COLLEGE OF NURSING

Safeguarding Antibiotics: Nursing-Driven Strategies to Optimize Antibiotic Use and Patient Outcomes

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Polling Question 1

How confident do you feel in your role as a nurse contributing to antibiotic stewardship?

1. Very confident
2. Somewhat confident
3. Neutral
4. Somewhat unsure
5. Not confident at all

Polling Question 2

In your current setting, how often do nurses participate in decisions related to antibiotic therapy (e.g., reviewing antibiotic indication, duration, cultures)?

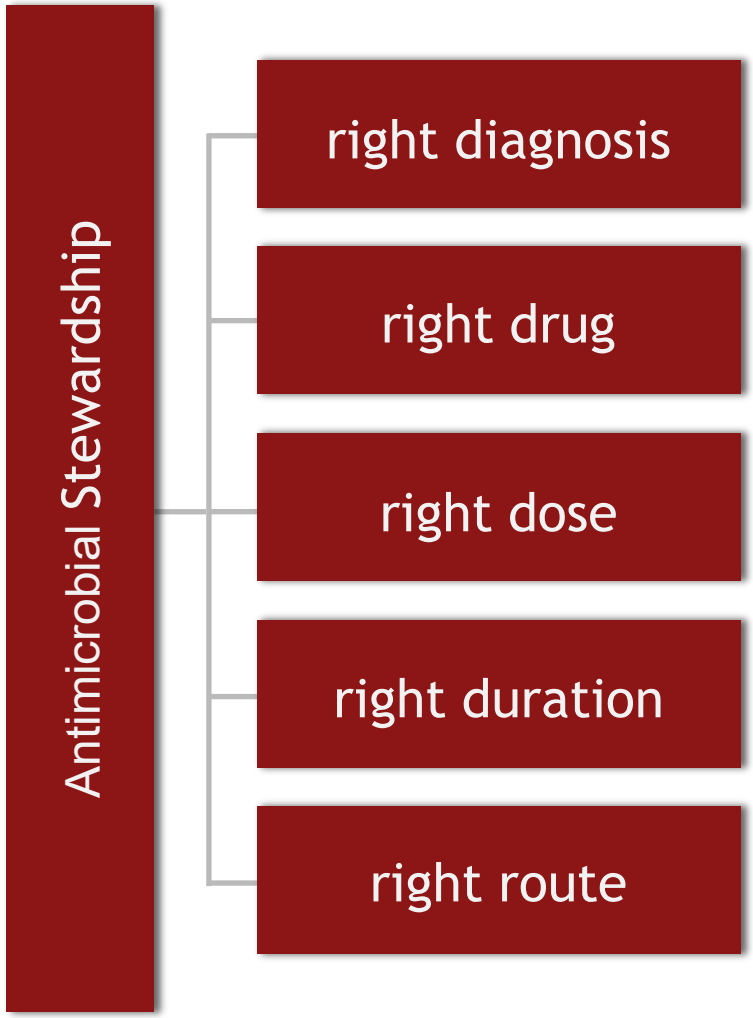
1. Routinely
2. Occasionally
3. Rarely
4. Never
5. Not applicable

What is Antimicrobial Stewardship?

Antimicrobial stewardship refers to the safe, responsible and effective use of antibiotics, antifungal and antiviral medicines.

It encompasses a coordinated set of strategies designed to optimize infection treatment while minimizing adverse effects and limiting the emergence of resistance.

This quality-focused approach aims to ensure the appropriate use of antimicrobial agents to combat antimicrobial resistance and achieve the best possible patient outcomes.



Antibiotic Stewardship Nursing Practices

Strengthen Infection Prevention & Control	Evaluate Penicillin Allergies & Promote De-labeling	Optimize Diagnostic Testing (Diagnostic Stewardship	Ensure Safe Antibiotic Administration, Monitoring & Timely Review	Educate Patients, Families and Staff; Promote Awareness & Stewardship Outcomes

Manning, M.L et al., (2022). A novel framework to guide antibiotic stewardship nursing practice. *Amer J Infect Control*, *50*(1), 99-104.
Manning, M.L., Pfeiffer, J., & Larson, E.L. (2016). Combating antibiotic resistance: The role of nursing in antibiotic stewardship. *Amer J Infect Control*, 44):1454-7.

