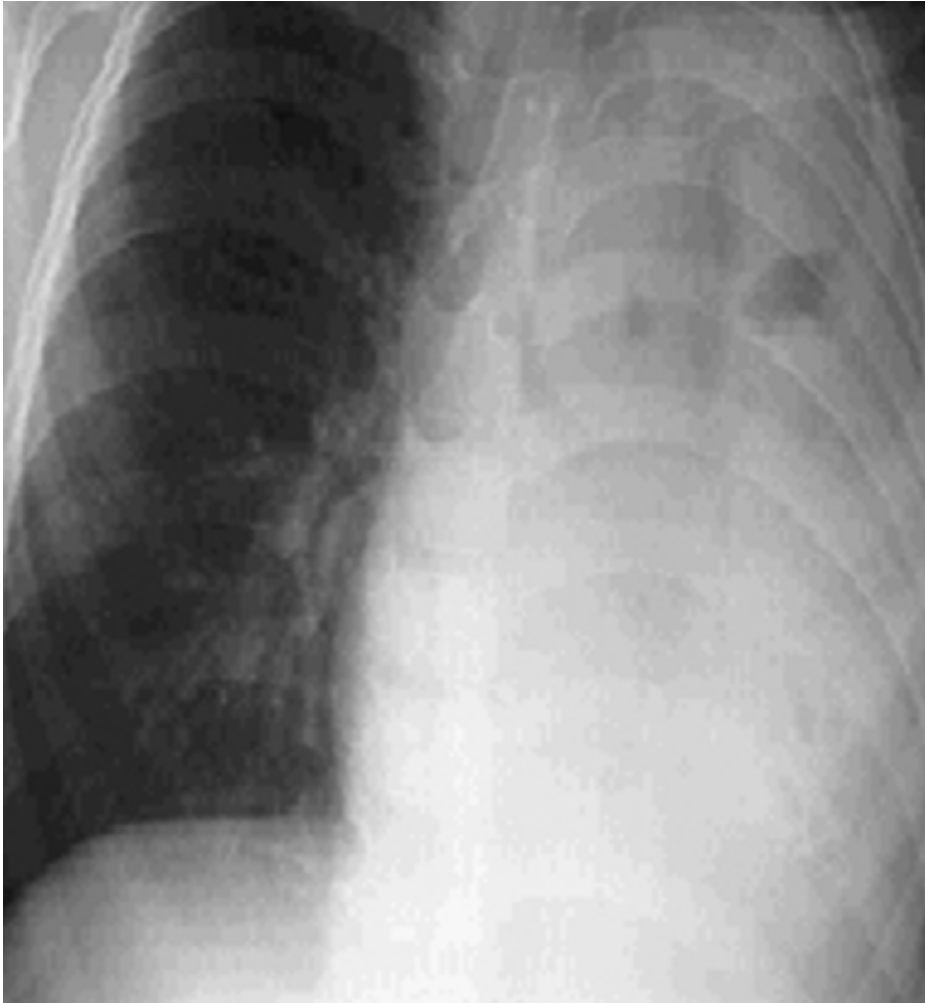
# CHEST X-RAY EXAMPLES OF PNEUMONIA



# CHEST X-RAY EXAMPLES OF PNEUMONIA



# CHEST X-RAY EXAMPLES OF PNEUMONIA



# RISK SCORING SYSTEM

**Table 1. CURB-65 Scoring<sup>46</sup>**

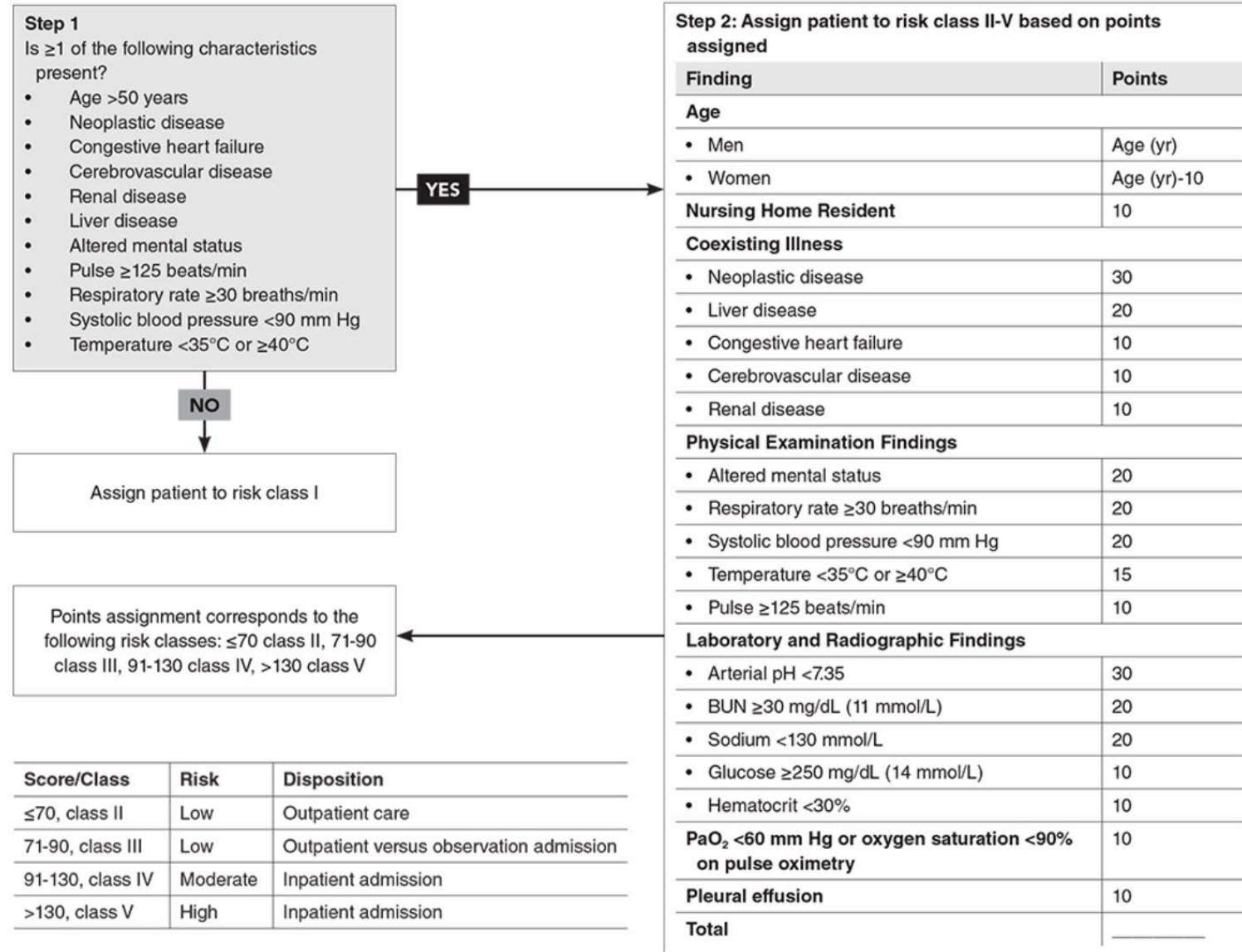
Symptom	Points
Confusion	1
Urea: BUN >19 mg/dL (>7 mmol/L)	1
Respiratory rate ≥30 breaths/min	1
Systolic BP <90 mm Hg or diastolic BP ≤60 mm Hg	1
Age ≥65 years	1
Total	_____

Score	Risk	Disposition
0 or 1	1.5% mortality	Outpatient care
2	9.2% mortality	Inpatient versus observation admission
≥3	22% mortality	Inpatient admission; consider ICU admission with score of 4 or 5

Abbreviations: BP, blood pressure; BUN, blood urea nitrogen; ICU, intensive care unit.

# RISK SCORING SYSTEM

Figure 1. Pneumonia Severity Index<sup>47</sup>



Abbreviations: BUN, blood urea nitrogen; PaO<sub>2</sub>, partial pressure of oxygen, arterial.

