Combating the Rise of Antibiotic Resistant Bacteria

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Working Together is Essential
Antibiotics have been a critical public health tool since the discovery of penicillin in 1928, saving the lives of millions of people around the world. Emergence of drug resistance in bacteria is undermining our ability to treat bacterial infections and perform a range of modern medical procedures, including chemotherapy, surgery, dialysis, and organ transplantation.

In the U.S. every year:

- Drug-resistant bacteria cause 23,000 deaths and 2 million illnesses
- $20 billion excess direct healthcare costs
- $35 billion in indirect costs due to loss in productivity

By 2050 globally:

- Drug-resistant infections could result in > 10 million deaths per year
- Cost up to $100 trillion in losses to world economy
Overview of CARB

- **National Strategy on Combating Antibiotic-Resistant Bacteria** (2014)
- **Executive Order** (2014)
- **National Action Plan for Combating MultiDrug-Resistant Tuberculosis** (under development)
Executive Order 13676: Combating Antibiotic-Resistant Bacteria

- Establishes a New Task Force for Combating Antibiotic-Resistant Bacteria
- Establishes the Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria
- Improves Antibiotic Stewardship
- Strengthens National-Surveillance Efforts for Resistant Bacteria
- Promotes the Development of New and Next-Generation Antibiotics and Diagnostics
- Strengthens International Cooperation
National Strategy on Combating Antibiotic-Resistant Bacteria

• Provides detailed actions for five interrelated national goals to be achieved by 2020 in collaboration with partners in healthcare, public health, veterinary medicine, agriculture, and food safety, as well as in academic, Federal, and industrial research and development.

  1. Slow the emergence and prevent the spread of resistant bacteria.
  2. Strengthen National efforts to identify and report cases of antibiotic resistance.
  3. Advance the development and use of rapid diagnostic tests for the identification and characterization of antibiotic-resistant bacteria.
  4. Accelerate basic and applied research and development for new antibiotics as well as other therapeutics and vaccines.
  5. Improve international collaboration, capacities for antibiotic-resistance prevention, surveillance, control, and antibiotic research and development.

• Collectively, the actions outlined in the National Strategy will enhance antibiotic stewardship; strengthen national-surveillance capabilities; and expand the arsenal of diagnostics, antibiotics, and other countermeasures available to combat resistant bacteria.
• At the request of the President, the PCAST, working with U.S. government and non-government experts, developed a set of practical and actionable steps that the Federal government could take to address the rise of antibiotic resistance through focused efforts in three areas:

1. Improved surveillance of antibiotic-resistant bacteria to enable effective response, stop outbreaks, and limit the spread of antibiotic-resistant organisms.

2. Increased longevity of current and new antibiotics, by promoting appropriate use, preventing the spread of antibiotic-resistant bacteria, and scaling up proven interventions to decrease the rate at which microbes develop resistance.

3. Increased rates of discovery and development of new antibiotics.
National Action Plan for Combating Antibiotic-Resistant Bacteria

- Identifies critical actions to be taken by key Federal departments and agencies to combat the rise of antibiotic-resistant bacteria.

- Developed by the interagency Task Force for CARB in response to Executive Order 13676.

- Outlines steps for implementing the National Strategy on CARB and addressing the policy recommendations of the President’s Council of Advisors on Science and Technology (PCAST) report on Combating Antibiotic Resistance.

- Outlines Federal activities over the next five years to enhance domestic and international capacity to prevent and contain outbreaks of antibiotic-resistant infections; maintain the efficacy of current and new antibiotics; and develop and deploy next-generation diagnostics, antibiotics, vaccines, and other therapeutics.

- Activities are consistent with investments in the President’s FY 2016 Budget, which nearly doubles the amount of Federal funding for combating and preventing antibiotic resistance to more than $1.2 billion.
National Action Plan for Combating Multidrug-Resistant Tuberculosis

• Identifies critical actions to be taken by key Federal departments and agencies to combat the rise of Multidrug-Resistant Tuberculosis.

• Outlines Aggressive National Targets
  – By 2016
    • Initiate 25% of patients with MDR-TB on appropriate treatment in the 10 countries with the highest burdens of MDR-TB.
  – By 2018
    • Initiate 35% of patients with MDR-TB on appropriate treatment in the 10 countries with the highest burdens of MDR-TB.
  – By 2020
    • Reduce by 15% the number of MDR-TB infections in the United States.
    • Initiate 50% of patients with MDR-TB on appropriate treatment in the 10 countries with the highest burdens of MDR-TB.
    • Reduce global TB incidence by 25% compared to 2015 levels.
    • Successfully treat at least 16 million TB patients in high-burden countries
    • Achieve and maintain treatment success rates of 90% for individuals in high-burden countries with drug-susceptible TB.
National Action Plan for Combating Multidrug-Resistant Tuberculosis

• GOAL 1: Strengthen Domestic Capacity to Combat MDR-TB.
• GOAL 2: Improve International Capacity and Collaboration to Combat MDR-TB
• GOAL 3: Accelerate Basic and Applied Research and Development to Combat MDR-TB
• National Action Plan for Combating MDR TB should be released later this Fall
Conclusions

• Implementation of the CARB and MDR-TB National Action Plans will require the sustained, coordinated, and complementary efforts of individuals and groups around the world, including public and private sector partners, healthcare providers, healthcare leaders, veterinarians, agriculture industry leaders, manufacturers, policymakers, and patients.

• Efforts carried out as part of the National Action Plans will help the Federal government curb the rise of antibiotic-resistant bacteria with the goal of saving lives.