

The AMR Global Health Academy

AMR in Practice #3: Decision Point

"Colonization or Infection"

Learning Pathway: Diagnostics & Laboratory Decision-Making



The Scenario

An 82-year-old woman living in a long-term care facility is admitted to hospital with confusion and generalized weakness. A urine culture grows *Escherichia coli*, but she has no dysuria, urinary frequency, flank pain, or fever. The clinical team considers starting antibiotics based on the positive culture result.

The Decision Point

Should antibiotics be started because bacteria were isolated from the urine — or does this represent colonization rather than infection?

How To Think It Through

Positive urine culture results must always be interpreted in the context of the patient's clinical presentation. Asymptomatic bacteriuria and urinary tract colonization are common, particularly among patients with urinary catheters, older adults, and residents of long-term care facilities. The presence of bacteria alone does not necessarily indicate infection requiring antimicrobial treatment.

Treating colonization unnecessarily exposes patients to adverse effects, increases selective pressure for antimicrobial resistance (AMR), and contributes to avoidable antibiotic use. Diagnostic stewardship requires integrating laboratory findings with clinical signs and symptoms before initiating therapy.

Effective communication between clinicians and the microbiology laboratory helps ensure that culture results are interpreted appropriately and supports responsible antimicrobial prescribing.

Key Takeaway

A positive culture does not always indicate infection. Laboratory results should always be interpreted alongside the patient's clinical presentation before antimicrobial therapy is initiated.

Why This Matters

Distinguishing colonization from infection reduces unnecessary antibiotic use, protects patients from avoidable harm, strengthens antimicrobial stewardship, and helps slow the emergence of antimicrobial resistance.