Antimicrobial Stewardship

Aspirus System Antimicrobial Stewardship Program

Passion for excellence. Compassion for people.

ASPIRUS HEALTH

Objectives

- Explain the ways that antimicrobial misuse can cause harm to patients and our community
- Describe how staff can work together to improve antimicrobial use
- Identify antimicrobial stewardship behaviors that you can engage in to reduce the misuse of antimicrobials
- Visit the Antimicrobial Stewardship Program intranet page (http://aspirusintranet/MedStaff/Antimicrobial-Stewardship.aspx) to find and utilize stewardship guidelines, policies, protocols, and education

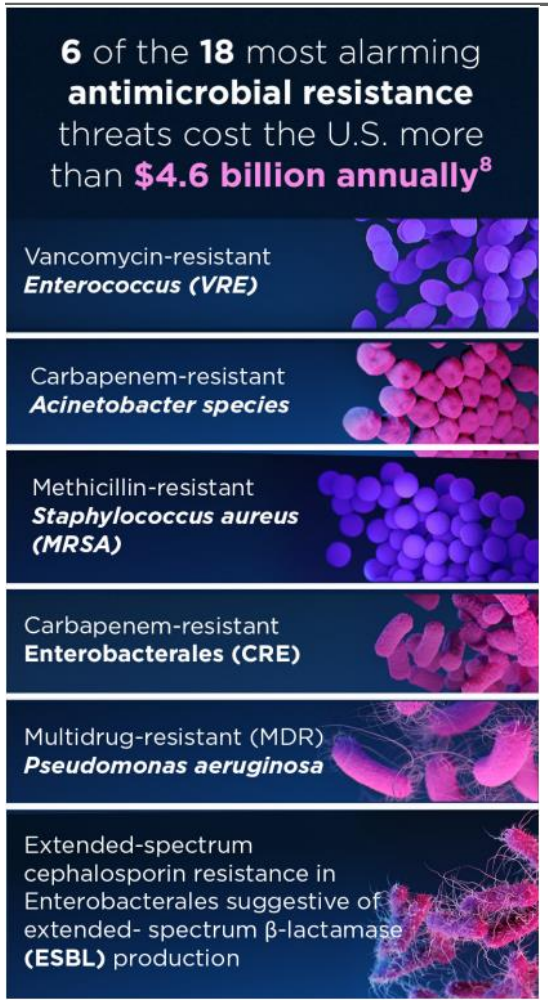
Antimicrobial Use and Misuse

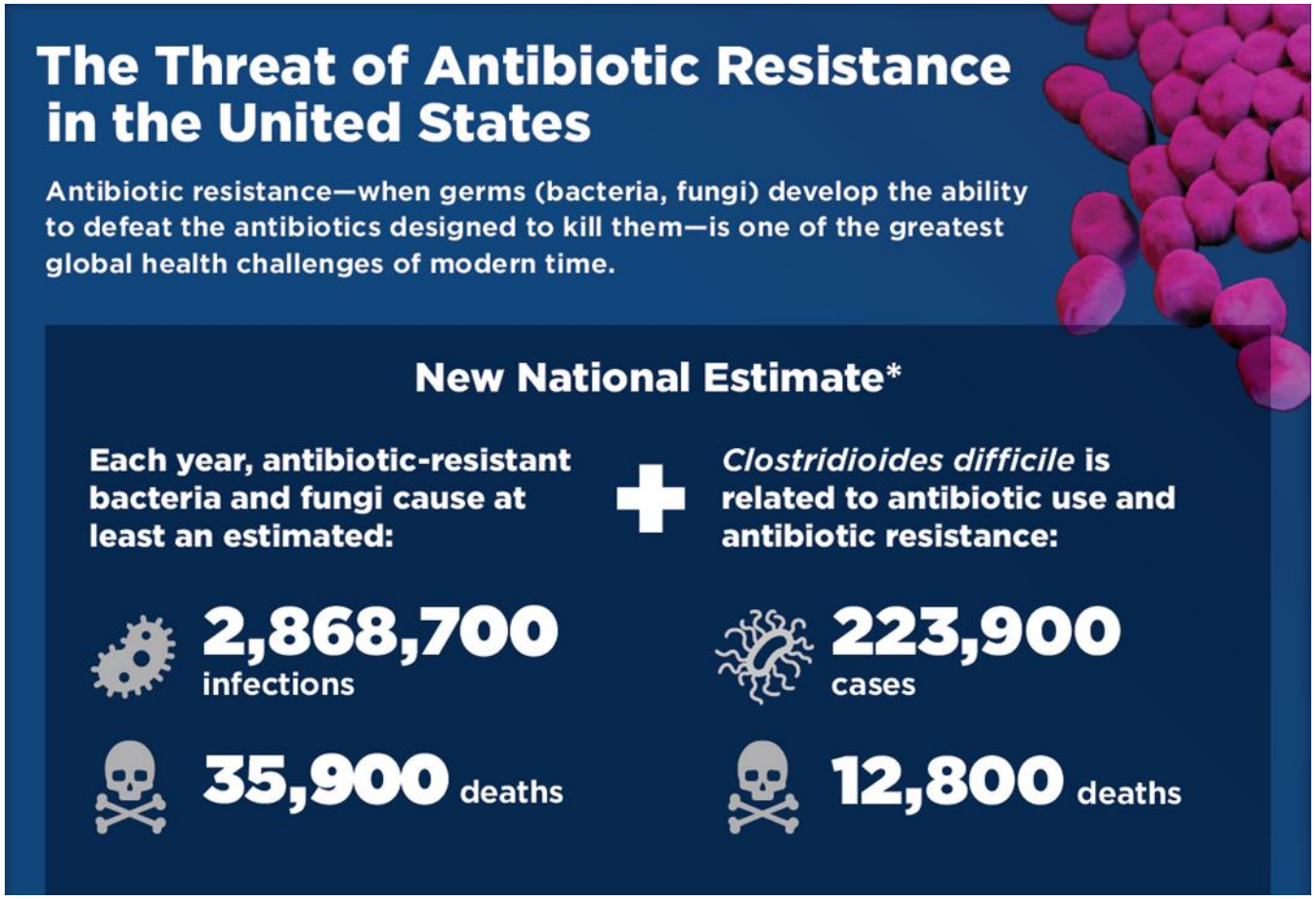
30 – 50 % of antibiotic use in hospitals is unnecessary or inappropriate

https://www.cdc.gov/getsmart/healthcare/evidence.html

Antimicrobial Use and Misuse

Antimicrobial Resistance: A National and Local Threat



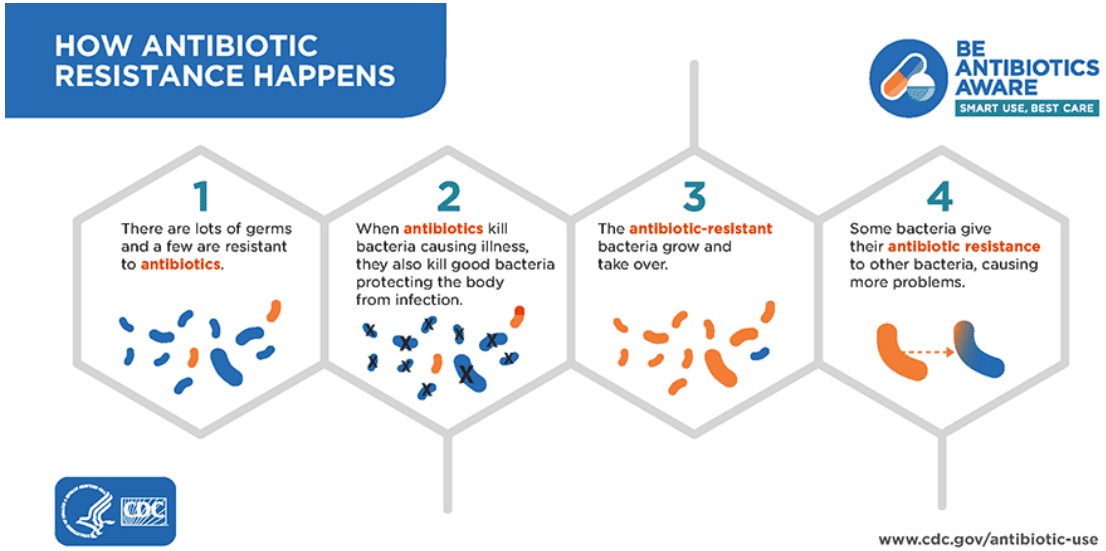


US CDC. Antibiotic Resistance Threats in the United States, 2019.
COVID-19: U.S. Impact on Antimicrobial Resistance, Special Report 2022.

