Today’s discussion

- Overview of antimicrobial resistance and antibiotic use in the community setting
- Using medication data to better understand antibiotic use in the community (outpatient) setting
- Get Smart: Know When Antibiotics Work program goals and activities
- National policy and strategy related to antibiotic stewardship in the United States
The burden of antimicrobial resistance in the United States

Estimated minimum number of illnesses and deaths caused annually by antibiotic resistance*:

At least 2,049,442 illnesses, 23,000 deaths

*bacteria and fungus included in this report
Antibiotic prescription costs in billions ($US), by treatment setting, United States

For 2009, total costs $10.7 billion

Healthy People 2020
IID-5 Reduce the percent of outpatient visits for ear infections where antibiotics were prescribed for ear infections for young children

- Numerator: Number of physician visits with an antibiotic course ordered, supplied, administered, or continued among children under age 5 years diagnosed with an ear infection (ICD-9-CM codes 381.0, 381.4, 382.0, 382.4, or 382.9)
- Denominator: Number of children under age 5 years diagnosed with an ear infection (ICD-9-CM codes 381.0, 381.4, 382.0, 382.4, or 382.9)
- National Data Source National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS)
Healthy People 2020
IID-6 Reduce the percent of outpatient visits where antibiotics were prescribed for the sole diagnosis of the common cold

- **Numerator:** Number of physician visits with antibiotic courses ordered, supplied, administered, or continued among persons diagnosed with the common cold (ICD-9-CM codes 460.0, 465.0)

- **Denominator:** Number of persons diagnosed with the common cold (ICD-9-CM codes 460.0, 465.0)

- **Data source:** National Hospital Ambulatory Medical Care Survey (NHAMCS) and National Ambulatory Medical Care Survey (NAMCS)
Healthy People 2020 measures related to appropriate antibiotic use

<table>
<thead>
<tr>
<th>Measure</th>
<th>2006-07 (%)</th>
<th>2008-09 (%)</th>
<th>Target (%)</th>
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Antibiotic prescribing for adults in ambulatory care in the USA, 2007-09

- Antibiotics were prescribed during 101 million ambulatory visits annually, representing 10% of all visits.
- Broad-spectrum agents were prescribed during 61% of visits in which antibiotics were prescribed.
- Antibiotics were most commonly prescribed for respiratory conditions (41% of antibiotics), skin/mucosal conditions (18%) and urinary tract infections (9%).

Percentage of antibiotics prescribed according to antibiotic classes for adult ambulatory visits, 2007–09

Note: Totals exceed 100% because in some visits multiple antibiotics were prescribed.
First published online July 25, 2013
*Comparing 1993–94 to 2007–08

Most of these acute respiratory infections do not require antibiotic treatment; patients may benefit from symptomatic therapy.
Strengths and limitations of NAMCS/NHAMCS for assessing antibiotic use in the community

Limitations

- Lack direct links between the prescriptions and diagnoses
- Time delays in data release, limiting our ability to use more recent data to assess prescribing
- Data only capture physician office, hospital outpatient departments, and emergency department visits (no urgent care, telephone or internet, limited PA/NP visits)

Strengths

- The use of certain outpatient antibiotics can be uniquely assessed in the NAMCS/NHAMCS, as these data are nationally-representative and contain both diagnoses and therapy
Additional data used to understand antibiotic use in the U.S.

- **Quality measures**
  - Healthcare Effectiveness Data and Information Set (HEDIS) measures

- **IMS Health©**
  - Proprietary data; “census” of prescriptions in the retail setting in U.S.

- **Focus groups – qualitative research**
  - Adverse drug events
  - Drug selection
Get Smart: Know When Antibiotics Work

- Launched the *National Campaign for Appropriate Antibiotic Use in the Community* in 1995, which was renamed *Get Smart: Know When Antibiotics Work* in 2003.
- Work closely with a variety of partners to reduce inappropriate antibiotic use in the community.
- Focus on increasing awareness about antibiotic resistance with an aim to improve antibiotic prescribing and use.

- [www.cdc.gov/getsman](http://www.cdc.gov/getsman)
Get Smart Activities to Improve Antibiotic Use

- Educate general public and providers about antibiotic resistance and appropriate antibiotic use
  - Get Smart About Antibiotics Week
  - Detailing sheets
  - Tools (viral prescribing pad)
  - Curricula and continuing education
- Measure and characterize prescribing practices
- Develop policy (e.g. guidelines)
- Evaluate interventions
- Foster partnerships
Efforts to improve antibiotic use: Get Smart About Antibiotics Week

- This year: November 16-22, 2015
- Increase awareness of antibiotic resistance and the importance of appropriate use of antibiotics in all healthcare settings
- 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

[Contact website: www.cdc.gov/getsav](http://www.cdc.gov/getsav)
Efforts to improve antibiotic use: policies and clinical practice guidelines

- Guidelines establish standards of care, focus quality improvement projects, and improve patient outcomes
- Get Smart has helped develop clinical practice guidelines
  - Collaboration with professional medical associations
  - Emphasis on respiratory infections
  - Guidelines for both adult and pediatric patients
Interventions to improve outpatient prescribing

- Print materials alone have little impact on prescribing
- Audit and feedback of current practice has been successful
- Academic detailing, opinion leader education effective
- Clinical decision support promising
- Other options:
  - Delayed prescribing practices
  - Poster interventions involving public commitment to prescribe judiciously

White House Forum on Antibiotic Stewardship

- June 2, 2015 in Washington, DC
- Over 150 organizations across human and animal health:
  - ~roughly 2/3 human health representing inpatient settings (hospitals, long-term care), outpatient settings, patient advocates, diagnostic & pharmaceutical manufacturers
  - ~roughly 1/3 animal health partners representing food producers, retailers, veterinary societies and organizations, animal pharmaceuticals
  - Government-wide collaboration (CDC, AHRQ, CMS, FDA, USDA, DOD, VA) to support implementation and acceleration of CARB Action Plan
The path forward for Get Smart

- Study interventions to improve antibiotic prescribing and introduce “stewardship” in ambulatory care
- Develop a toolkit for stewardship in outpatient settings
- Enhance communication (Get Smart About Antibiotics Week and new provider and patient tools)
- Engage new partners, such as health plans and states where antibiotics are prescribed the most
- Explore regulatory processes to scale up interventions and improve antibiotic prescribing in the outpatient setting
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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.