Antibiotics be responsible

The emergence and spread of antibiotic resistance, in other words the ability of bacteria to resist the action of an antibiotic, has become a recognised global problem. Antibiotic resistance severely limits the number of antibiotics available for the treatment of diseases.

Antibiotic resistance

Each year, EU/EEA countries report data on antibiotic resistance to the European Antimicrobial Resistance Surveillance Network (EARS-Net) and on surveillance of resistant clones through the European Surveillance of Antimicrobial Consumption network (ESAC-Net). Both networks are hosted at ECDC.

Infections due to these multiply-resistant bacteria in the EU result in each healthcare facility in each year of at least €1 1 500 000 000 for hospital patients. This includes direct and indirect costs for care. Infections trigger secondary complications and affect patient outcomes.

Take antibiotics responsibly!
Growing resistance to last-line antibiotics

Carbapenems are a major last-line class of antibiotics to treat bacterial infections. The spread of carbapenem-resistant infections is a threat to healthcare and patient safety in Europe as it seriously curtails the ability to cure infections.

Each year, 30 EU/EEA countries report data on antimicrobial resistance to the European Antimicrobial Resistance Surveillance Network (EARS-MDR) and on carbapenem consumption network (EARS-Net). Both networks are hospital based (ICU). For the first time, all countries reported data on Acinetobacter spp. to EARS-MDR. In addition, experts in all European countries participated in the European Survey on Carbapenem-producing Enterobacteriaceae (ESCAPE) done for ECDC by the University Medical Centre Groningen, The Netherlands.

Carbapenems are one of doctors’ last possible choices of antibiotics to treat infections due to bacteria resistant to multiple antibiotics.
Extrapulmonary tuberculosis in the EU

Tuberculosis (TB) is a serious and sometimes fatal infectious bacterial disease which most commonly affects the lungs. When the infection occurs somewhere other than the lungs, the disease is called extrapulmonary tuberculosis.

The proportion of extrapulmonary tuberculosis among all tuberculosis cases significantly varies across the European Union (EU). Main reasons are different risk factors for extrapulmonary TB, under-diagnosis or under-reporting.

Extra pulmonary TB cases in the EU 2002-2011

- **2002**: 72,334
- **2011**: 16,116

*Note: The number of reported cases of extrapulmonary TB is decreasing, but the overall TB burden remains high.*
The burden of MDR TB

MDR TB
Multidrug-resistant tuberculosis

Patients with MDR TB do not respond to standard treatment (isoniazid and rifampicin)

- Drug resistance is a man-made phenomenon caused by:
  - Poor quality drugs
  - Unfinished treatment
  - Inadequate use of drugs

MDR TB treatment causes substantial side effects like vomiting, deafness, blindness, depression and fatigue

Around 1500 cases are reported in the EU every year

Europe fails to treat MDR TB

Only 1 in 3 patients with MDR TB is treated successfully

XDR TB
Extensive drug resistance

XDR TB is resistant to even more drugs than MDR TB and therefore extremely difficult to treat

Costs for treatment of multidrug-resistant TB are higher than for TB

Average cost per MDR TB case in the EU, 2012: 33,000 €

Only 25% of all patients with extensively drug-resistant TB finish treatment successfully

Data from the Tuberculosis Surveillance and Monitoring in Europe 2014, ECDC / WHO Europe, Stockholm, 2014
An emerging threat
Mosquito-borne diseases in Europe

Just one bite away from infection
Different species of mosquitoes can carry different diseases

Invasive mosquitoes
- May spread diseases to new territories.
- Infected people can get severely sick.
- West Nile Fever
- Chikungunya
- Dengue
- Malaria

Local mosquitoes
- Spread diseases in their own regions.
- May carry diseases like malaria.

Malaria: Spread worldwide by Anopheles mosquitoes.

West Nile Fever: Spread by Culex mosquitoes in Europe.

Chikungunya: Spread by Aedes mosquitoes in Europe.

Dengue: Spread by Aedes mosquitoes in Europe.

Malaria: Spread worldwide by Anopheles mosquitoes.

Just one bite away from infection
Different species of mosquitoes can carry different diseases

Tropical mosquito-borne diseases are originally prevalent in tropical and subtropical regions, but are now present in Europe. They are transmitted by mosquitoes, which can be carriers of diseases like West Nile Fever, Chikungunya, Dengue, and Malaria.

An emerging threat to people is the spread of infectious diseases from person to person.

Malaria: Spread worldwide by Anopheles mosquitoes. Symptoms include fever, chills, and flu-like symptoms. Treatment with antimalarial drugs is available.

West Nile Fever: Spread by Culex mosquitoes in Europe. Symptoms include fever, headache, and muscle pain. Treatment is available.

Chikungunya: Spread by Aedes mosquitoes in Europe. Symptoms include fever, joint pain, and rash. Treatment is available.

Dengue: Spread by Aedes mosquitoes in Europe. Symptoms include fever, headache, and muscle pain. Treatment is available.

Zika: Spread by Aedes mosquitoes in Europe. Symptoms include fever, rash, and muscle pain. Treatment is available.

An emerging threat
Mosquito-borne disease outbreaks in Europe

West Nile Fever: Outbreaks in Europe since 1999. Symptoms include fever, chills, and muscle pain. Treatment is available.