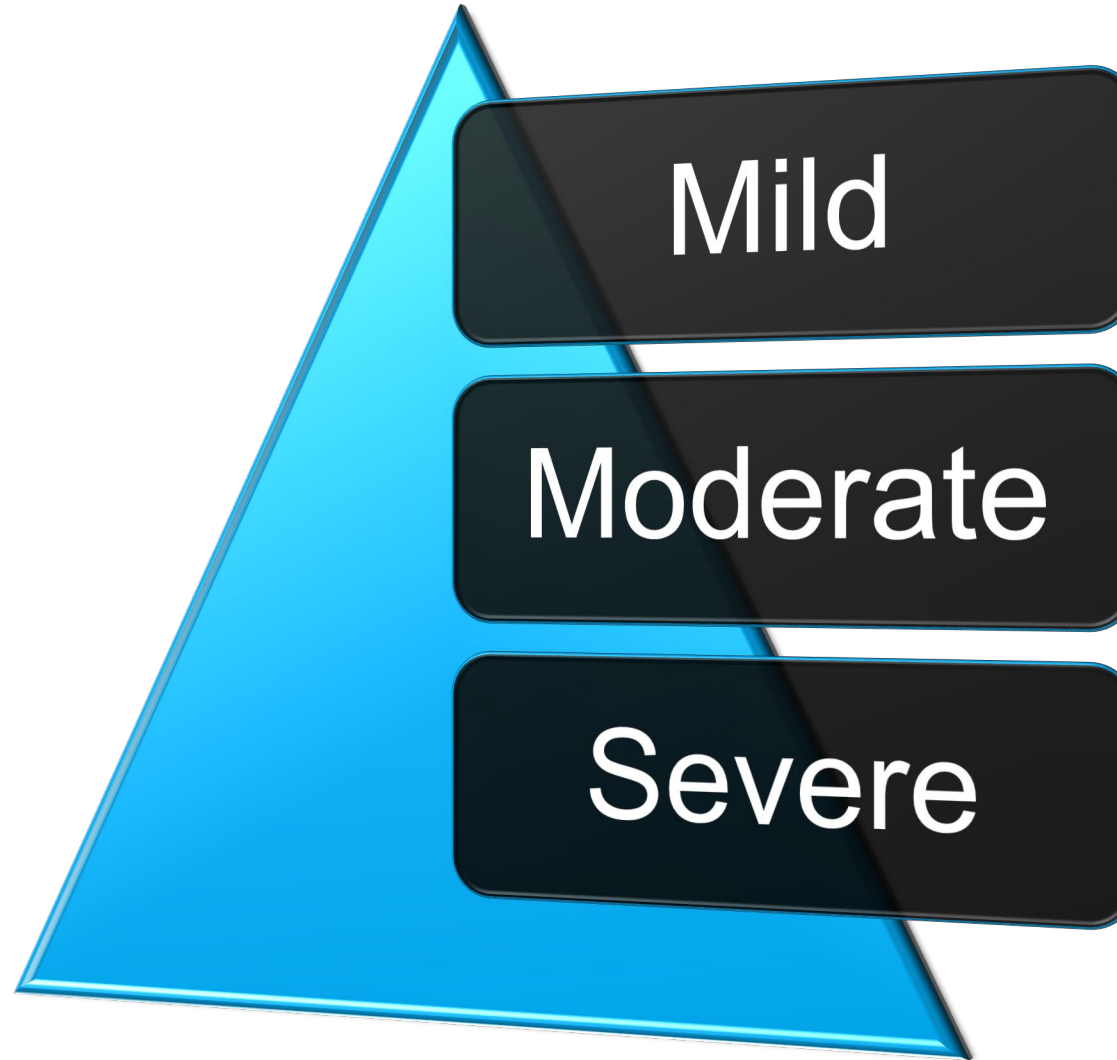
# RISK SCORING SYSTEM

CURB-65 vs PSI  
score sensitivity

2019 ATS/IDSA  
Recommendations

Clinical Judgment

# CLASSIFICATION OF PNEUMONIA SEVERITY



# PNEUMONIA TREATMENT

Monotherapy

Combination Therapy

Allergies



## CASE 1

**37-YEAR-OLD FEMALE WITH NO SIGNIFICANT PAST MEDICAL HISTORY PRESENTS TO URGENT CARE WITH 2 DAYS OF FEVER, PRODUCTIVE COUGH WITH GREEN SPUTUM, AND MALAISE**

