Describe your assigned client's situation. Why are they presenting to the clinic? What medications are they currently taking?

Yohannan Dawoud is a 64-year-old male who presents to the clinic with a productive cough, fever, shortness of breath, and fatigue for two days. He reports yellow-colored sputum. He was diagnosed with COVID-19 one week ago, and his productive cough and worsening shortness of breath only began two days ago. He reports taking acetaminophen as an antipyretic. Physical assessment findings include crackles in the right and left lung bases with no retractions or increased work of breathing. The patient tests negative for influenza and RSV but is still testing positive for COVID-19 via rapid tests at the clinic. A chest X-ray shows consolidation in the right and left lower lobes. Vital signs include BP 122/81, SpO2 95% on room air, oral temperature of 100.6 F, and respiratory rate of 24. The patient is currently taking metformin 500 mg PO BID and lisinopril 30 mg PO daily. His past medical history includes type II diabetes, cellulitis, and hypertension, and the patient has allergies to amoxicillin and cephalexin. He also reports quitting smoking 20 years ago and drinks alcohol twice per year. Based on these findings, the patient was diagnosed with bilateral bacterial pneumonia. Appropriate antibiotic therapy is considered knowing that pneumococcal resistance to macrolides is less than 25% in the clinic's geographic area.

Assess the applicable clinical practice guideline (CPG) for your assigned client. What treatment is recommended by the CPG for your client's situation?

According to the (Metlay et al., 2019, p. e53) outpatient adults with comorbid conditions such as chronic heart, lung, liver, or kidney disease; diabetes mellitus; alcoholism; cancer; or asplenia, the following treatment is recommended in no particular order of preference: Combination therapy using a beta-lactam (e.g. amoxicillin/clavulanate or a cephalosporin) PLUS a macrolide antibiotic (e.g. azithromycin or clarithromycin). Doxycyline may also be used instead of a macrolide, however, this is a conditional recommendation as the quality of evidence for use in combination therapy is low. Monotherapy using a respiratory fluoroquinolone (e.g. levofloxacin, moxifloxacin, or gemifloxacin) has also been found to be equally as effective as combination therapy in treating adults with this condition.

Discuss your personal professional assessment of the client's situation provided in the scenario. What pharmacological treatment is necessary and why?

Based on the client's situation, Yohannan Dawoud is appropriate for monotherapy or combination therapy for outpatient treatment of pneumonia, as discussed above. However, due to his reported amoxicillin and cephalosporin allergies, the antibiotics used for combination therapy are contraindicated. Therefore, it would be most appropriate to begin Mr. Dawoud on a respiratory fluoroquinolone such as levofloxacin. According to the CPG, it is recommended that the length of antibiotic treatment be based on the patient's clinical stability. This includes resolution of abnormal vital signs (such as heart rate, respiratory rate, temperature, etc.), their ability to tolerate oral intake, and normal mentation. Antibiotic therapy should be continued for a minimum of 5 days and until the patient is clinically stable (Metlay et al., 2019, p. e59). Yohannan Dawoud is currently stable but is tachypneic and febrile, and borderline tachycardic. I would recommend starting Mr. Dawoud on a 5-day course of oral levofloxacin 750 mg daily, as available data currently shows no observable difference in patients who received 5 days of levofloxacin 750 mg daily compared with 10 days of levofloxacin 500 mg daily (Metlay et al., 2019, p. e59).

Reflect on additional questions you have about your assigned client that may influence treatment. What else do you need to know? What follow-up assessments, labs, or conversations are required to ensure optimal health outcomes?

Once Mr. Dawoud has completed his course of antibiotics, I would like to follow up with an in-office visit to evaluate his progress and recovery. According to the CPG, failure to achieve clinical stability within 5 days is linked to increased mortality and poorer clinical outcomes. In such cases, it is important to evaluate for possible antibiotic resistance, complications such as empyema or lung abscess, or an alternative source of infection or inflammation (Metlay et al., 2019, p. e59). It is also crucial to inform diabetic patients about the potential impact of taking levofloxacin with metformin on blood glucose levels. A recent study found that combining metformin with levofloxacin significantly elevated blood glucose levels in diabetic rats compared to those treated with metformin alone or in a control group (Singh et al., 2025). This highlights the importance of vigilant blood glucose monitoring when these medications are used together. Patients should be advised to report any markedly elevated blood glucose readings to their healthcare provider for closer monitoring. Additionally, the FDA has issued a warning regarding the use of levofloxacin and other fluoroquinolones due to the increased risk of serious, potentially permanent side effects. These include tendinitis and tendon rupture (particularly in patients aged 60 and older), central nervous system effects such as seizures and elevated intracranial pressure, and peripheral neuropathy across all age groups (Podder et al., 2025). Those prescribed levofloxacin should also be monitored for