Antibiotic Stewardship in Human Health-
Progress and Opportunities

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How do we define antibiotic stewardship?

- Antibiotic stewardship is the effort to:
  - Measure antibiotic prescribing
  - Improve antibiotic prescribing so that antibiotics are only prescribed and used when needed
  - Minimize misdiagnoses or delayed diagnoses leading to underuse of antibiotics
  - Ensure that the right drug, dose, and duration are selected when an antibiotic is needed

It’s about patient safety and delivering high-quality healthcare.
Have we made any progress?

2011-14 antibiotic prescribing
All ages: decreased 5%
Pediatric: decreased 14%
Adults: no change
How much antibiotic use is unnecessary in outpatient settings?

70% Necessary Prescriptions (Still need to improve drug selection, dose and duration)

At least 30% Unnecessary Prescriptions

In U.S. Doctor’s Offices and Emergency Departments

Represents unnecessary risks to patients of adverse drug events, Clostridium difficile infection and development of antibiotic resistance

Measuring Antibiotic Use in Hospitals

- CDC launched the National Healthcare Safety Network Antimicrobial Use Option and created a benchmark measure of antibiotic use.
- CDC worked with The Pew Charitable Trusts and stewardship experts to identify key targets to support the goal of reducing inappropriate hospital antibiotic use by 20% by 2020.
  - Two agents: Vancomycin, Quinolones
  - Two infections: Community acquired pneumonia, urinary tract infections
- Appropriateness being assessed through the 2016-17 Emerging Infections Program hospital healthcare associated infections and antibiotic use survey in ~200 hospitals in 10 states.
Improving Prescribing Requires Changing Behavior

- Education alone is not enough
- All settings
  - Audit and feedback
  - Clinical decision support
- Hospitals
  - Restriction policies
  - Antibiotic time-out
- Outpatient settings
  - Delayed prescribing or watchful waiting
  - Communications training
  - Commitment posters
Commitment Posters from Illinois, Texas, New York, and CDC

Add your picture and signature here


blogs.cdc.gov/safehealthcare/?p=5900

cdc.gov/getsmart/community/materials-references/print-materials/hcp/index.html
CDC’s Core Elements of Antibiotic Stewardship: Hospitals, Critical Access Hospitals, Nursing Homes, Outpatient Settings

https://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html;
https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html
https://www.cdc.gov/getsmart/healthcare/implementation/core-elements-small-critical.html
Policies: Partners Increasing Uptake of Antibiotic Stewardship

- Anthem and Blue Cross/Blue Shield Quality-In-Sights® Hospital Incentive Program (Q-HIP®)
  - Developed a measure focused on implementation of comprehensive Antibiotic Stewardship program meeting CDC’s Hospital Core Elements

- CMS
  - Quality Innovation Network and Quality Improvement Organizations (QIN-QIOs)
    - Outpatient Implementation of the Core Elements
    - Target 80% of recruited practices to implement the Core Elements by July 2018
  - Nursing homes required to have stewardship programs

- The Joint Commission—new accreditation standard requires hospitals to have stewardship programs

- State legislation—Missouri enacted legislation requiring hospitals to have stewardship programs and report antibiotic use data
Communications: U.S. Antibiotic Awareness Week (formerly Get Smart About Antibiotics Week)

- This year: November 13-19, 2017
- Increase awareness of antibiotic resistance and the importance of appropriate use of antibiotics
- Partner with a variety of organizations, including health agencies in more than 40 countries
- Engage the media to disseminate messages on the radio, in print, on television and in social media
- Launching a new educational effort that will replace the Get Smart campaign
Progress and Opportunities

- Modest improvements in antibiotic prescribing have been observed
- Opportunities exist to continue to improve antibiotic prescribing
- Uptake of stewardship programs and activities is increasing rapidly
- CDC is working with partners to scale up and sustain stewardship in all healthcare settings
- Federal agencies and partners are committed to improving prescribing
- CDC is launching a new educational effort to reach new audiences
- Changing behavior is hard and it takes time
www.cdc.gov/antibiotic-use
antibioticuse@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
### Examples of Antibiotic Stewardship Targets

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<th>Category</th>
<th>Hospitals</th>
<th>Nursing Homes</th>
<th>Outpatient</th>
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| Most frequent diagnoses leading to antibiotic prescribing | • Pneumonia (34%)  
 • Urinary tract infection (UTI) (17%)  
 • Skin and soft tissue infections (15%) | • UTI (32%)  
 • Pneumonia (25%)  
 • Skin and soft tissue infections (18%) | • Sinusitis (11%)  
 • Acute otitis media (9%)  
 • Pharyngitis (9%)  
 • Colds & bronchitis (10%)  
 • UTI (7%)  
 • Pneumonia (2%) |
| Antibiotics of concern | • Fluoroquinolones  
 • 3rd & 4th gen cephalosporins  
 • Carbapenems  
 • Beta lactam/beta lactamase inhibitor combinations | • Fluoroquinolones | • Fluoroquinolones  
 • Macrolides |
| Key provider groups | • Antibiotic stewardship program  
 • Pharmacists, infectious disease, critical care, hospitalists  
 • C-suite | • Medical directors  
 • Nursing directors  
 • Consultant pharmacist | • Adult & Pediatric primary care, Urgent care  
 • Nurse practitioners and Physician assistants  
 • Dentists (10% of antibiotics) |