CXR #15

WAMSS SGR 2022

Trigger

You are a GP at the UWA Medical Centre. Your next patient is Ijud, a 24 year old final year medical student living on college row who has been complaining of headaches, sore-throats and a cough that will just not go away. This is Ijud's second time seeing you in a week – he is here to discuss findings from a chest X-ray you ordered on his initial clinic visit.

Task: Interpret Ijud's Chest X-ray, and discuss your management plan with him.

History & Examination Findings (initial presentation)

PC: “This cough just won’t go away!”

HoPC: Dry cough, started 2/52 ago. No obvious trigger. Persistent, same character through day. Non-productive. Associated with 1/52 pleuritic chest pain (mild), headaches, lethargy, sore throat.

PMHx: “Childhood asthma” – has grown out of it. No regular medications. Has PRN salbutamol but has not used it since he was 14.
No allergies. Immunisations including COVID-19 up to date.

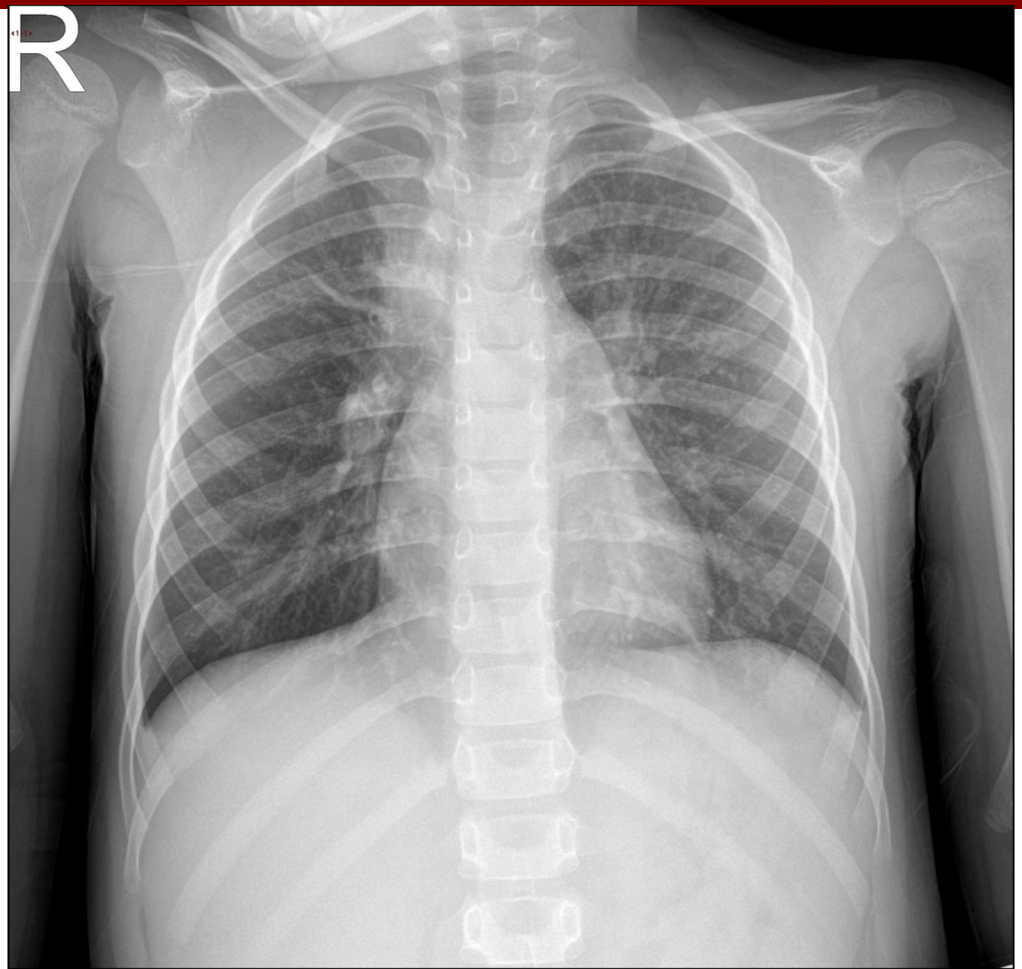
Social: Lives in college with many other young adults. Has own room, but shares toilet and shower facilities, food hall for meals etc. Social smoker.

Examination

General: 24 yo M, mild tachypnoea and pale, no other signs of increased work of breathing.