**VS: BP 128/70, HR 109, T-39.2, SPO2 95% RA  
PHYSICAL EXAM REVEALS RIGHT SIDED RHONCHI THAT DOES NOT CLEAR WITH COUGH**

**CHEST X-RAY REVEALS RIGHT SIDED OPACITY  
WHAT IS THE MOST LIKELY DIAGNOSIS?**

1. Bronchitis  
4.17%
2. Influenza  
9.72%
3. Pneumonia  
86.11%
4. Asthma Exacerbation  
0%







## CASE 1

**37-YEAR-OLD FEMALE WITH NO SIGNIFICANT PAST MEDICAL HISTORY PRESENTS TO URGENT CARE WITH 2 DAYS OF FEVER, PRODUCTIVE COUGH WITH GREEN SPUTUM, AND MALAISE**

**VS: BP 128/70, HR 109, T-39.2, SPO2 95% RA  
PHYSICAL EXAM REVEALS RIGHT SIDED RHONCHI THAT DOES NOT CLEAR WITH COUGH**

**CHEST X-RAY REVEALS RIGHT SIDED OPACITY  
WHAT IS THE MOST APPROPRIATE TREATMENT FOR THE ABOVE DIAGNOSIS?**

- ✓
1. Amoxicillin  53.33%
  2. Ciprofloxacin  1.33%
  3. Azithromycin  9.33%
  4. Augmentin and Doxycycline  36%



## CASE 2

23-YEAR-OLD MALE PRESENTS TO URGENT CARE FOR 3-DAY HISTORY OF DYSPNEA ON EXERTION , NON-PRODUCTIVE COUGH, AND MILD NASAL CONGESTION.

VS: BP 132/75, HR 105, T-37.1, RR-20'S, SPO2 95% ON RA

PHYSICAL EXAM REVEALS ALERT AND ABLE TO SPEAK IN FULL SENTENCES. HE HAS BILATERAL END EXPIRATORY WHEEZES WITH RESTRICTED AIR MOVEMENT. NO ACCESSORY MUSCLE USE, NO STRIDOR

CHEST X-RAY: HYPER-INFLATED, OTHERWISE NORMAL  
WHAT IS THE APPROPRIATE TREATMENT?

1. Antibiotics  
0%
2. Steroids  
0%
3. Albuterol and steroids  
98.81%
4. Tamiflu  
1.19%



## CASE 3

50-YEAR-OLD MALE NON-SMOKER PRESENTS TO URGENT CARE FOR EVALUATION OF 10 DAYS OF COUGH PRODUCTIVE OF CLEAR SPUTUM.

VS: BP-150/70, HR-90, RR-20, T-37.0, SPO2 97%  
RA

PHYSICAL EXAM REVEALS NORMAL EXAM  
WHAT IS THE MOST APPROPRIATE TREATMENT?

