ECDC DIRECTOR'S PRESENTATION

Carbapenem-resistant infections on the rise in Europe

Presentation by Dr Marc Sprenger, ECDC director,
Brussels Press Club, 15 November 2013

For the launch of the 6th European Antibiotic Awareness Day, Dr Marc Sprenger gave an overview of ECDC's latest data on multi-drug resistance in Europe with a focus on the rise of carbapenem-resistant infections in Europe.

Carbapenem-resistant infections: a challenge for appropriate patient therapy

Normally, a patient with a healthcare-associated urinary tract infection with *Klebsiella pneumoniae* could be treated with many of these antibiotics with the exception of **ampicillin** to which it is naturally resistant.

But, in many cases, other antibiotics would be effective **including of course, last-line antibiotics such as the carbapenems** *(indicated here in the darker green).*

But for this patient who was transferred from a foreign hospital back to a hospital in his home country, the bacterium responsible for the patient's urinary tract infection was **resistant to ALL the antibiotics indicated in red**.

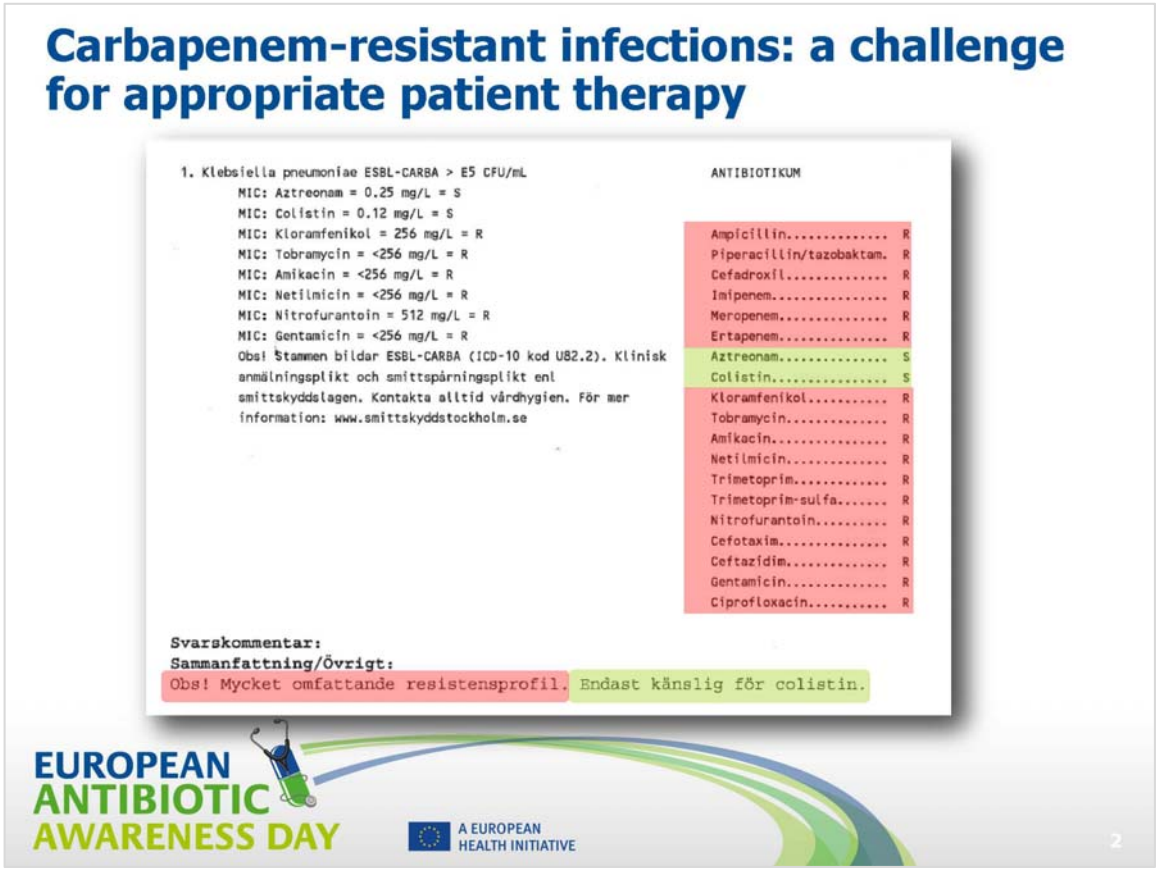
Even the **carbapenems**, were not effective.