RR: 22, O2: 93% on RA, BP & HR: NAD.
Temp: 38.1

Respiratory exam: warm peripheries, resonant percussion note through all lung fields, nil added breath sounds through all lung fields.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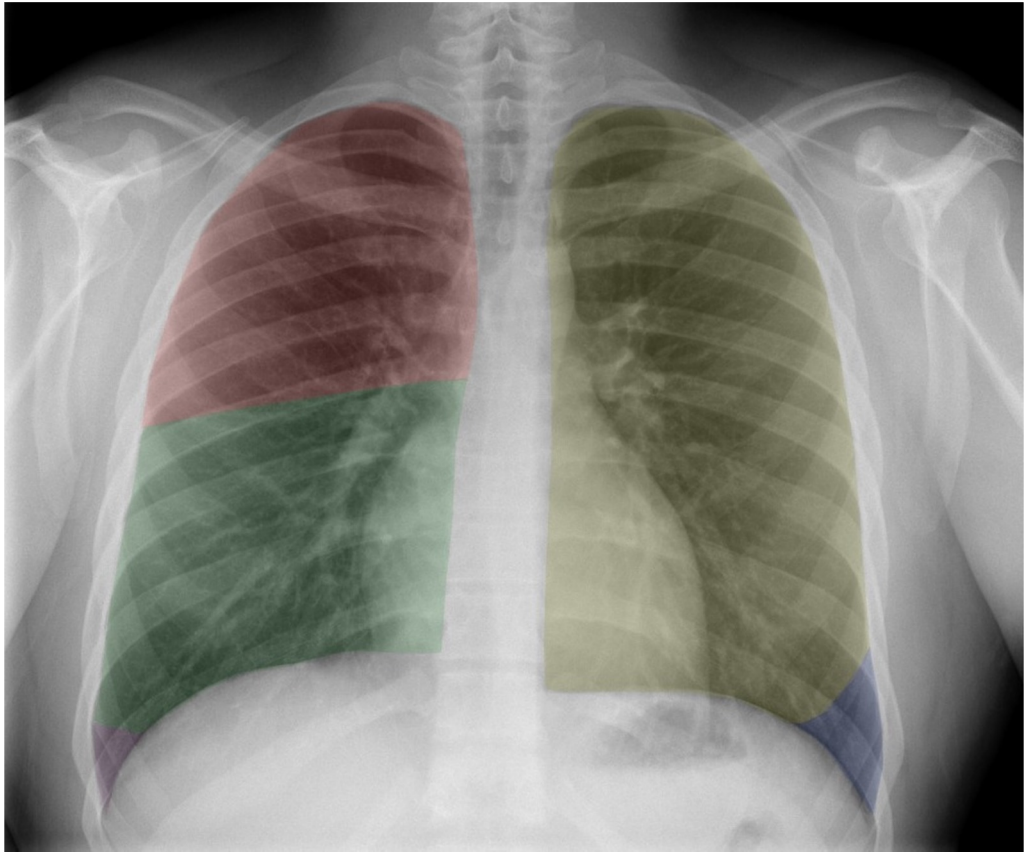
Details and demographic	AP CXR of Ijud, a 24 yo M, previously well, presenting with 2/52 of persistent dry cough and headaches
RIPE/Quality	Rotation: Centred
	Inspiration: Adequate
	Projection: antero-posterior
	Exposure: Adequate
Airways and lung fields	Trachea: no deviation Bilateral peri-hilar interstitial infiltrates (suggestive of inflammation) Dense opacity in right upper zone
Bones and soft tissue	No obvious fractures or soft tissue abnormalities
Cardo-mediastinum	Heart size is difficult to interpret as this is AP. Right and left heart borders visualised, suggesting no middle lobar consolidation
Diaphragm	Right and left hemidiaphragm visualised, suggesting no lower lobar consolidation
Everything else	No free gas under the diaphragm
Interpretation	AP CXR of a 24 yo M presenting with 2/52 of persistent dry cough and headaches, who examines with increased work of breathing and low oxygen saturations on room air, low grade fever and pallor. There is opacification of a medial area in the right upper zone; suggesting localised consolidation, and bilateral peri-hilar infiltrates. Given the history, examination and CXR findings, my working diagnosis is **community-acquired atypical pneumonia.**

Lung lobe anatomy on CXR



What is the most likely causative organism of atypical pneumonia?