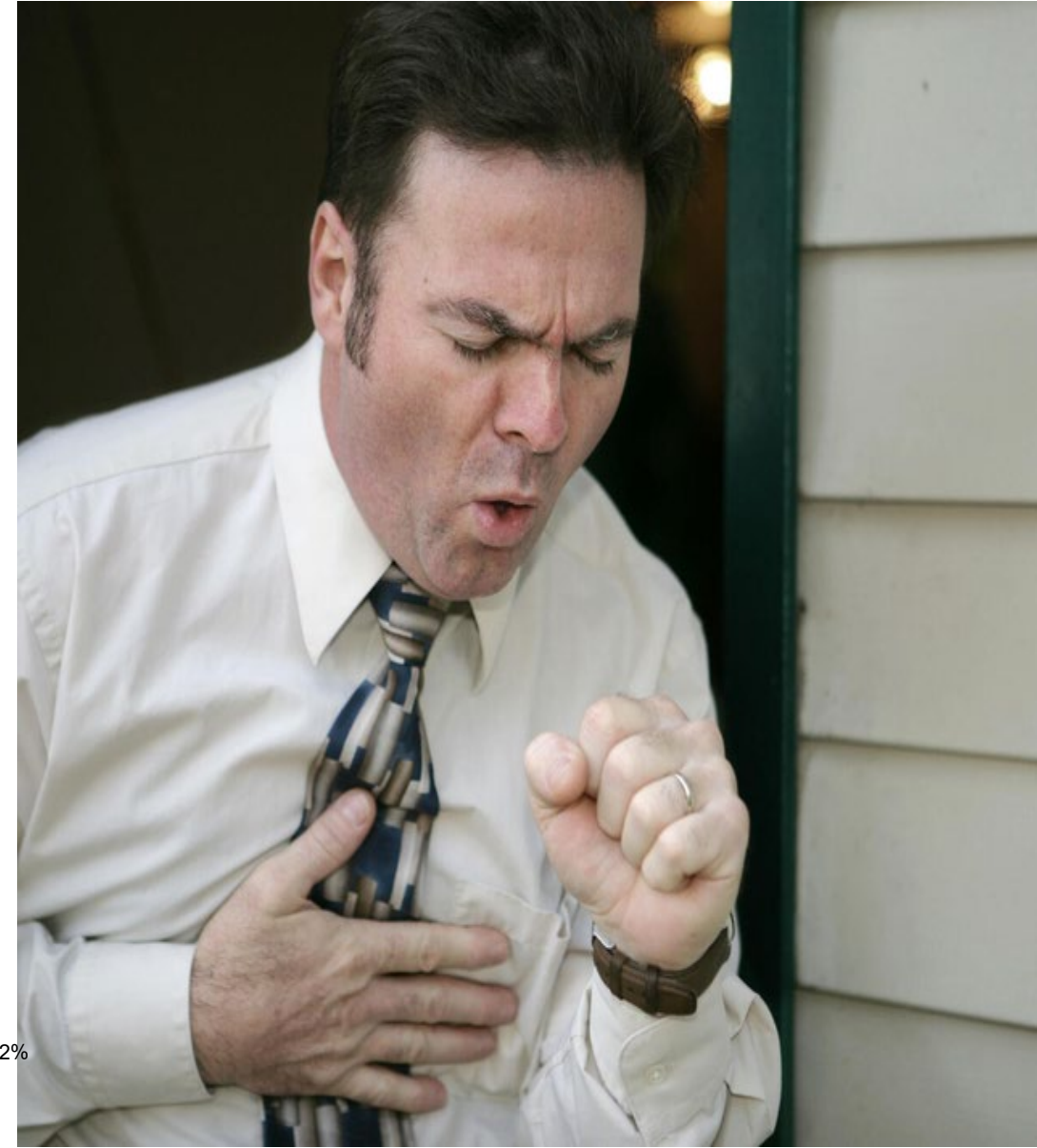
1. Azithromycin
2. Albuterol
3. Prednisone
4. Supportive Care

3.33%

2.22%

2.22%

92.22%



# SUMMARY



We discussed the pathophysiology of acute cough.

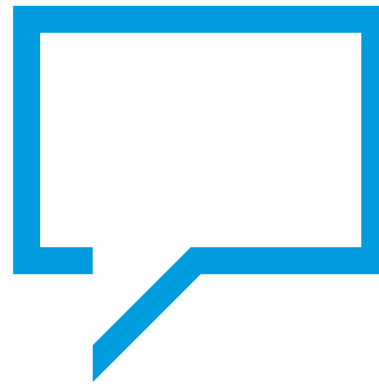


We discussed diagnostics and treatments of common etiologies of acute cough.



We discussed indications for transfer to higher level of care.

