Antibiotics can save lives but they are often prescribed incorrectly. These errors put patients at risk for preventable allergic reactions, super-resistant infections, and deadly diarrhea. Poor prescribing also makes antibiotics less likely to work in the future.

To protect patients and preserve the power of antibiotics, hospital CEOs/medical officers can:

- Be sure your hospital has an antibiotic stewardship program that includes, at a minimum, this checklist:
  1. **Leadership commitment:** Dedicate necessary human, financial, and IT resources.
  2. **Accountability:** Appoint a single leader responsible for program outcomes. Physicians have proven successful in this role.
  3. **Drug expertise:** Appoint a single pharmacist leader to support improved prescribing.
  4. **Act:** Take at least one prescribing improvement action, such as requiring reassessment within 48 hours to check drug choice, dose, and duration.
  5. **Track:** Monitor prescribing and antibiotic resistance patterns.
  6. **Report:** Regularly report to staff prescribing and resistance patterns, and steps to improve.
  7. **Educate:** Offer education about antibiotic resistance and improving prescribing practices.

- Work with other health care facilities to prevent infections, transmission, and resistance.

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**1 in 2**

More half of all hospital patients receive an antibiotic.

**3x**

Doctors in some hospitals prescribed 3 times more antibiotics than doctors in other hospitals.

**30%**

Reducing prescriptions of high-risk antibiotics by 26% can lower deadly diarrhea infections by 30%.
Antibiotics are often prescribed incorrectly.

Antibiotic prescribing varies widely and prescribing errors are common.

◊ About half of patients receive an antibiotic for at least one day during the course of an average hospital stay.

◊ The most common infections for which antibiotics were prescribed in hospitals are lung infections (22%), urinary tract infections (14%), and suspected methicillin-resistant Staphylococcus aureus (MRSA) infections (17%).

◊ In one study, about 1 in 3 antibiotics prescribed in hospitals for urinary tract infections and 1 in 3 prescriptions for the drug vancomycin included a potential error (e.g., unnecessary, given without proper evaluation, or given for too long).

◊ Doctors prescribed antibiotics up to 3 times more in some hospitals, even though patients were receiving care in similar areas of each hospital. This difference suggests the need to improve prescribing practices.

Poor prescribing often harms patients.

◊ Although antibiotics save lives (for example, in the prompt treatment of sepsis, a life-threatening infection throughout the body), they can also put patients at risk for a Clostridium difficile infection, deadly diarrhea that causes at least 250,000 infections and 14,000 deaths each year in hospitalized patients.

◊ Decreasing the use of antibiotics that most often lead to C. difficile infection by 30% (this is 5% of overall antibiotic use) could lead to 26% fewer of these deadly diarrheal infections. These antibiotics include fluoroquinolones, β-lactam with β-lactamase inhibitors, and extended-spectrum cephalosporins.

◊ Patients getting powerful antibiotics that treat a broad range of infections are up to 3 times more likely to get another infection from an even more resistant germ.

Every time antibiotics are prescribed:

1. Order recommended cultures before antibiotics are given and start drugs promptly.

2. Make sure indication, dose, and expected duration are specified in the patient record.

3. Reassess within 48 hours and adjust Rx if necessary or stop Rx if indicated.

Specific recommendations for common prescribing situations:

Rx for urinary tract infections

- Make sure that culture results represent true infection and not just colonization.
  - Assess patient for signs and symptoms of UTI.
  - Make sure that urinalysis is obtained with every urine culture.
  - Treat for recommended length of time and ensure that planned post-discharge treatment takes into account the antibiotics given in the hospital.

Rx for pneumonia

- Make sure that symptoms truly represent pneumonia and not an alternate, non-infectious diagnosis.
- Treat for the recommended length of time and ensure that planned post-discharge treatment takes into account the antibiotics given in the hospital.

Rx for MRSA infections

- Verify that MRSA is growing in clinically relevant cultures. Do not use vancomycin to treat infections caused by methicillin-susceptible staph (and not MRSA).
While in the hospital for surgery, George develops a fever and feels pain when he urinates.

The doctor thinks George has a urinary tract infection (UTI). Following the hospital’s UTI guideline, the doctor orders urine cultures to see if George has bacteria in his urinary tract (bladder, kidneys).

At the same time, the doctor prescribes antibiotics and includes the dose, duration, and indication in the patient record.

The doctor’s clear notes showing dose, duration, and indication gives other doctors and nurses information they needed to provide George with the best medical care.

In keeping with the antibiotic stewardship policy, the doctor reassesses the prescription the next day. Based on test results and patient exam, she puts George on a better antibiotic for a shorter time.
What Can Be Done

The Federal government is
◊ Expanding the National Healthcare Safety Network to help hospitals track antibiotic use and resistance.
◊ Sharing prescribing improvement recommendations and tools with clinicians and administrators. www.cdc.gov/getsmart/healthcare
◊ Supporting networks testing new prescribing improvement strategies.
◊ Helping hospitals and health departments create regional programs to improve antibiotic prescribing.
◊ Improving health care for veterans by launching antibiotic stewardship programs in Veteran’s Health Administration hospitals.
◊ Providing incentives for development of new antibiotics.

State and local health departments can
◊ Gain an understanding of antibiotic stewardship activities in the state or area.
◊ Facilitate efforts to improve antibiotic prescribing and prevent antibiotic resistance.
◊ Provide educational tools to facilities to help prescribers improve practices.

Hospital CEOs/medical officers can
◊ Be sure your hospital has an antibiotic stewardship program that includes, at a minimum, this checklist:

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5. Track: Monitor prescribing and antibiotic resistance patterns.
6. Report: Regularly report to staff prescribing and resistance patterns, and steps to improve.
7. Educate: Offer education about antibiotic resistance and improving prescribing practices.
◊ Work with other health care facilities to prevent infections, transmission, and resistance.

Doctors and other hospital staff can
◊ Prescribe antibiotics correctly – get cultures, start the right drug promptly at the right dose for the right duration. Reassess the prescription within 48 hours based on tests and patient exam.
◊ Document the dose, duration and indication for every antibiotic prescription.
◊ Stay aware of antibiotic resistance patterns in your facility.
◊ Participate in and lead efforts within your hospital to improve prescribing practices.

Hospital patients can
◊ Ask if tests will be done to make sure the right antibiotic is prescribed.
◊ Ask what your hospital is doing to reduce antibiotic prescribing errors and fight resistance.
◊ Be sure everyone cleans their hands before touching you. If you have a catheter, ask each day if it is necessary.

For more information, please contact
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Publication date: 3/4/2014