This **antibiotic susceptibility profile** is an example of the therapeutic challenge faced by European doctors that must treat a patient with such **multidrug-resistant infection**.

The only antibiotic that the patient could be treated with was **Colistin** (*indicated here in green*).

You may be aware that Colistin is a very **old drug** that would **most likely not be authorised for use in Europe** today due to its **toxicity profile**.

ECDC's new data show that it is **increasingly common for doctors in European hospitals** to be faced with patients that have these kind of **carbapenem-resistant infections.**



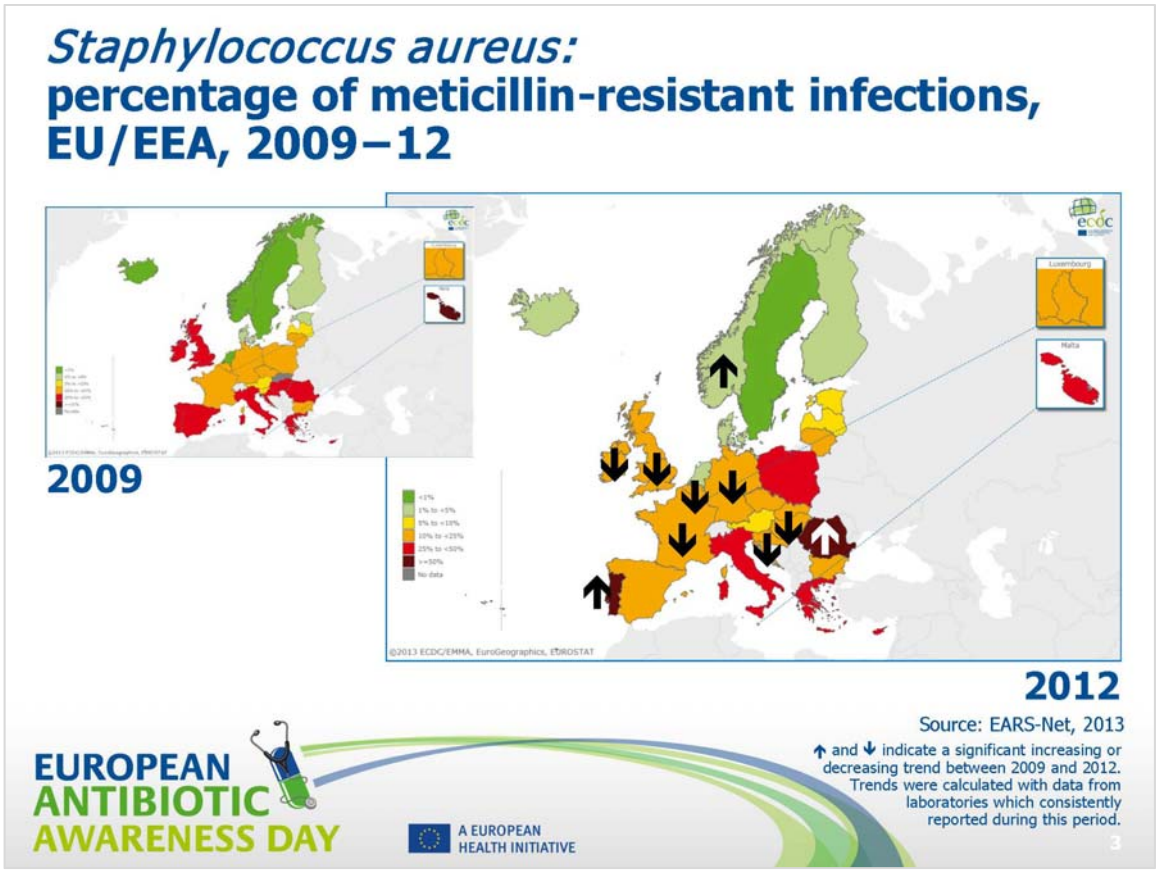
Staphylococcus aureus: percentage of meticillin-resistant infections

But before I talk about carbapenem-resistant infections, let us **first look at the positive trends** we are seeing for **MRSA, meticillin-resistant *Staphylococcus aureus***.

Following concerted national actions to improve infection control in hospitals, the **situation for MRSA is continuing to improve across Europe**.

When comparing these two maps, we see that there has been **a significant decrease** in the percentage of MRSA **in 7 countries** between 2009 and 2012.

Nevertheless, there is **no time for complacency** since MRSA remains high in many countries and is still increasing in some countries.