1. Strengthen Infection Prevention & Control (IPC)

Why It Matters

Preventing infections means fewer opportunities for inappropriate antibiotic use and less antibiotic resistance. A nursing focus on IPC is foundational.

Vaccination is one of the most powerful tools for preventing infections. By stopping vaccine-preventable diseases before they start, it dramatically reduces the need for antibiotics and helps combat antibiotic resistance."

Nursing Actions

- Ensure rigorous hand hygiene compliance, proper use of personal protective equipment, and consistent adherence to isolation protocols.
- Monitor catheter, central line, ventilator use and ensure prompt removal when no longer needed.
- Ensure rigorous cleaning and equipment decontamination practices.
- Assess and update immunization status during patient encounters.
- Educate patients and families about the benefits of vaccination.

2. Evaluate Penicillin Allergies & Promote De-labeling

Why It Matters

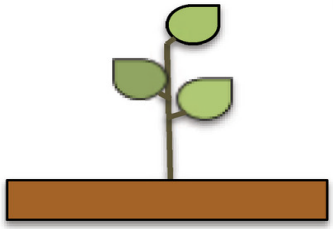
Nine out of 10 people who report a penicillin allergy are not truly allergic. This results in the use of broad-spectrum antibiotics.

Correctly identifying those who are not actually allergic can improve antibiotic prescribing and combat the risk of antibiotic resistance by allowing patient access to safer less toxic antibiotics.

Nursing Actions

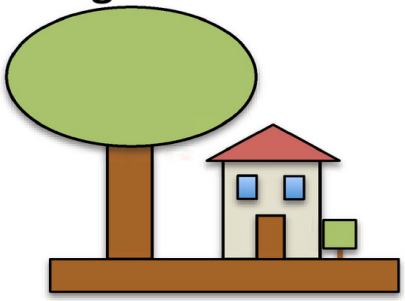
- Obtain a detailed allergy history (symptoms, timing, severity, treatment).
- Advocate for penicillin allergy testing or an oral challenge when appropriate.
- Educate patients: Discuss benefits of de-labeling (broader antibiotic options, lower costs, less resistance).

Label acquisition



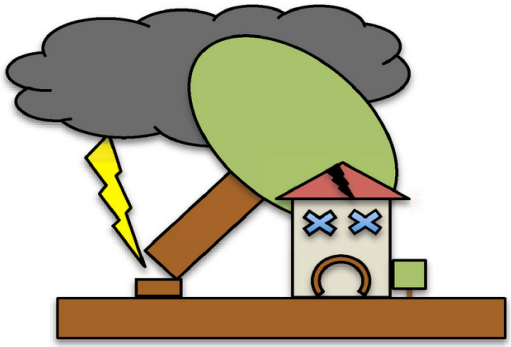
- 75% of penicillin allergy labels acquired in childhood by age 3
- Most labels are inaccurate

Labels persist and grow in significance



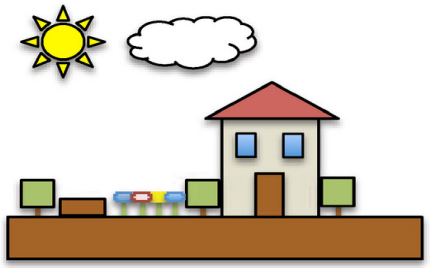
- 8% -25% of adults with penicillin allergy label
- Less than 5% of labeled are actually allergic
- Even true allergy may fade over time
- Label can become a greater liability than the risk of reaction

Consequences of a label



- Pressure prescribing of 2nd and 3rd line antimicrobials
- Increased inappropriate antibiotic selection
- Increased mortality risk during cancer and infection treatment
- Delay the onset of appropriate antimicrobial therapy
- Increase treatment failures/ surgical infections
- Associated increase in multidrug resistant infections
- Longer lengths of stay
- Higher healthcare costs

Testing/ removal of unnecessary label



- Cost-effective
- Patient reassured on safety
- Reduced expenses
- Avoidance of bad outcomes: treatment failures, surgical infections, multidrug resistant infections

Stone Jr, Cosby A., et al. The challenge of de-labeling penicillin allergy. *Allergy* 75.2 (2020): 273-288.