ASPIRUS HEALTH

Antimicrobial Use and Misuse

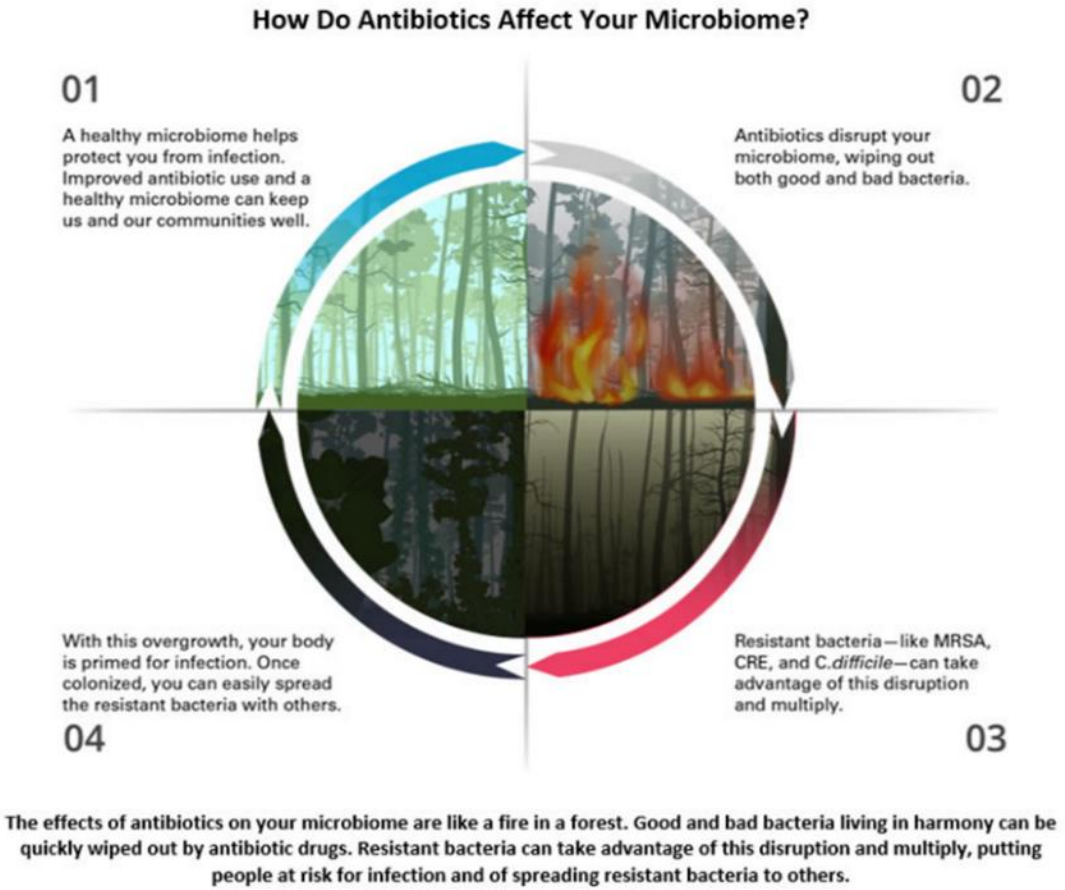
Antimicrobial Resistance: Happening in a patient near you …



- The overuse of antimicrobials puts selection pressure on organisms, favoring the formation of resistant strains
- Resistance genes can spread to other organisms
- Decreasing the unnecessary use of antibiotics is key to reducing antimicrobial resistance

Antimicrobial Use and Misuse

Impact on the human microbiome



The effects of antibiotics on your microbiome are like a fire in a forest. Good and bad bacteria living in harmony can be quickly wiped out by antibiotic drugs. Resistant bacteria can take advantage of this disruption and multiply, putting people at risk for infection and of spreading resistant bacteria to others.

https:// www.cdc.gov/drugresistance

Antimicrobial Use and Misuse

Adverse events

- More than 50% of hospitalized patients will receive an antibiotic during their stay
- 20% of hospitalized adults that receive an antibiotic will experience an adverse drug event
- Every additional 10 days of antibiotics = 3% increase in risk of an adverse drug event
- Antibiotics are responsible for 1 in 5 visits to the Emergency Department for a medication-related adverse event

https://www.cdc.gov/antibiotic-use/stewardship-report/hospital.html
Tamma PD, et al. *JAMA Intern Med*. 2017;177(9):1308-1315.
Shebab et al. *Clin Infect Dis*. 2008;47(6):735-743.