Chikungunya: Outbreaks in Europe since 2005. Symptoms include fever, joint pain, and rash. Treatment is available.

Dengue: Outbreaks in Europe since 2013. Symptoms include fever, headache, and muscle pain. Treatment is available.

Zika: Outbreaks in Europe since 2016. Symptoms include fever, rash, and joint pain. Treatment is available.

An emerging threat
Mosquito-borne disease outbreaks in Europe

Malaria: Outbreaks in Europe since 1940. Symptoms include fever, chills, and flu-like symptoms. Treatment with antimalarial drugs is available.

An emerging threat
Mosquito-borne diseases in Europe
How does Ebola spread?

1. Reservoirs
   Birds and other wild animals are the suspected reservoirs of Ebola.

2. Transmission to humans
   Infected bushmeat is brought to the villages by hunters.

3. Only symptomatic people are infectious
   The incubation period can range between two and 21 days. People are infectious on long as their blood and bodily fluids contain the virus.

4. Hospitals as amplifiers
   When infectious people who enter a hospital are not cared for under strict infection control measures, hospitals can become a major amplifier of the disease.

5. Unsafe burial practices
   Funerals where mourners touch the deceased are one other main amplifiers for spreading the virus.

6. Strict protocols
   Against hospital infection control measures are applied in designated Ebola treatment units.

7. Medical personnel
   (Doctors and nurses wear sterile, protective clothing, such as gloves, masks, gowns and eye shields, and are trained in the safe donning (putting on) and doffing (taking off) of protective gear.

8. Contact tracing
   Tracking and following up those who had contact with an infected, suspected or confirmed case of Ebola.

9. Safe burial practices
   At events with the bodies of those who died from Ebola is avoided. Prompt and safe burials of the deceased minimize the risk of infection.

How can it be stopped?

The control of the outbreak relies on breaking the chain of transmission through containment measures and changing people’s behaviour.

Ebola: reducing the risk of transmission

Exit screening
   Passengers departing from affected countries have their temperature checked to prevent a potential case from boarding a plane.

Information to travellers
   At the point of entry, travellers coming from affected areas are told about the disease and advised to seek medical care if they experience symptoms.

Traveling from affected areas
   An infected person not experiencing symptoms is not considered a risk for transmission.

Putting medical care on the front lines
   Patients treated at facilities with the history and Ebola are immediately isolated.

Medical evacuation
   Patients are safely isolated during medical evacuation and do not pose a risk to others.
HIV in the EU

During 2013, more than 29 000 people in the European Union tested positive for HIV and many more remain undiagnosed. Who are these HIV+ persons? How did they become infected?

80 people are diagnosed every day and many more remain unaware of their infection.

47% are diagnosed late and are at a higher risk of dying.

Two-thirds are men.

Most people get infected by sexual contact.

Sex between men

In Europe, sex between men is still the predominant mode of HIV transmission. Men who have sex with men (MSM) are the only key population not to see a decline in new infections during the last decade: new diagnoses increased by 33% compared to 2004.
Salmonellosis
Just the tip of the iceberg

The number of yearly reported cases (white) is represented by the tip of the iceberg, while the estimated frequency of exposure to Salmonella (orange) is shown as the rest of the iceberg.

For more information visit http://bit.ly/seroincidence-tool

1. Ireland 350 730,000
2. Romania 400 7,480,000
3. Greece 480 8,280,000
4. Denmark 1,680 420,000
5. Austria 1,800 1,000,000
6. Finland 2,800 370,000
7. Spain 3,400 28,460,000
8. Sweden 4,000 510,000
9. France 6,300 24,020,000
10. Italy 6,520 12,780,000
11. Netherlands 6,590 2,400,000
12. United Kingdom 10,400 5,900,000
13. Poland 16,000 20,980,000
**Measles is more contagious than you think**

Measles is an acute, highly contagious viral disease capable of producing epidemics. It is very infectious and spreads easily among unvaccinated people. A person with measles infects an average of 12 to 18 previously uninfected people. Vaccination is the best way to protect yourself and others against measles.

- **Measles**: 12 - 18 people
- **Influenza**: 1.6 - 5 people
- **Pertussis**: 12 - 17 people
- **Smallpox**: 5 - 7 people
- **Mumps**: 4 - 7 people
- **Diphtheria / Rubella**: 6 - 17 people

The centre dots represent one person affected by a disease. The connected dots indicate the maximum and minimum number of previously uninfected people who could get infected by a single case of the disease.

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**Measles in Europe**

A picture of outbreaks in the EU/EEA

Measles is an acute, highly contagious disease capable of creating epidemics. It can be contracted at any age, infants and children are often believed to be the only age groups affected by measles, but the disease also spreads among teenagers and adults. Vaccination is the best way to protect yourself and others against measles, regardless of age.

**Measles outbreaks** (size indicates number of cases)

- **2006**: 3,951 cases
- **2007**: 2,558 cases
- **2008**: 2,061 cases
- **2009**: 1,561 cases
- **2010**: 1,053 cases
- **2011**: 938 cases
- **2012**: 848 cases
- **2013**: 742 cases

Note: Data extracted from the European Surveillane System (TESSy), ECDC, Stockholm, 2014. Countries which are not represented at least once in the data are not shown.

**Percent of all cases are in unvaccinated people**

- Age 0-14 years
- Age above 14 years