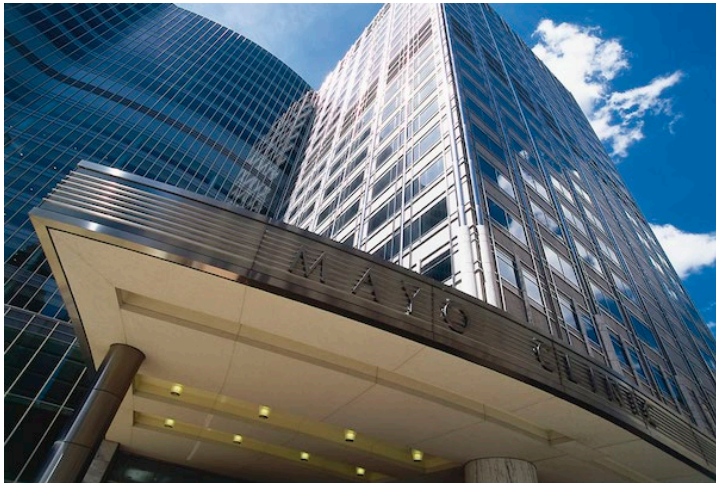
# QUESTIONS & DISCUSSION





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# THANK YOU FOR JOINING US IN THIS COURSE



Rochester, Minnesota



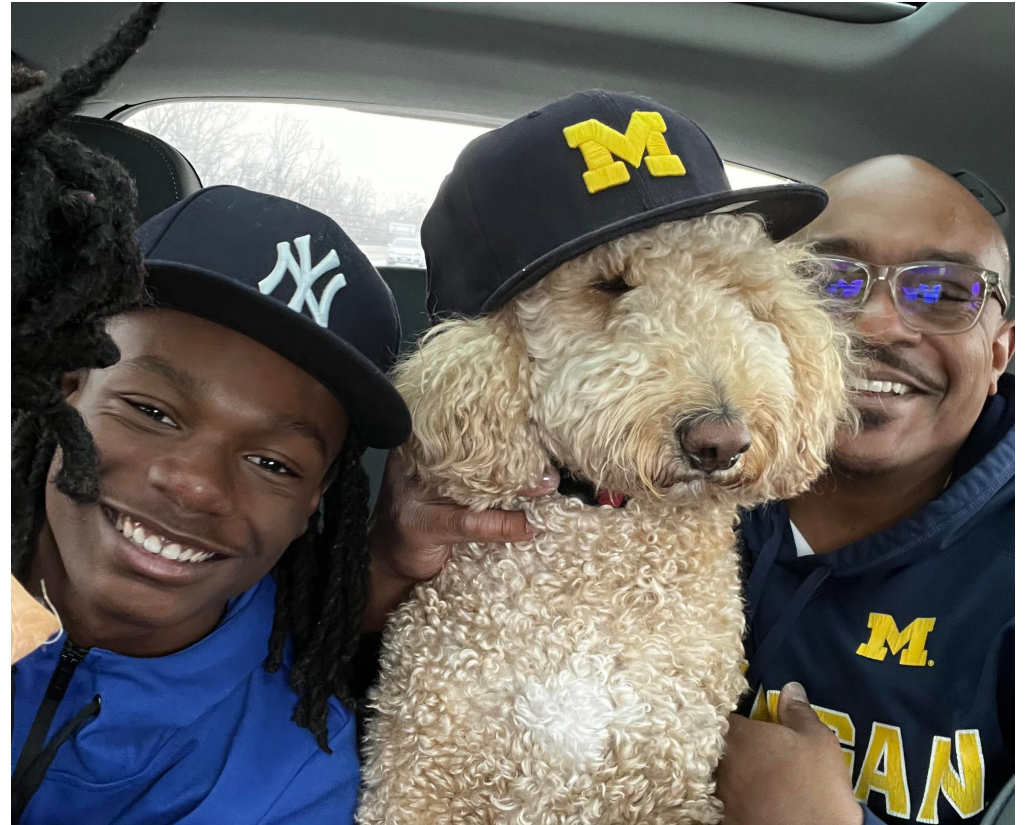
Phoenix, Arizona



Jacksonville, Florida



# FAMILY



# REFERENCES

Aujesky D, Auble TE, Yealy DM, et al. Prospective Comparison of Three Validated Prediction Rules for Prognosis in Community-Acquired Pneumonia. *Am J Med.* 2005, 118(4):384-392.

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