Antimicrobial Use and Misuse

The perfect public health storm

- The overuse of antimicrobials is leading to a rise in resistance
- Increased global travel is spreading resistance
- The antimicrobial pipeline is drying up (less new drugs)
- Antibiotic resistance is associated with rising morbidity, mortality and increases in healthcare-associated infections (HAIs)
- Even patients who have never had an antimicrobial can develop a resistant infection

Antibiotics are the only class of drugs where the use in one patient can impact the effectiveness in another patient

Why Engage in Antimicrobial Stewardship?

Regulatory requirements and benefits to you

- Joint Commission Requirement (Jan 1st, 2023) and CMS Condition of Participation (July 2022):
  - Requires a hospital wide antimicrobial stewardship program that is based on nationally recognized guidelines to monitor and improve the use of antibiotics
- Benefits to you:
  - Better understand the potential harms of antibiotic use and misuse
  - Understand when antimicrobials should and should not be used
  - Understand how you can personally act to reduce resistance
  - Improve the care of your patients and our community

Drivers of Antimicrobial Resistance

Appropriate and judicious use of antimicrobials along with infection prevention practices, reduces resistance

- Antimicrobial Use
  - Any antimicrobial use leads to resistance, even one dose
- Unnecessary Use
  - If antimicrobials aren't needed they cause unnecessary resistance, toxicity, and adverse events
- Unnecessary Testing
  - Unnecessary tests lead to unnecessary antimicrobial use
- Overly Broad-Spectrum Use and Failure to De-escalate Therapy
  - Coverage of more organisms means more resistance and collateral damage
- Prolonged Durations
  - Shorter is Better! Continuing antimicrobials past recommended durations leads to resistance and doesn't improve outcomes
- Hospital Transmissions
  - Poor hand hygiene and not observing precautions, spreads organisms and resistance genes throughout the environment

What is Antimicrobial Stewardship?

- Antimicrobial stewardship involves the optimal selection, dose and duration of an antibiotic resulting in the cure or prevention of infection with minimal unintended consequences to the patient including emergence of resistance, adverse drug events, and cost.

The ultimate goal is improved patient care and safety…

What is Antimicrobial Stewardship?

- Antimicrobial stewardship is a team effort the requires cooperative behaviors among many disciplines

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What is Antimicrobial Stewardship?

Staff roles and communication

- Clinicians
  - Order tests only when indicated (e.g., symptomatic UTI)
  - Utilize disease-state specific empiric treatment recommendations and order sets
  - Perform daily antibiotic reviews and de-escalate antimicrobials based on culture/diagnostic results
  - Picks the right duration of therapy
- Pharmacists
  - Ensure optimal antimicrobial choice and dose
  - Recommend changes in antimicrobials based on culture/diagnostic results (e.g., MRSA nasal screens)
  - Performs IV to PO conversions
  - Performs therapeutic drug monitoring
  - Ensure appropriate durations of therapy
- Nurses
  - Utilize the *C. diff* testing protocol and document the quantity and consistency of diarrhea
  - Ask if a central line, or foley-catheter is no longer necessary
  - Prompt antibiotic reviews based on how long a patient has received an antibiotic and when laboratory results are available
  - Know proper techniques to reduce contamination of cultures/diagnostics, and indications for when to obtain cultures, especially urine cultures
  - Know when patients tolerate oral medications and initiates discussions around IV to PO conversions

What is Antimicrobial Stewardship?

Common stewardship behaviors shared by nurses, pharmacists, and clinicians

- Perform thorough allergy histories and document in the chart, including reaction type, time to onset, severity, and previous tolerance of similar agents
  - Allergies lead to the use of alternative antibiotics that are less effective and cause more adverse events
  - Almost all patients with a penicillin allergy can safely receive cephalosporins like cefazolin
- Perform Antibiotic Time Outs as a daily practice to assess for continued need, ability to de-escalate based on cultures/diagnostics, and duration
  - Stop MRSA coverage when MRSA nasal screens are negative for respiratory tract infections
  - De-escalate away from coverage of resistant Gram-negative (e.g., ESBL, *Pseudomonas*) and Gram-positive organisms (e.g., MRSA) when they don't grow in cultures after 48-72 hours
- Avoid testing and treating asymptomatic bacteriuria (except in pregnant women and those undergoing urologic procedures)
  - Utilize the When to Test for UTI algorithm and the indications for testing within orders
  - Smelly or cloudy urine, altered mental status, and falls are not symptoms of a UTI
- Proper testing and treatment for *C. diff*
  - Utilize the *C. diff* Testing Protocol
- Intravenous to oral conversions: IV to PO conversions are effective and reduce length of stay and line infections.
  - Clinicians and pharmacists can assess for these conversions daily. Nurses are most aware of when patients are able to tolerate oral medications and can initiate discussions on switching to oral antibiotics.
- Shorter is Better! Treat for shorter durations when indicated to reduce resistance, *C. diff*, adverse drug events, and length of stay.