3. Optimize Diagnostic Testing

Why It Matters

Diagnostic stewardship promotes appropriate/timely testing, pathogen identification, and accurate, timely reporting of results to guide patient care.

Accurate diagnosis is the foundation of effective infectious diseases management, where pathogen identification facilitates targeted antimicrobial therapy.

Ordering appropriate diagnostic tests based on clinical indications is crucial for appropriate antimicrobial prescribing.

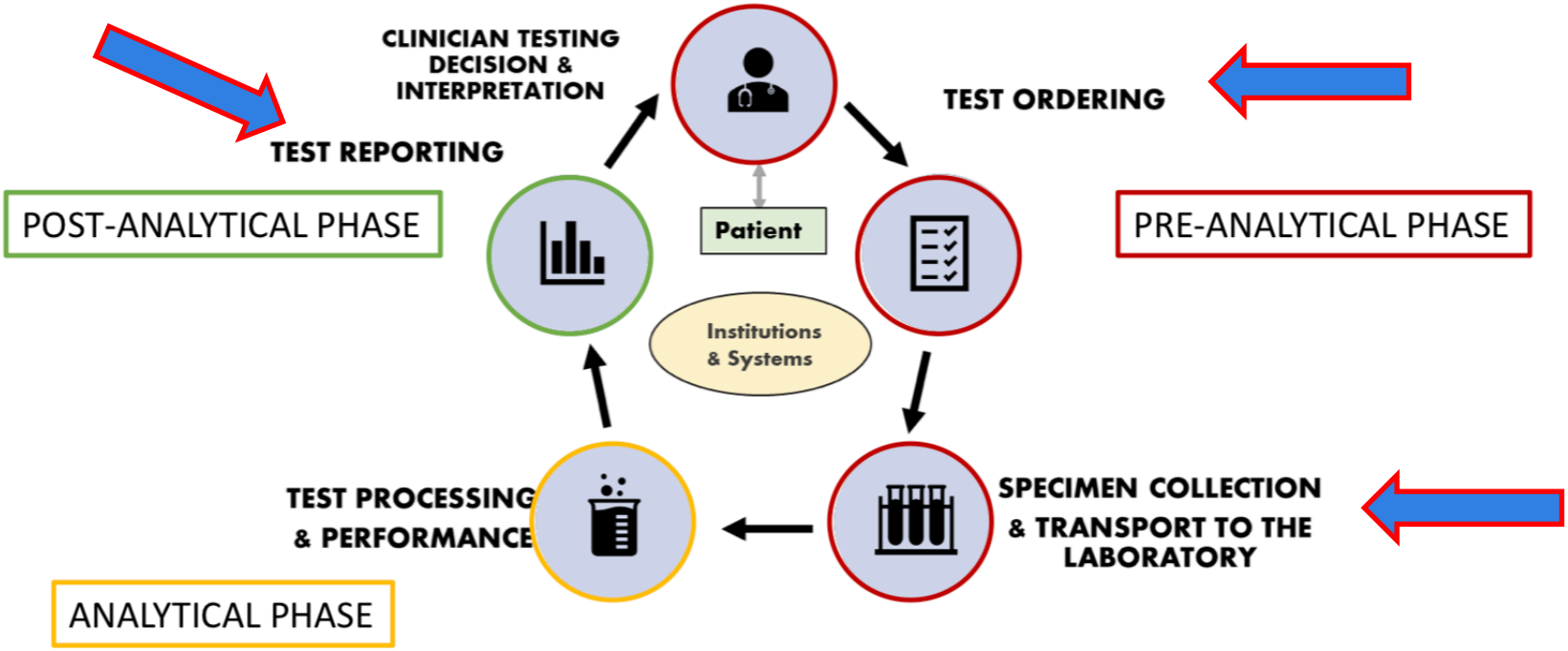
This requires appropriate pre-analytical steps (specimen collection and transport), analytical procedures (testing) and post-analytical processes (interpretation of reports).

