



## WHO's first global report on antibiotic resistance reveals serious, worldwide threat to public health

New WHO report provides the most comprehensive picture of antibiotic resistance to date, with data from 114 countries

30 APRIL 2014 | GENEVA - A new report by WHO—its first to look at antimicrobial resistance, including antibiotic resistance, globally reveals that this serious threat is no longer a prediction for the future, it is happening right now in every region of the world and has the potential to affect anyone, of any age, in any country. **Antibiotic resistance—when bacteria change so antibiotics no longer work in people who need them to treat infections—is now a major threat to public health.**

**“Without urgent, coordinated action by many stakeholders, the world is headed for a post-antibiotic era, in which common infections and minor injuries which have been treatable for decades can once again kill,”** says Dr Keiji Fukuda, WHO's Assistant Director-General for Health Security. “Effective antibiotics have been one of the pillars allowing us to live longer, live healthier, and benefit from modern medicine. **Unless we take significant actions to improve efforts to prevent infections and also change how we produce, prescribe and use antibiotics, the world will lose more and more of these global public health goods and the implications will be devastating.**”

### Key findings of the report

The report, "Antimicrobial resistance: global report on surveillance", notes that resistance is occurring across many different infectious agents but the report focuses on antibiotic resistance in seven different bacteria responsible for common, serious diseases such as bloodstream infections (sepsis), diarrhoea, pneumonia, urinary tract infections and gonorrhoea. The results are cause for high concern, documenting resistance to antibiotics, especially “last resort” antibiotics, in all regions of the world.

### Key findings from the report include:

- Resistance to the treatment of last resort for life-threatening infections caused by a common intestinal bacteria, **Klebsiella pneumoniae**—carbapenem antibiotics—has spread to all regions of the world. *K. pneumoniae* is a major cause of hospital-acquired infections such as pneumonia, bloodstream infections, infections in newborns and intensive-care unit patients. In some countries, because of resistance, carbapenem antibiotics would not work in more than half of people treated for *K. pneumoniae* infections.
- Resistance to one of the most widely used antibacterial medicines for the treatment of urinary tract infections caused by *E. coli*—fluoroquinolones—is very widespread. In the 1980s, when



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these drugs were first introduced, resistance was virtually zero. Today, there are countries in many parts of the world where this treatment is now ineffective in more than half of patients.

- Treatment failure to the last resort of treatment for gonorrhoea—third generation cephalosporins—has been confirmed in Austria, Australia, Canada, France, Japan, Norway, Slovenia, South Africa, Sweden and the United Kingdom. An estimated 106 million people are infected with gonorrhoea every year (2008 estimates).

**- Antibiotic resistance causes people to be sick for longer and increases the risk of death. For example, people with MRSA (methicillin-resistant Staphylococcus aureus) are estimated to be 64% more likely to die than people with a non-resistant form of the infection. Resistance also increases the cost of health care with lengthier stays in hospital and more intensive care required.**

### **Ways to fight antibiotic resistance**

The report reveals that key tools to tackle antibiotic resistance—such as basic systems to track and monitor the problem—show gaps or do not exist in many countries. While some countries have taken important steps in addressing the problem, every country and individual needs to do more.

Other important actions include preventing infections from happening in the first place—through better hygiene, access to clean water, infection control in health-care facilities, and vaccination—to reduce the need for antibiotics. **WHO is also calling attention to the need to develop new diagnostics, antibiotics and other tools to allow healthcare professionals to stay ahead of emerging resistance.**

This report is kick-starting a global effort led by WHO to address drug resistance. This will involve the development of tools and standards and improved collaboration around the world to track drug resistance, measure its health and economic impacts, and design targeted solutions.

### **How to tackle resistance**

People can help tackle resistance by:

- Using antibiotics only when prescribed by a doctor
- Completing the full prescription, even if they feel better
- Never sharing antibiotics with others or using leftover prescriptions



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Health workers and pharmacists can help tackle resistance by:

- Enhancing infection prevention and control
- Only prescribing and dispensing antibiotics when they are truly needed
- Prescribing and dispensing the right antibiotic(s) to treat the illness

Policymakers can help tackle resistance by:

- Strengthening resistance tracking and laboratory capacity
- Regulating and promoting appropriate use of medicines

Policymakers and **industry** can help tackle resistance by:

- **Fostering innovation and research and development of new tools**
- Promoting cooperation and information sharing among all stakeholders

The report—which also includes information on resistance to medicines for treating other infections such as HIV, malaria, tuberculosis and influenza—provides the most comprehensive picture of drug resistance to date, incorporating data from 114 countries.