Antimicrobial Stewardship Resources

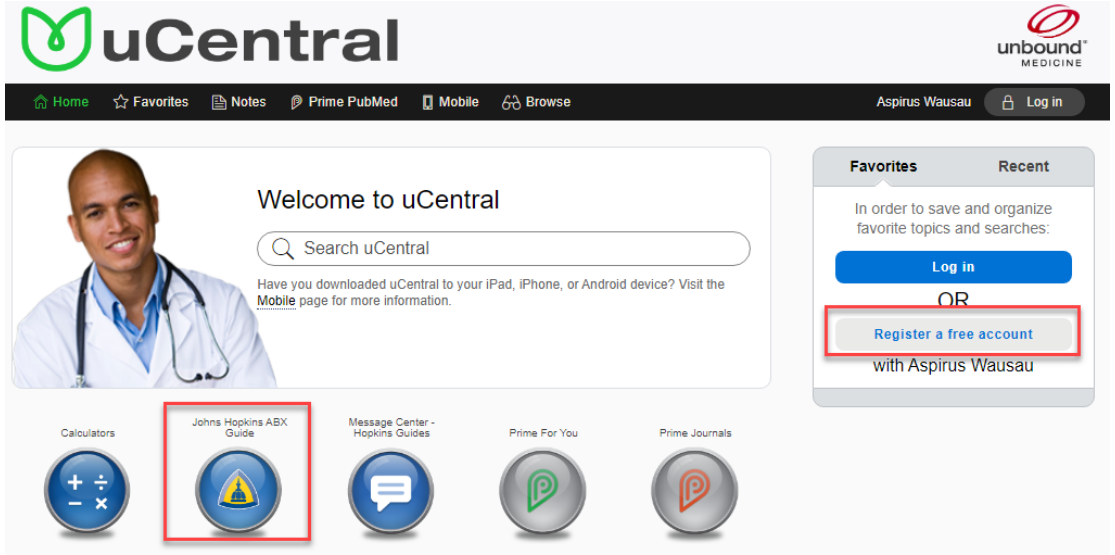
Intranet Page

- Find the ASP intranet homepage and add it under My Quick Links: Work Tools & Resources > Resources & References > Antimicrobial Stewardship (Med Staff): http://aspirusintranet/MedStaff/Antimicrobial-Stewardship.aspx

Antimicrobial Stewardship Resources

Intranet Resources

- Link to Johns Hopkins ABX Guide (register a free account to add app to your phone)
- Antibiogram
- Empiric Use Guidelines for inpatient and outpatient
- Treatment guidelines for inpatient and outpatient
- Policies and protocols
- COVID-19 resources
- Medical staff education
- Patient education
- Links to national guidelines



Antimicrobial Stewardship Resources

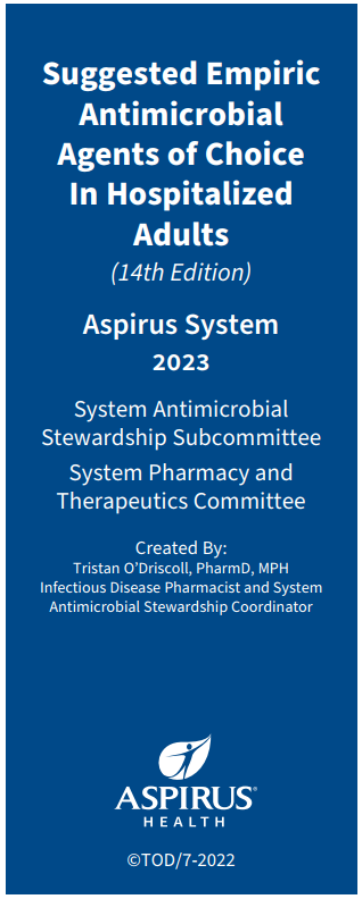
Intranet Resources: Empiric recommendations, guidelines, and pathways

