



Prevention & Antibiotic Stewardship: Improving Antibiotic Use in Human Health

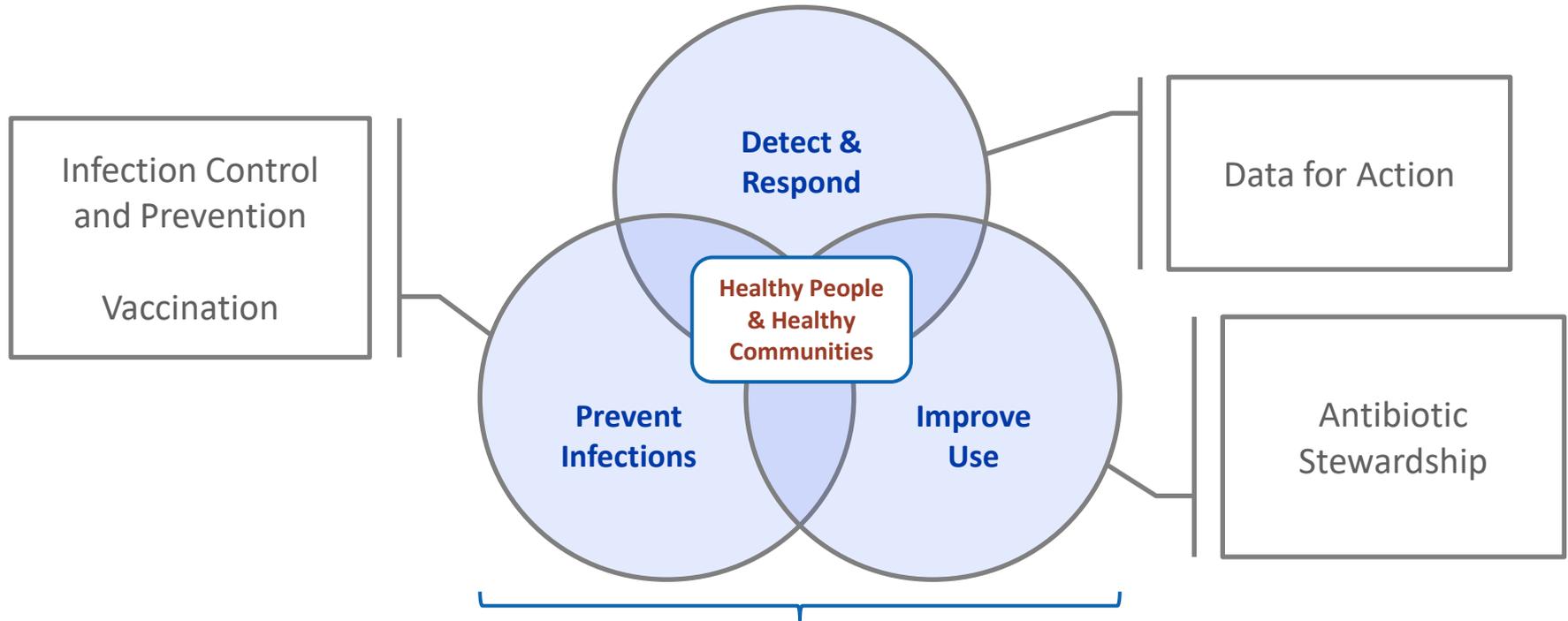
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NIAA Antibiotics Symposium

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How CDC and Public Health Protect People and Communities



Innovation: CDC continually improves and develops innovative approaches to maximize public health impact

Human Healthcare: Where Do We Want to Be?

- Every patient gets optimal antibiotic treatment
 - Antibiotics only when they are needed
 - The right antibiotic
 - At the right dose
 - For the right duration
- Every healthcare facility implements antibiotic stewardship programs
- Every provider incorporates antibiotic stewardship practices



