MARCH 2016

CDC Vitalsigns™

Making Health Care Safer

Protect patients from antibiotic resistance

People receiving medical care can get serious infections called healthcare-associated infections (HAIs), which may lead to sepsis or death. Hospitals report common HAIs to CDC, including infections caused by *C. difficile*, infections following surgery, and infections following placement of a tube in the bladder or a large vein (catheter). These infections can be caused by bacteria that are resistant to antibiotics, making them difficult to treat. In certain kinds of hospitals, one in four of these infections (not including *C. difficile*) are caused by antibiotic-resistant bacteria identified by CDC as urgent or serious threats to health.* Although progress has been made, more work is needed. Three critical efforts to prevent an HAI are **1)** prevent infections related to surgery or placement of a catheter, **2)** prevent spread of bacteria between patients, and **3)** improve antibiotic use. It's important that healthcare providers take these actions with every patient every time to prevent HAIs and stop the spread of antibiotic resistance.

Healthcare providers need to:

- Follow recommendations for preventing *C. difficile* and infections that can occur after surgery or are related to single-use catheters placed in the body. Follow recommended actions with every patient every time. Isolate patients when appropriate, and know antibiotic resistance patterns in your facility/area.
- Prescribe antibiotics correctly. Get cultures, start antibiotics promptly, and reassess 24-48 hours later. Know when to stop antibiotic treatment.

*Long-term acute care hospitals, which provide complex medical care, such as ventilator or wound care, for long periods of time.

6

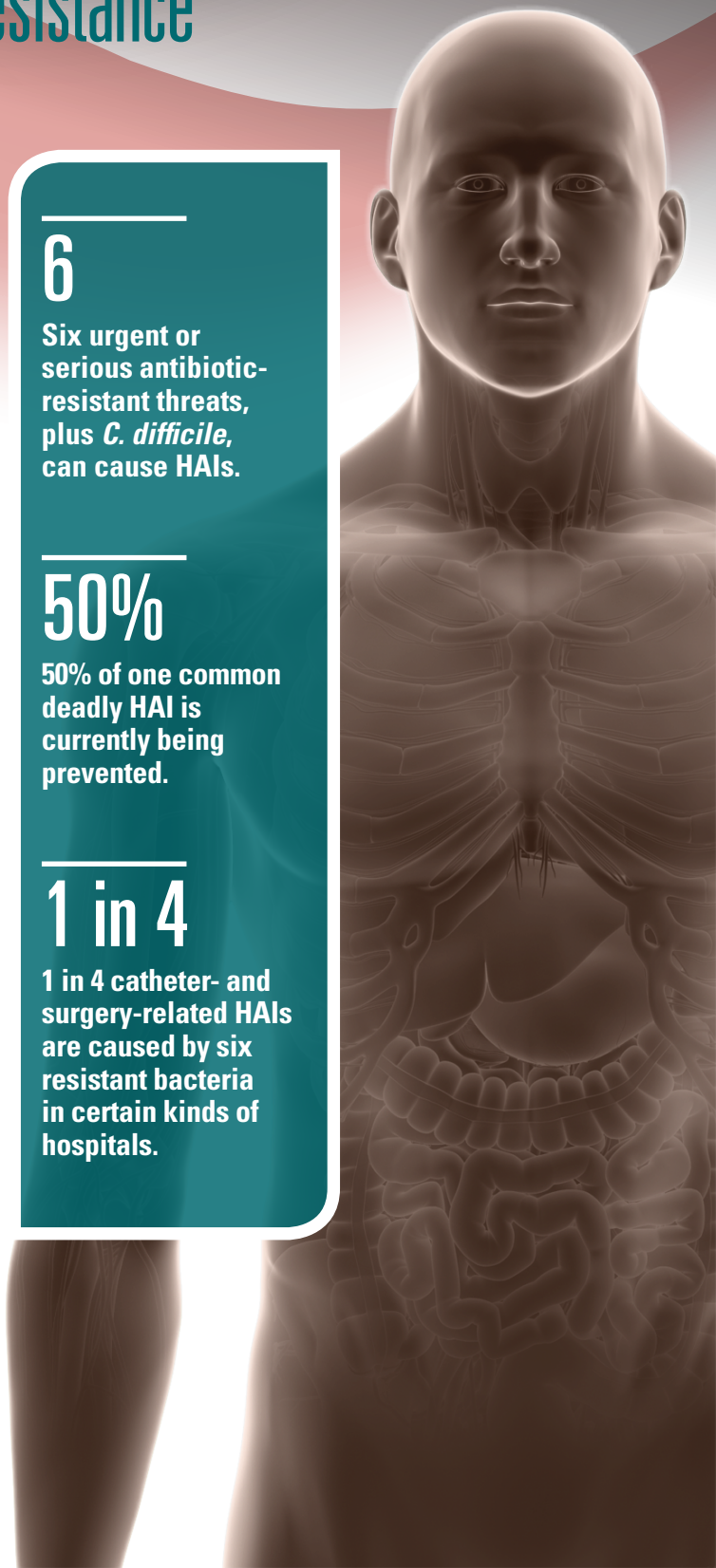
Six urgent or serious antibiotic-resistant threats, plus *C. difficile*, can cause HAIs.