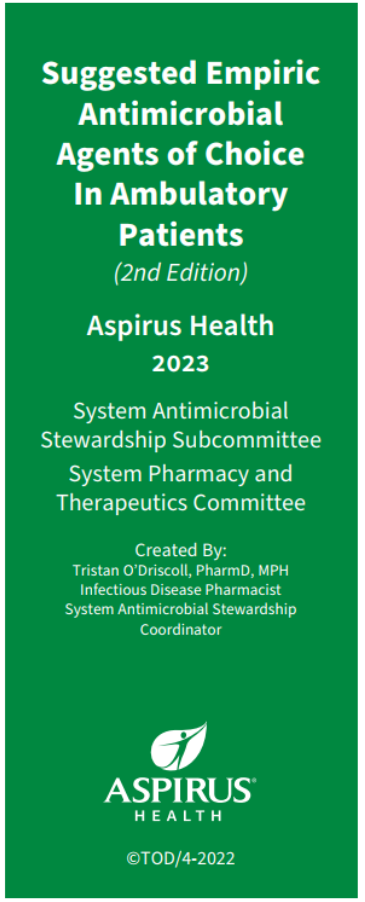
Inpatient

- Blue Card – Inpatient Empiric Recommendations
- Penicillin allergy guidelines
- *C. diff* testing and treatment guidelines
- Sepsis antibiotic step-down guide
- When to test for a UTI algorithm
- Recommended treatment durations

Outpatient

- Green Card – Ambulatory Empiric Recommendations
- Acute bronchitis guidelines
- URI guidelines





Antimicrobial Stewardship Resources

Follow the Antimicrobial Stewardship Way

- Utilize stewardship ORDER SETS to pick empiric therapies then NARROW (DE-ESCALATE) antimicrobials as far as possible based on culture results in order to lessen resistance
- Before initiating empiric therapy OR changing antibiotics due to lack of response to a current regimen, make certain that all relevant cultures have been obtained or repeated
- Convert IV to PO as soon as possible to shorten length of stay and reduce line infections
- De-escalate away from coverage of *Pseudomonas* (e.g., pip-tazo, cefepime, levo/cipro) and MRSA (e.g., vanco, linezolid, dapto) after 48-72 hours of no growth of these organisms on properly obtained cultures
- SHORTER IS BETTER! Treat for the shortest duration possible to optimize patient outcomes

Antimicrobial Stewardship Resources

Intranet Resources: Medical staff education

- The intranet page has education on stewardship for inpatient and outpatient medical staff

Medical Staff Education

- CDC - Be Antibiotics Aware Website
- Antibiotics in Sepsis - Recorded PowerPoint Presentation
- Penicillin Allergy Pocketcard
- Viral Illness Talking Points for Clinical Staff
- Wisconsin Department of Health Services - Antimicrobial Stewardship Resources
- WHA Adult URI Treatment
- WHA Pediatric URI Treatment
- Stanford Education on Antibiotic Stewardship
- Wisconsin Department of Health Services - Resources for Healthcare Professionals

Antimicrobial Stewardship Resources

Intranet Resources: Patient education

- The intranet has Aspirus brochures with patient education on stewardship and acute bronchitis

Patient Education

- Aspirus - Antibiotic Stewardship Brochure for Patients
- Aspirus - Acute Bronchitis - Patient Brochure
- CDC - Patient Resources and Education Website
- Wisconsin Department of Health Services - Resources for Patients

Viruses or Bacteria
What's got you sick?

Antibiotics only treat bacterial infections. Viral illnesses cannot be treated with antibiotics. When an antibiotic is not prescribed, ask your healthcare professional for tips on how to relieve symptoms and feel better.

Common Condition: What's got you sick?	Common Cause			Are antibiotics needed?
	Bacteria	Bacteria or Virus	Virus	
Strep throat	✓			Yes
Whooping cough	✓			Yes
Urinary tract infection	✓			Yes
Sinus infection		✓		Maybe
Middle ear infection		✓		Maybe
Bronchitis/chest cold (in otherwise healthy children and adults)*		✓		No
Common cold/runny nose			✓	No
Sore throat (except strep)			✓	No
Flu			✓	No

* In some cases, acute bronchitis is caused by bacteria, but even in these cases antibiotics still do not help.

CDC's *Be Antibiotics Awa*re Website (link on the intranet):

- Provides educational handouts for patients

BE ANTIBIOTICS AWARE
SMART USE, BEST CARE