Mycoplasma pneumoniae

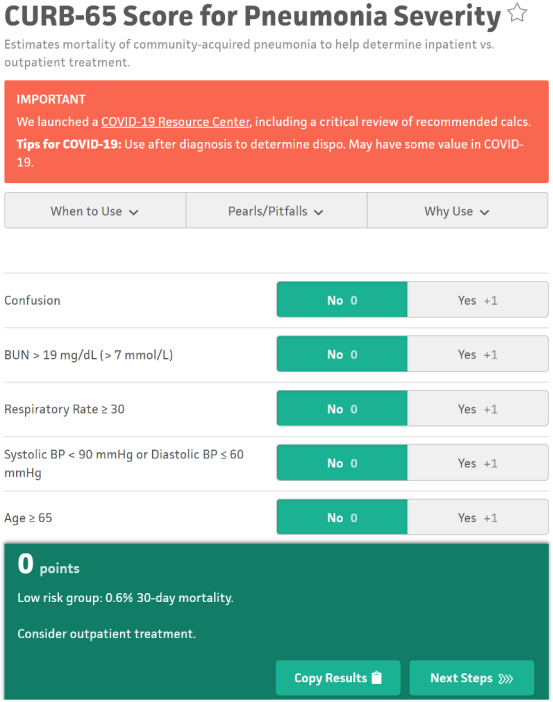
Atypical pneumonias are caused by agents that are unable to be cultured using standard means, and which do not Gram stain.
Other common causative pathogens are:

- *Chlamydophila pneumoniae*
- *Legionella pneumophila*

Note – radiological findings of atypical pneumonia tend to show more extensive abnormalities than your physical examination

What is your management plan for Ijud?

1. Determine if Ijud can be managed as an outpatient (e.g. CURB-65 tool)
2. Commence oral antibiotics
    1. Macrolide (azithromycin) + doxycycline
3. Counsel patient on non-pharmacological measures
    1. Hand hygiene
    2. Avoid smoking (including second-hand)
4. Counsel patient on potential complications (i.e. safety netting)
    1. Pleural/parapneumonic effusion (30%)
    2. Rash (25%)
    3. Non-resolution/worsening of symptoms



Follow-up Questions

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1. What ‘special’ questions would you ask on history to distinguish between causative agents in LRTIs?

2. Differential diagnosis for chronic cough?

3. Antibiotic resistance is a growing public health crisis. What strategies, in the community and hospitals, are in place to mitigate this risk?

Question 1: The infective respiratory history

Exposure	Pathogen
Community-acquired (ask for sick contacts)	***Streptococcus pneumoniae***, *Haemophilus influenzae*, **atypical organisms**
Hospital-acquired (ask for past medical history, recent hospitalisations)	*Pseudomonas aeruginosa, Escherichia coli, Klebsiella pneumoniae* See more: WAMSS SGR 2022, CXR #7
Zoonosis/animal	Parrots: *Chlamydia psittaci* Farm animals: *Coxiella burnetii* (Q fever) Rodents: *Leptospira* (leptospirosis)
Travel	Tropics: *Burkholderia pseudomallei* (melioidosis) **Tuberculosis**: *Mycobacterium tuberculosis* – South Asia, East Asia, Southeast Asia, Sub-Saharan Africa. Also – low SES, homeless, incarcerated

Question 2: The chronic cough

Respiratory:

Inflammatory processes: COPD

Post-nasal drip

Bronchiectasis (+ cystic fibrosis)

Interstitial lung disease

Infection: atypical pneumonia, tuberculosis

Malignancy: lung, mesothelioma, mediastinal

Vascular: small pulmonary emboli

Non-respiratory:

GORD

Drugs: ACE inhibitors

Connective tissue disease e.g. sarcoidosis

Heart Failure (left-sided)

Question 3: Antimicrobial stewardship

HOSPITAL	COMMUNITY
Evidence-based decisions: Microbiology guided, adherence to (updated) guidelines, infectious diseases/clinical microbiology referrals	**Evidence-based decisions:** Microbiology guided, adherence to (updated) guidelines, ID/micro referrals
Responsible prescribing: Monotherapy where possible, lowest dose, for the shortest time	**Responsible prescribing:** Monotherapy where possible, lowest dose, for the shortest time. Prescribing restrictions – early and appropriate referrals to specialist services
Multidisciplinary care: Ward rounds involving ID physicians, pharmacists etc	**Patient education:** To complete course of antibiotics

Thank you!

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