50%

50% of one common deadly HAI is currently being prevented.

1 in 4

1 in 4 catheter- and surgery-related HAIs are caused by six resistant bacteria in certain kinds of hospitals.



Want to learn more? www.cdc.gov/vitalsigns/protect-patients

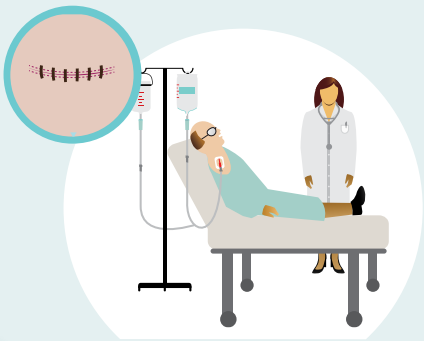
Centers for Disease Control and Prevention
National Center for Emerging and Zoonotic Infectious Diseases

Problem:

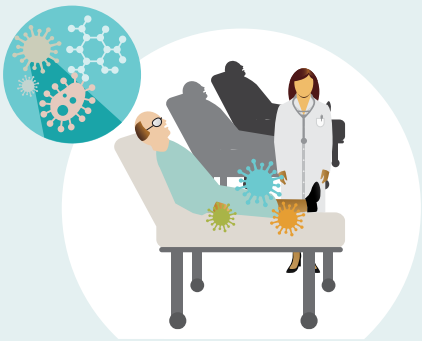
Antibiotic-resistant HAIs are a threat to all patients.

- HAIs are commonly caused by antibiotic-resistant bacteria, which may lead to sepsis or death. One in seven catheter- and surgery-related HAIs in acute care hospitals, and one in four catheter- and surgery-related HAIs in long-term acute care hospitals, is caused by any of six resistant bacteria (not including *C. difficile*).
- These six bacteria are among the most deadly antibiotic-resistant bacteria, identified as urgent or serious threats by CDC: CRE (carbapenem-resistant Enterobacteriaceae), MRSA (methicillin-resistant *Staphylococcus aureus*), ESBL-producing Enterobacteriaceae (extended-spectrum ß-lactamases), VRE (vancomycin-resistant enterococci), multi-drug resistant pseudomonas, and multi-drug resistant *Acinetobacter*.
- Progress has been made in preventing HAIs, including a 50% decrease in central line-associated blood stream infections from 2008 to 2014, but more work is needed.
- *C. difficile* is the most common type of bacteria responsible for infections in hospitals. Most *C. difficile* is not resistant to the antibiotics used to treat it, but antibiotic use puts patients at high risk for deadly diarrhea.

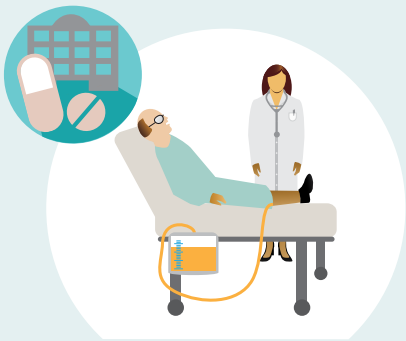
Protect patients from antibiotic-resistant infections.



Surgeries and single-use catheters help treat patients, but they can be pathways for bacteria to enter the body.



Bacteria can be spread when appropriate infection control actions are not taken.



Antibiotics save lives, but poor prescribing practices puts patients at risk.

Combine infection control actions with every patient to prevent infections in health care.

Prevent infections from catheters and after surgery. +

Prevent bacteria from spreading. +

Improve antibiotic use.

SOURCE: CDC Vital Signs, March 2016

Protect every patient every time.

Actions to prevent antibiotic-resistant infections in healthcare.

Prevent infections from catheters and after surgery.

- ✓ Use catheters only when needed.
- ✓ Follow recommendations for safer surgery and catheter insertion and care.
- ✓ Remove catheters from patient as soon as they are no longer needed.

Prevent bacteria from spreading.

- ✓ Improve hand hygiene.
- ✓ Use gloves, gowns, and dedicated equipment for patients who have resistant bacteria.
- ✓ Know about antibiotic-resistant HAI outbreaks in your hospital and region (e.g. promote coordinated action for prevention).