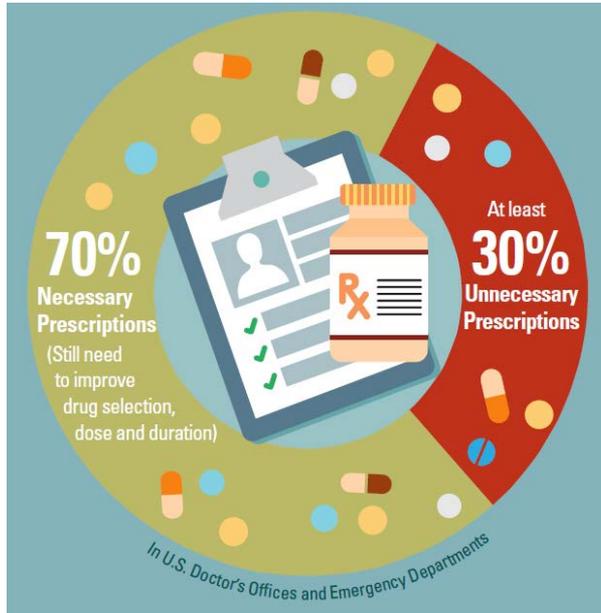
How CDC is Working to Improve U.S. Antibiotic Use

- Tackling antibiotic misuse and overuse in all healthcare settings
- Setting national prevention goals/targets and defining concrete measures
- Measuring antibiotic use to guide improvement and track progress
- Establishing standards and guidance for program implementation, e.g., Core Elements
- Pairing education with provider-level interventions
- Working to accelerate change through policy levers
- Developing innovative approaches to expand implementation and develop new interventions
- Working with diverse partners—federal, state, local, academic, healthcare, industry, consumers, policymakers—to implement what we know works

Policies that Protect Patients

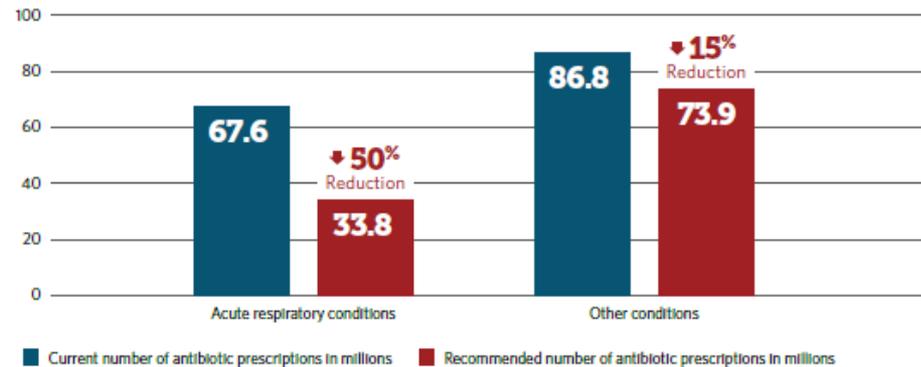
- The Joint Commission developed, with CDC expertise, a **new standard that calls for antibiotic stewardship programs in diverse healthcare settings**
 - Hospitals and critical access hospitals (based on CDC core elements): effective early 2017
 - Ambulatory health care organizations, nursing care centers, office-based surgery practices (based on national guidelines)
- **Federal policies (CMS) that**
 - Require healthcare facilities have infection prevention and control programs that include antibiotic stewardship and antibiotic use monitoring
 - May require antibiotic use as part of quality reporting

Setting National Targets: Outpatient Antibiotic Prescribing



47 million unnecessary antibiotic prescriptions per year

Outpatient Antibiotic Prescribing Reduction Targets



Source: Analysis of NAMCS and NHAMCS data on U.S. antibiotic prescribing, 2010-2011

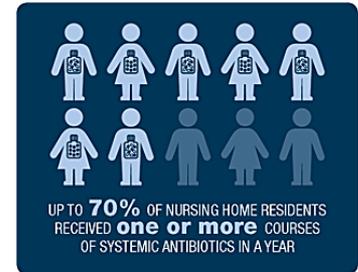
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By 2020, significant outcomes of Goal 1 will include: **(CARB National Action Plan)**

- Establishment of antibiotic stewardship programs in all acute care hospitals and improved antibiotic stewardship across all healthcare settings.
- Reduction of inappropriate antibiotic use by 50% in outpatient settings and by 20% in inpatient settings.