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### **Highlights of the report by WHO region**

#### WHO African Region

The report reveals major gaps in tracking of antibiotic resistance in the WHO African Region, with data gathered in a limited number of countries. While it is not possible to assess the true extent of the problem with the data available, that which is available is worrying. Significant resistance is reported for several bacteria that are spread in hospitals and communities. This includes significant *E. coli* resistance to third generation cephalosporins and fluoroquinolones—two important and commonly used types of antibacterial medicine. In some parts of the region, **as many as 80% of of *Staphylococcus aureus* infections are reported to be resistant to methicillin (MRSA), meaning treatment with standard antibiotics does not work.**

#### WHO Region of the Americas

The Pan American Health Organization, WHO's Regional Office for the Americas, coordinates the collection of data on antibiotic resistance from hospitals and laboratories in 21 countries in the Region. The results show high levels of **E. coli** resistance to third generation



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cephalosporins and fluoroquinolones—two important and commonly used types of antibacterial medicine—in the Americas. Resistance to third generation cephalosporins in *K. pneumoniae* is also high and widespread. In some settings, **as many as 90% of *Staphylococcus aureus* infections are reported to be methicillin-resistant (MRSA), meaning treatment with standard antibiotics does not work.**

### WHO Eastern Mediterranean Region

Data in the report show extensive antibiotic resistance across the WHO Eastern Mediterranean Region. In particular, there are high levels of *E. coli* resistance to third generation cephalosporins and fluoroquinolones—two important and commonly used types of antibacterial medicine. Resistance to third generation cephalosporins in *K. pneumoniae* is also high and widespread. In some parts of the Region, more than half of *Staphylococcus aureus* infections are reported to be methicillin-resistant (MRSA), meaning that treatment with standard antibiotics does not work. The report reveals major gaps in tracking of antibiotic resistance in the Region. WHO's Regional Office for the Eastern Mediterranean has identified strategic actions to contain drug resistance and is supporting countries to develop comprehensive national policies, strategies and plans.

### WHO European Region

The report reveals high levels of resistance to third generation cephalosporins in *K. pneumoniae* throughout the WHO European Region. In some settings, **as many as 60% of *Staphylococcus aureus* infections are reported to be methicillin-resistant (MRSA), meaning that treatment with standard antibiotics does not work.** The report finds that although most countries in the EU have well-established national and international systems for tracking antibiotic resistance, countries in

other parts of the Region urgently need to strengthen or establish such systems. WHO's Regional Office for Europe and its partners are supporting these countries through the newly-established Central Asian and Eastern European Surveillance of Antimicrobial Resistance network (CAESAR). The aim of CAESAR is to set up a network of national systems to monitor antibiotic resistance in all countries of the WHO European Region for standardized data collection so that information is comparable.

### WHO South-East Asia Region

The available data reveal that antibiotic resistance is a burgeoning problem in WHO's South-East Asia Region, which is home to a quarter of the world's population. The report's results show high levels of *E. coli* resistance to third generation cephalosporins and fluoroquinolones—two important and commonly used types of antibacterial medicine—in the Region. Resistance to third generation cephalosporins in *K. pneumoniae* is also high and widespread. In some parts of the Region, more than one quarter of *Staphylococcus aureus* infections are reported to be methicillin-resistant (MRSA), meaning that treatment with standard antibiotics does not work. In 2011, the health ministers of the Region articulated their commitment to combat drug resistance



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through the Jaipur Declaration. Since then, there has been growing awareness of the need for appropriate tracking of drug resistance, and all countries have agreed to contribute information to a regional database. Dr Poonam Khetrapal Singh, WHO Regional Director for South-East Asia, has identified drug resistance as a priority area of WHO's work in the Region.

### WHO Western Pacific Region

Collaboration on tracking of antibiotic resistance between countries in the WHO Western Pacific Region was established in the 1980s, but suffered setbacks following a series of emergencies in the early 2000s. However, many countries in the region have long-established national systems for tracking resistance. Recently, WHO's Regional Office for the Western Pacific has taken steps to revive the regional collaboration. The report reveals high levels of *E. coli* resistance to fluoroquinolones—an important and commonly used type of antibacterial medicine—in the Region. Resistance to third generation cephalosporins in *K. pneumoniae* is also widespread. In some parts of the Region, as many as 80% of *Staphylococcus aureus* infections are reported to be methicillin-resistant (MRSA), meaning that treatment with standard antibiotics does not work.

1CORRIGENDUM (22 September 2014) An error was identified in the number of new cases of gonorrhoea and has now been corrected from "More than 1 million people are infected with gonorrhoea around the world every day" to "An estimated 106 million people are infected with gonorrhoea every year (2008 estimates)".

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<http://www.who.int/mediacentre/news/releases/2014/amr-report/en/>