

**Supplementary Table 4 (S4): Comparison between IDSA/ATS 2019 CAP Guidelines and Study Findings in Pakistan**

<b>Theme</b>	<b>IDSA/ATS 2019 Guidelines</b>	<b>Study Findings in Pakistan</b>	<b>Key Differences</b>
Navigating Diagnostic Limitations and Clinical Judgment	Severity-based diagnostic testing recommended (e.g., Gram stain, cultures, Legionella, PCR in severe cases). Biomarkers (PCT, CRP) optional.	Physicians used risk-stratified diagnostics. Gram stain/culture and PCR reserved for severe or high-risk patients. Biomarkers and imaging used selectively due to cost.	Alignment on severity-based diagnostics, but reduced routine testing due to cost/resource limitations.
Pragmatic Prescribing: Aligning Guidelines with Local Realities	Low-risk CAP: Amoxicillin or doxycycline/macrolide. Comorbid: Beta-lactam + macrolide or fluoroquinolone. Hospitalized/ICU: Combination regimens.	Beta-lactams widely used; macrolides limited due to resistance. Fluoroquinolones used cautiously due to TB overlap. Local regimens adjusted for resistance and drug availability.	Fluoroquinolones avoided due to TB risk; macrolides restricted for stewardship. Local AMR data strongly influence regimens.
3. Stewardship under Constraint: Responding to AMR and MDRO Risk	De-escalation encouraged within 48–72 hours based on clinical stability/culture. Consider MDROs in treatment failure.	De-escalation practiced based on stability and labs, but limited microbiological data available. Reassessment at 72 hours common. Broad empiric therapy used in high-risk MDRO cases.	Stronger emphasis on empiric coverage in MDRO-risk patients. De-escalation limited by culture/report delays.
4. Preventive Gaps and Missed Opportunities	Pneumococcal and influenza vaccination recommended for adults $\geq 65$ and high-risk groups.	Physicians supported vaccines but reported low uptake due to cost, awareness, and lack of adult immunization programs.	Misalignment due to implementation barriers despite physician support.