



Use this tool to debrief on antimicrobial stewardship principles for the patients you are seeing in the clinical area.

1. Antibiotic Stewardship. Antibiotic stewardship involves the judicious use of antibiotics and can be described as guardianship of a limited resource (antibiotics) in order to preserve their activity for the future. More specifically, it can be described as prescribing the right drug for the right patient for the right indication for the right duration at the right dose. At the level of the individual patient, What are some ways that you practice antibiotic stewardship? What are some tools you use to ensure that the antibiotics you recommend or prescribe are given for the right indication, dose, and duration? What factors should be considered when considering whether a case is appropriate for stewardship interventions vs a formal infectious diseases consultation?

2. Empiric vs directed therapy. Empiric therapy is necessary for clinical conditions that require prompt therapy to reduce morbidity and mortality, whereas directed therapy is prescribed when diagnostic information is available.

Choose a patient from the consult list who was prescribed an empiric antibiotic regimen.

A Discuss instances where empiric therapy is indicated. Discuss 1-2 alternative antibiotic regimens that could be considered. What are the pros and cons of various regimens? Be sure to address potential for collateral damage, adverse effects, etc. Discuss what information is needed in order to change the patient's antibiotic regimen from empiric to directed therapy.

B Discuss situations in which empiric antibiotics may be withheld. For example, antibiotics may be withheld pending information on more targeted therapy in patients with osteomyelitis without cellulitis or systemic illness. What are the pros and cons of starting antibiotics empirically in these cases? In which cases would starting empiric therapy be warranted?

3. Unnecessary antibiotics. More than half of all hospital patients receive an antibiotic, many of these are unnecessary. In reviewing patients you saw today, how many were receiving or had recently received an unnecessary antibiotic? Discuss reasons why the antibiotic(s) were unnecessary by placing them into specific categories (incorrect diagnosis, no indication for use based on diagnosis, unnecessary or redundant combination, colonization, contamination, duration longer than necessary, etc.). What are some ways we can avoid these unnecessary antibiotics on a patient level? On a system level?

4. Making a diagnosis. An important aspect of antibiotic stewardship involves making the correct diagnosis. Choose a patient from the consult list or clinic schedule. Discuss whether an infection is present or suspected, then choose one or more of the exercises below to discuss various aspects of making a diagnosis in this patient and how that will influence antibiotic decision making in empiric choice and diagnostic work-up.

a. Defining an Infection

The MAP approach involves defining the infection

Microbiologically,
Anatomically, and
Pathophysiologically (MAP).

This can help guide antimicrobial selection, duration of therapy, and determine if additional testing may be indicated.

Example: In a patient with a presumed urinary tract infection, define the infection anatomically by discussing what part of the urinary tract is most likely infected (i.e. cystitis, pyelonephritis, prostatitis). Next, discuss what microbes are involved. If no culture data is available yet, what are the microbes that you are most likely to find? Finally, describe the pathophysiology of the infection (i.e. did bacteria most likely ascend through the urethra or in the unusual case where *Staphylococcus aureus* is found in the urine, did the bacteria get into the urine hematogenously?).

b. Obtaining accurate diagnostic data: If you cannot define the infection at this time, describe what additional information you need in order to do so. Discuss some important strategies in making an accurate microbiological diagnosis (obtaining cultures promptly, rapid diagnostics where applicable, etc.).

c. Relationship between diagnosis and prescribing: Discuss how making a diagnosis will impact antibiotic prescribing for this patient. Conversely, discuss how a lack of diagnostic data would influence antibiotic prescribing for this patient.

5. Clinical conditions most often associated with antibiotic overuse. Certain clinical syndromes are commonly associated with antibiotic overuse (below). Discuss the most common areas for overprescription in both the inpatient and outpatient arenas with your fellow. Have you encountered a recent example illustrating antibiotic overprescription for one or more of the conditions listed below? What are some “mimics” that can be confused for an infectious condition? (example: venous stasis dermatitis can be confused for cellulitis) Discuss methods to accurately diagnose these conditions and distinguish “mimics” from true infection.

Inpatient:

- Respiratory infections/illnesses
- Urinary tract infections/asymptomatic bacteriuria
- Skin and soft tissue infections/cellulitis
- Over concern for infection due to drug-resistant bacteria (such as MRSA)

Outpatient:

- Respiratory infections (bronchitis, sinusitis, pharyngitis)

6. Antibiotic de-escalation. Decreasing antibiotic use by narrowing spectrum of antibiotic (streamlining or de-escalating) or discontinuing antibiotics is an important part of antibiotic stewardship. What tools are used or could be used at your institution use to help make antibiotic de-escalation routine? Some examples are listed below:

- **Provider-based:** Prescribers make a point to assess for de-escalation opportunities when new diagnostic data available, shift changes/hand-offs, when patients change service or level of care, transfers to or from other facilities
- **Institutional:** Antibiotic time outs, chart reminders, incorporate into daily rounds or huddles, clinical pharmacist review, AS team review

7. Duration of therapy. An important aspect of antibiotic stewardship is providing the right duration of therapy for a given patient with a specific infection. Choose a patient from your consult list or clinic schedule. Discuss the appropriate antibiotic duration for particular infectious syndromes. Is this patient a candidate for short course of therapy? Is there an evidence base for this patient's recommended antimicrobial duration?

8. Potential for harm. Antibiotics have the potential to cause harm and the potential for adverse effects should be considered when prescribing. Some adverse effects to consider include an allergic reaction, acute kidney injury, the development of drug-resistance, and C. difficile infection. Discuss a recent example where a patient experienced an adverse effect of an antibiotic. If a patient on the consult list or in clinic experienced an adverse effect, discuss their specific case. Review strategies for counseling patients on the risks and benefits of antibiotics (some suggestions are listed below). What is done or can be done at your institution to increase awareness among prescribers and patients alike about the potential risks of antibiotic prescribing?

Strategies for counseling patients on starting a new antibiotic:

- Explain why the new medication is indicated (name, why, what is the expected benefit)
- Explain potential side effects
- Discuss alternative therapies
- Respect patient concerns
- Involve the patient in decision making and assess level of understanding