Nursing Actions

- Advocate for appropriate testing. Collect samples before starting antibiotics, using correct technique, labeling, and timing to avoid contamination or false results.
- Ensure proper specimen collection. Collaborate with the care team to avoid unnecessary cultures or duplicate tests, and prompt reevaluation when tests aren't indicated.
- Communicate and act on results. Monitor lab results closely, relay critical findings promptly, and support timely antibiotic adjustments or discontinuation based on results.

Diagnostic Stewardship

The right test for the right patient to prompt the right action



Fabre V, et al. Principles of diagnostic stewardship: A practical guide from the Society for Healthcare Epidemiology of America Diagnostic Stewardship Task Force. Infect Control Hosp Epidemiol. 2023

4.Optimize Antibiotic Administration, Monitoring & Timely Review

Why It Matters

Optimizing antibiotic administration, monitoring, and timely review is critical to ensure antibiotics are used effectively and safely. Nursing-led stewardship practices help prevent inappropriate use, reduce antimicrobial resistance, and improve patient outcomes through vigilant assessment and timely intervention.

Nursing Actions

- Verify antibiotic indication, dose, route, and timing prior to administration.
- Ensure cultures and relevant diagnostics are obtained before initiating therapy.
- Monitor for clinical response and adverse events.
- Participate in antibiotic “time-outs” or daily reviews to assess ongoing need and optimize therapy.

Antibiotic Timeout Assessment

What? Re-evaluate a patient's empiric antibiotic regimen in 48-72 hours within the context of the patient's current condition.

Why? Antibiotics are often initiated with limited information. More information is available including culture data, laboratory results, imaging, and pathology.

1. Indication	• Does the patient still have a valid indication for use of antimicrobials?
2. Spectrum	• Do the empiric antimicrobials match the suspected site of infection?
	• If microbiologic data is available, do the antimicrobials provide appropriate coverage for the pathogens identified?
	• Does coverage need to be broadened or narrowed based on the available information?
3. Dosage	• Is the dose appropriate for the patient given indication and patient-specific factors such as renal function and weight?
	• Is the route of therapy appropriate at this point in time?
4. Duration	• Has a treatment duration been assigned?

Kinn, et al., (2018). *Current Treatment Options in Infectious Diseases*, *10*, 281-290.

Daily Assessment of Need

Speak-up!

Assess if antibiotics can be stopped or narrowed (de-escalation from IV to oral conversion) – especially among patients in whom infection has been ruled out.

Manning, M. L., & Kradel-Weitzel, M. (2023). Nurse engagement in antibiotic time-outs: The collaborative process of leveraging design to disseminate research findings. *Journal of Nursing Scholarship*, *55*(6), 1087-1091.

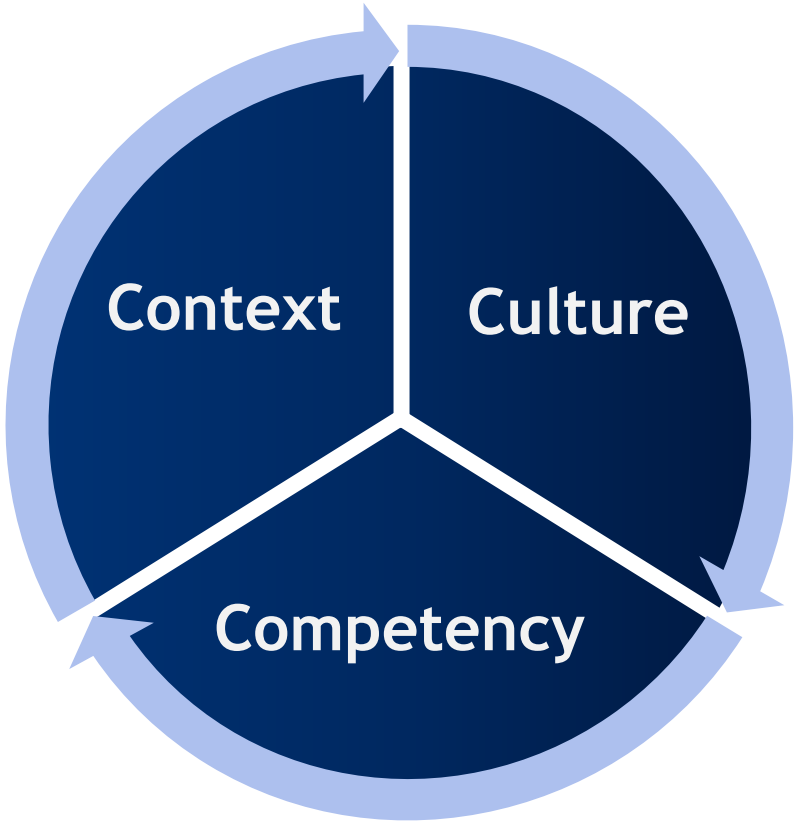
5. Educate Patients, Families and Staff; Promote Awareness

