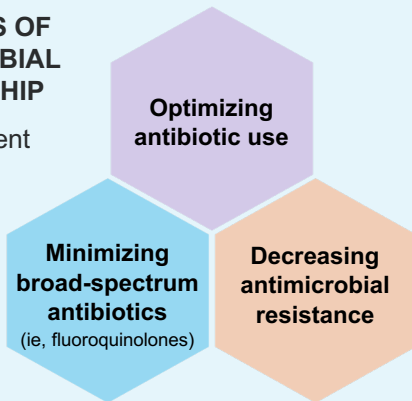


PRINCIPLES OF ANTIMICROBIAL STEWARDSHIP

Improve patient care by



CHALLENGES IN COVID-19

- Frequent overuse of antibiotics throughout COVID-19 pandemic
- Bacterial co-infection occurs in
 - <10% of hospitalized patients with COVID-19¹
 - 14.3% of ICU patients with COVID-19¹
- **Empiric antibiotics NOT necessary unless signs of co-infection**

INVESTIGATIONS

- Sputum Gram stain and culture
- Blood cultures for critically ill patients
- Urinalysis -> culture only if pyuria is present
- Methicillin-resistant Staphylococcus aureus (MRSA) polymerase chain reaction (PCR) from nares
- Lower respiratory tract multiplex PCR (if available)
- Bronchoalveolar lavage galactomannan, fungal culture in those with prolonged intubation

SIGNS OF CO-INFECTION



Elevated White Blood Cell Count (>11K)



New Lobar/Focal Consolidation on Imaging



Purulent Sputum Production



Septic Shock

PRINCIPLES OF ANTIMICROBIAL TREATMENT

Pneumonia²:

- Start with beta-lactam + macrolide or doxycycline
- Add anti-pseudomonal or MRSA coverage if known risk factors
- STOP MRSA coverage if PCR negative

Septic shock:

- Start with broad-spectrum coverage, including *Pseudomonas* and MRSA
- Treat known or suspected source per guidelines (eg, urinary tract infection, central line-associated bloodstream infection) and local antibiogram

De-escalate every 48-72 hours:

- If assessment does not support infection
- If microbiologic workup negative and patient improving
- If able to narrow therapy based on cultures

¹ Langford BJ, et al. Bacterial co-infection and secondary infection in patients with COVID-19: a living rapid review and meta-analysis. *Clin Microbiol Infect.* 2020;26:1622-1629.
² Metlay JP, et al. Diagnosis and treatment of adults with community-acquired pneumonia. An official clinical practice guideline of the ATS and IDSA. *Am J Respir Crit Care Med.* 2019;200(7):e45-e67.