

## Making Health Care Safer

### Antibiotic Rx in Hospitals: Proceed with Caution



**1 in 2**

More than half of all hospital patients receive an antibiotic.



**3x**

Doctors in some hospitals prescribed 3 times as many antibiotics as doctors in other hospitals.



**30%**

Reducing the use of high-risk antibiotics by 30% can lower deadly diarrhea infections by 26%.

Antibiotics save lives, but poor prescribing practices are putting patients at unnecessary risk for preventable allergic reactions, super-resistant infections, and deadly diarrhea. Errors in prescribing decisions also contribute to antibiotic resistance, making these drugs less likely to work in the future.

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

- ◇ Adopt 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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# Problem — Poor antibiotic prescribing harms patients

## Antibiotic prescribing practices vary widely and 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 types of infections for which hospital clinicians wrote antibiotic prescriptions were lung infections (22%), urinary tract infections (14%), and suspected infections caused by drug-resistant *Staphylococcus* bacteria, such as MRSA (17%).
- ◇ About 1 out of 3 times, prescribing practices to treat urinary tract infections and prescriptions for the critical and common drug vancomycin included a potential error – given without proper testing or evaluation, or given for too long.
- ◇ Doctors in some hospitals prescribed up to 3 times as many antibiotics as doctors in similar areas of other hospitals. This difference suggests the need to improve prescribing practices.

## Poor prescribing puts patients at risk.

- ◇ 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,  $\beta$ -lactams with  $\beta$ -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.

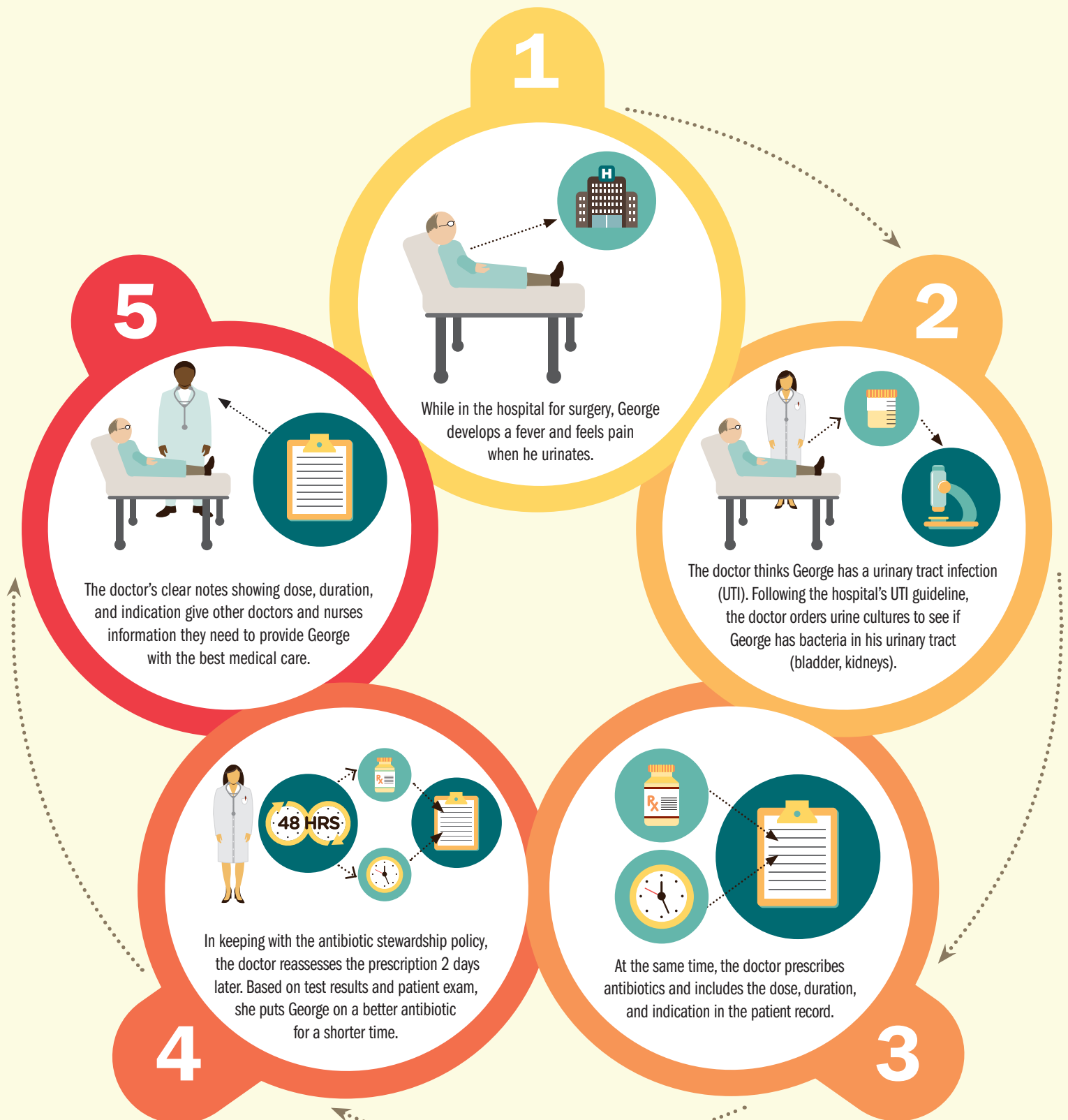


### Rx for MRSA infections

- Verify that MRSA is growing in clinically relevant cultures. Do not use vancomycin to treat infections caused by methicillin-susceptible staph (and not MRSA).

# Improving antibiotic prescribing in hospitals

Key moments for improving the cycle of antibiotic prescribing practices



# 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](http://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.



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- ◇ 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.
- ◇ Follow hand hygiene and other infection control measures with every patient.

## Hospital patients can



- ◇ Ask if tests will be done to make sure the right antibiotic is prescribed.
- ◇ 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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