Why It Matters

Nurses are often the key educators in clinical settings and can influence behavior around antibiotic use, infection prevention, and stewardship culture.

Nursing Actions

- Conduct education for patients/families: why antibiotics may or may not be needed, importance of completing course of treatment, IPC at home/care transitions.
- Provide peer education to nursing colleagues about stewardship principles, antibiotic adverse effects, and documentation practices.
- Help embed a "stewardship mindset" in everyday nursing care: "Is this antibiotic still needed?", "Can it be changed or stopped?", "What is the plan?"



- Depending on the local context and culture, antibiotic stewardship (AS) nursing practices have the potential to impact antibiotic decisions, improve patient outcomes, and be integrated into nurses' daily workflow.
- Practices are intended to enhance centralized AS programs and perhaps provide alternative approaches to perform AS at facilities without centralized programs or with limited resources.

Manning, ML et al., (2022). A novel framework to guide antibiotic stewardship nursing practice. *American journal of infection control*, *50*(1), 99-104.
Luo, Y., He, L., Li, W., Zhao, J., Deng, R., & Zong, Z. (2025). Promoting nurse participation in hospital antimicrobial stewardship: A realist review. *International Journal of Nursing Studies*, 105142.

Where to Begin?

- *Advance your knowledge.*

  Read the references cited in this presentation. Participate in educational opportunities (e.g., grand rounds, seminars, webinars) to advance your antibiotic, antibiotic resistance and antibiotic stewardship (AS) knowledge. Learn with and from others by starting an interprofessional AS journal club or lunch-and-learn at your practice setting.

- *Advocate for the adoption and evaluation of one nurse driven AS recommended action in your practice setting.*

  Bedside nurses are well positioned to lead reassessment of antibiotic treatment for they know how long a patient has been receiving antibiotic(s) and when diagnostic test results become available.

- *Get to know the members of your organization's AS team.*

  Ensure nurses are represented on AS committees.

Summary

- Nurse involvement doesn't happen in isolation. For stewardship to be effective, structures must support nurse engagement, formal roles defined, shared decision-making and leadership buy-in.

- Nurses play a vital role in antibiotic stewardship—by assessing patients carefully, educating them about appropriate antibiotic use, and advocating for evidence-based prescribing, we can help combat antibiotic resistance and protect the effectiveness of these life-saving drugs for future generations.

- Get involved!

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- Fabre V, et al. Principles of diagnostic stewardship: A practical guide from the Society for Healthcare Epidemiology of America Diagnostic Stewardship Task Force. Infect Control Hosp Epidemiol. 2023
- Kinn, P., Postelnick, M., Schroeder, S., & Schulz, L. T. (2018). A timeout on the antimicrobial timeout: where does it stand and what is its future?. *Current Treatment Options in Infectious Diseases*, *10*, 281-290.
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- Stone Jr, Cosby A., et al. The challenge of de-labeling penicillin allergy. *Allergy* 75.2 (2020): 273-288.