What We Know about U.S. Outpatient & Nursing Home Antibiotic Use

- Outpatient:
 - The U.S. uses lots of outpatient antibiotics compared to other countries; there is a lot of geographic variability within the U.S.
 - There is a lot of unnecessary use, especially for respiratory conditions, in doctors' offices and emergency departments
- Nursing Home:
 - Up to 70% of residents receive an antibiotic each year
 - Estimate 40-75% of antibiotic use in inappropriate or unnecessary
 - Lack national data



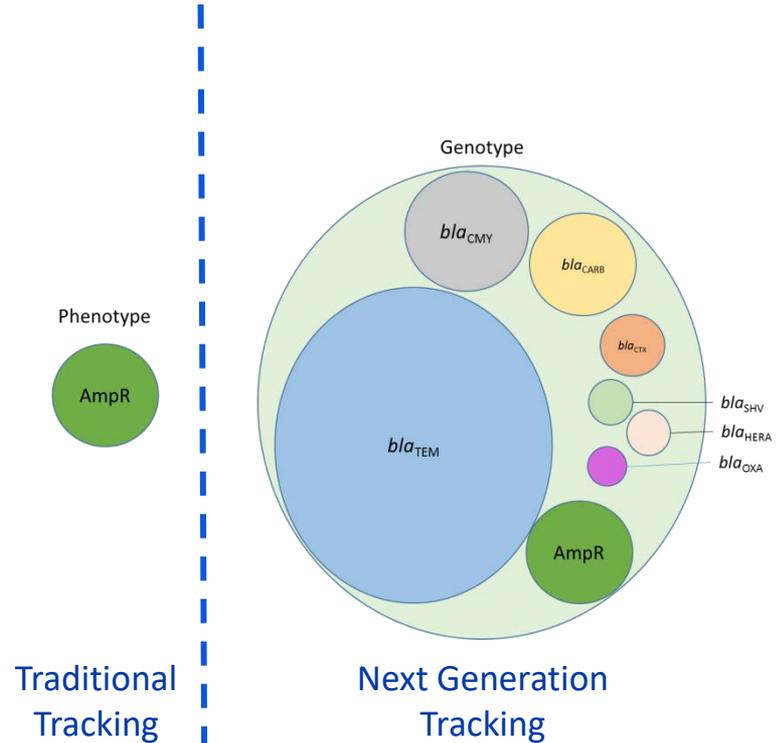
CDC's Get Smart Campaign



- CDC launched the National Campaign for Appropriate Antibiotic Use in the Community in 1995
- Get Smart Campaign launched in 2003 with a focus on improving antibiotic use for respiratory infections in children and adults in doctors' offices
- Now includes hospitals and long-term care facilities
- Additional focus on improving quality of healthcare and preventing adverse events (e.g., *Clostridium difficile* colitis)
- Get Smart About Antibiotics Week annual observance November 14-20

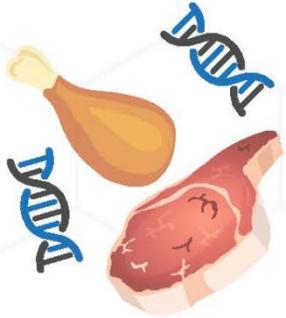
Next Generation Tracking: Whole Genome Sequencing

- WGS provides a very precise DNA fingerprint
 - Enables rapid detection of genes that make bacteria resistant to antibiotics critically important to human medicine
 - Allows public health officials to pinpoint investigations of outbreaks caused by antibiotic resistant pathogens/mechanisms
- WGS provides more detailed data to enable public health to track antibiotic resistance patterns and trends more effectively



Building State Capacity to Fight Foodborne Infections:

Conduct whole genome sequencing to enhance investigations, patient interviews



Detect and describe resistant bacteria rapidly.

Increase state laboratory capacity to rapidly uncover foodborne drug-resistant bacteria, including *Campylobacter* and *Salmonella*, using whole genome sequencing (WGS).



Improve health outcomes.

With increased lab capacity, track and investigate life-threatening *Salmonella* infections to prevent outbreaks and provide rapid response.



Find outbreaks faster by increasing lab testing.

Test every *Salmonella* isolate for drug resistance.



Promote responsible antibiotic use in food-producing animals.

Promote responsible use of antibiotics to prevent drug resistance by providing tools and information to practicing veterinarians