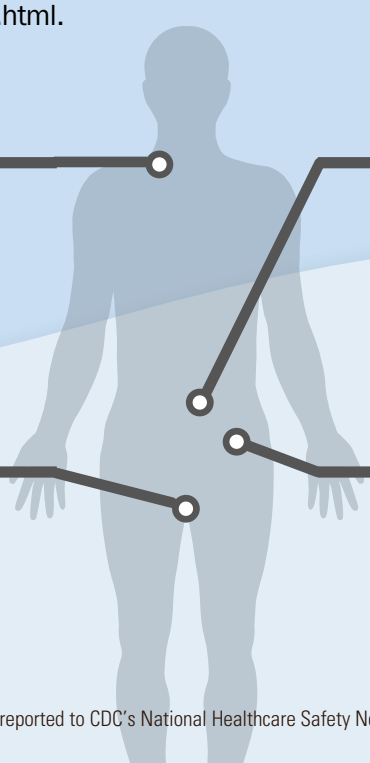
Improve antibiotic use.

- ✓ Get cultures and start antibiotics promptly, especially in the case of sepsis.
- ✓ Use cultures to reassess the need for antibiotics and stop antibiotic treatment as soon as they are no longer needed.
- ✓ When antibiotics are necessary, use the appropriate antibiotic in the proper dosage, frequency, and duration.

NATIONAL

ACUTE CARE HOSPITALS

Healthcare-associated infections (HAI) are infections patients can get while receiving medical treatment in a healthcare facility. Working toward the elimination of HAIs is a CDC priority. For more information on HAI prevention progress, visit: www.cdc.gov/hai/progress-report/index.html.



CLABSIs

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS

- **1 in 6** CLABSIs were caused by urgent or serious antibiotic-resistant threats.

SSIs

SURGICAL SITE INFECTIONS

- **1 in 7** SSIs were caused by urgent or serious antibiotic-resistant threats.

CAUTIs

CATHETER-ASSOCIATED URINARY TRACT INFECTIONS

- **1 in 10** CAUTIs were caused by urgent or serious antibiotic-resistant threats.

C. difficile Infections

- **9 in 10** patients diagnosed with *C.difficile* are related to healthcare.

SOURCE: CDC Vital Signs, March 2016. Data used for this analysis was reported to CDC's National Healthcare Safety Network.

What Can Be Done?

The Federal government is

- **Preventing infections and their spread:** Conducting surveillance for HAIs and antibiotic resistance, using data to target prevention, and promoting implementation of recommendations. Identifying emerging resistant threats. Promptly responding to and controlling outbreaks.
- **Improving antibiotic use:** Promoting appropriate use and providing guidance/assessing implementation of stewardship programs across health care settings.
- **Promoting use of data:** Preventing HAIs and improving antibiotic use to better protect patients. Collaborating with partners to implement prevention and stewardship strategies, including in federal facilities.
  www.cdc.gov/hai/surveillance/ar-patient-safety-atlas.html

Healthcare providers need to

- **Prevent infections and their spread:** Follow recommendations for preventing *C. difficile* and infections that can occur after surgery or related to single-use catheters placed in the body. Follow recommended actions with every patient every time. Isolate patients when appropriate, and know antibiotic resistance patterns in your facility/area.
- **Improve antibiotic use:** Prescribe antibiotics correctly. Get cultures, start antibiotics promptly, and reassess 24-48 hours later. Know when to stop antibiotic treatment.

Health care facility CEOs/ administrators can

- **Prevent infections and their spread:** Follow CDC guidelines for preventing infections and promote data use to target prevention and improvements. Make sure staff follow hand hygiene, isolation, and environmental/device cleaning practices.
  www.cdc.gov/hai/prevent/tap.html
- **Improve antibiotic use:** Establish stewardship program and enroll your hospital to submit data to CDC's Antimicrobial Use and Resistance (AUR) Module to target improvements.
  http://www.cdc.gov/nhsn/acute-care-hospital/aur/index.html
- **Prioritize:** Make infection prevention, sepsis prevention, and stewardship a priority; participate in a Quality Innovation Network.

State and local health departments can

- **Prevent infections and their spread:** Set goals, monitor your state's progress in preventing infections, promote action, and achieve regional prevention. Support institutions to meet goals.
  www.cdc.gov/hai/progress-report
- **Improve antibiotic use:** Support stewardship efforts and know antibiotic resistance patterns in your area.

Patients and their families can

- **Prevent infections and their spread:** If you have a catheter, ask daily if it's necessary. If you are having surgery, ask your doctor how he/she prevents infections. Insist that everyone clean their hands before touching you. Clean your hands often. Explore Hospital Compare tool for HAI data.
  https://www.medicare.gov/hospitalcompare/search.html
- **Improve antibiotic use:** Ask if your antibiotic is necessary and what is being done to improve antibiotic use and protect patients.

For more information, please contact
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348
www.cdc.gov
Centers for Disease Control and Prevention
1600 Clifton Road NE, Atlanta, GA 30333
Publication date: 03/03/2016

CS262695A