

# ANTIBIOTIC RESISTANCE THREATS IN THE UNITED STATES, 2013

<http://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf#page=6>

## Executive Summary

*Antibiotic Resistance Threats in the United States, 2013* is a snapshot of the complex problem of antibiotic resistance today and the potentially catastrophic consequences of inaction. The overriding purpose of this report is to increase awareness of the threat that antibiotic resistance poses and to encourage immediate action to address the threat. This document can serve as a reference for anyone looking for information about antibiotic resistance. It is specifically designed to be accessible to many audiences. For more technical information, references and links are provided.

This report covers bacteria causing severe human infections and the antibiotics used to treat those infections. In addition, *Candida*, a fungus that commonly causes serious illness, especially among hospital patients, is included because it, too, is showing increasing resistance to the drugs used for treatment. When discussing the pathogens included in this report, *Candida* will be included when referencing “bacteria” for simplicity. Also, infections caused by the bacteria *Clostridium difficile* (*C. difficile*) are also included in this report. Although *C. difficile* infections are not yet significantly resistant to the drugs used to treat them, most are directly related to antibiotic use and thousands of Americans are affected each year.

Drug resistance related to viruses such as HIV and influenza is not included, nor is drug resistance among parasites such as those that cause malaria. These are important problems but are beyond the scope of this report. The report consists of multiple one or two page summaries of cross-cutting and bacteria-specific antibiotic resistance topics. The first section provides context and an overview of antibiotic resistance in the United States. In addition to giving a national assessment of the most dangerous antibiotic resistance threats, it summarizes what is known about the burden of illness, level of concern, and antibiotics left to defend against these infections. This first section also includes some basic background information, such as fact sheets about antibiotic safety and the harmful impact that resistance can have on high-risk groups, including those with chronic illnesses such as cancer.

CDC estimates that in the United States, more than two million people are sickened every year with antibiotic-resistant infections, with at least 23,000 dying as a result. The estimates are based on conservative assumptions and are likely minimum estimates. They are the best approximations that can be derived from currently available data.

Regarding level of concern, CDC has — for the first time — prioritized bacteria in this report into one of three categories: urgent, serious, and concerning

## Urgent Threats

*Clostridium difficile*

Carbapenem-resistant Enterobacteriaceae (CRE)

Drug-resistant *Neisseria gonorrhoeae*

## Serious Threats

Multidrug-resistant *Acinetobacter*

Drug-resistant *Campylobacter*

Fluconazole-resistant *Candida* (a fungus)

Extended spectrum  $\beta$ -lactamase producing Enterobacteriaceae (ESBLs)

Vancomycin-resistant *Enterococcus* (VRE)

Multidrug-resistant *Pseudomonas aeruginosa*

Drug-resistant Non-typhoidal *Salmonella*

Drug-resistant *Salmonella* Typhi

Drug-resistant *Shigella*

Methicillin-resistant *Staphylococcus aureus* (MRSA)

Drug-resistant *Streptococcus pneumoniae*

Drug-resistant tuberculosis

### **Concerning Threats**

Vancomycin-resistant *Staphylococcus aureus* (VRSA)

Erythromycin-resistant Group A *Streptococcus*

Clindamycin-resistant Group B *Streptococcus*

The second section describes what can be done to combat this growing threat, including information on current CDC initiatives . Four core actions that fight the spread of antibiotic resistance are presented and explained, including 1) preventing infections from occurring and preventing resistant bacteria from spreading, 2) tracking resistant bacteria, 3) improving the use of antibiotics, and 4) promoting the development of new antibiotics and new diagnostic tests for resistant bacteria .

The third section provides summaries of each of the bacteria in this report . These summaries can aid in discussions about each bacteria, how to manage infections, and implications for public health . They also highlight the similarities and differences among the many different types of infections .

This section also includes information about what groups such as states, communities, doctors, nurses, patients, and CDC can do to combat antibiotic resistance . Preventing the spread of antibiotic resistance can only be achieved with widespread engagement, especially among leaders in clinical medicine, healthcare leadership, agriculture, and public health . Although some people are at greater risk than others, no one can completely avoid the risk of antibiotic-resistant infections . Only through concerted commitment and action will the nation ever be able to succeed in reducing this threat .

A reference section provides technical information, a glossary, and additional resources .

Any comments and suggestions that would improve the usefulness of future publications are appreciated and should be sent to

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