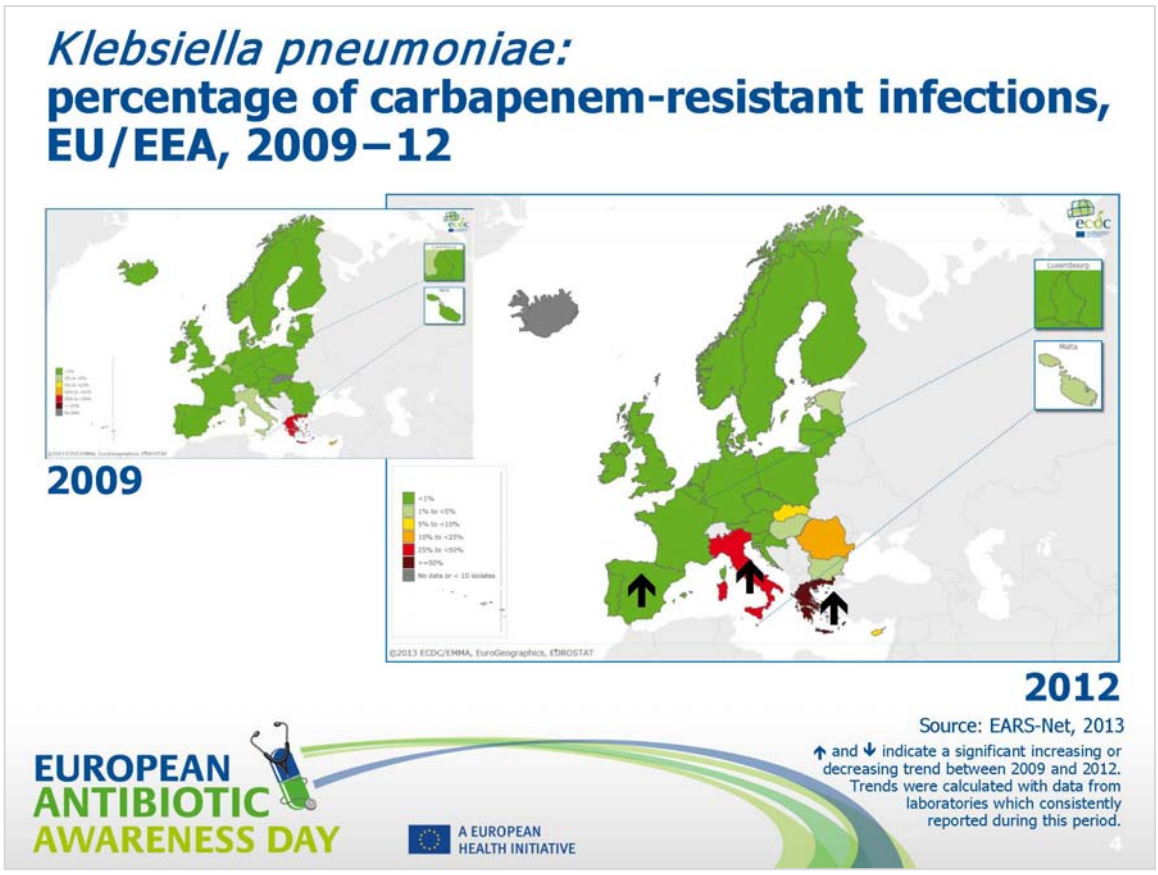


Klebsiella pneumoniae: percentage of carbapenem-resistant infections

Let's again now focus on the situation of carbapenem-resistant infections;

These two maps show the situation across Europe, between 2009 and 2012.

Unfortunately, we see that the rates of carbapenem-resistant *Klebsiella pneumoniae* bloodstream infections have **markedly increased to above 5 %** in **5 countries**, mostly situated in the south of Europe.



National self-assessment of stages for spread of carbapenem-resistant infections

And there is even more bad news;

This slide shows the **situation for carbapenem-resistant bacteria in more detail**, and is based on the results of a **survey across 38 countries** *(the 28 EU Member States, Iceland, Norway, the 7 EU enlargement countries and Israel).*

The survey was done for ECDC by the University Medical Centre in Groningen in the Netherlands.

The results, based on a **self-assessment by national experts,** show that **the spread of carbapenem-resistant infections**, including those caused by *Klebsiella pneumoniae*, is much wider across Europe than what we saw on the previous slide on bloodstream infections.

When also **other infections**, such as respiratory and urinary tract infections, are **considered,** almost all countries have reported cases.

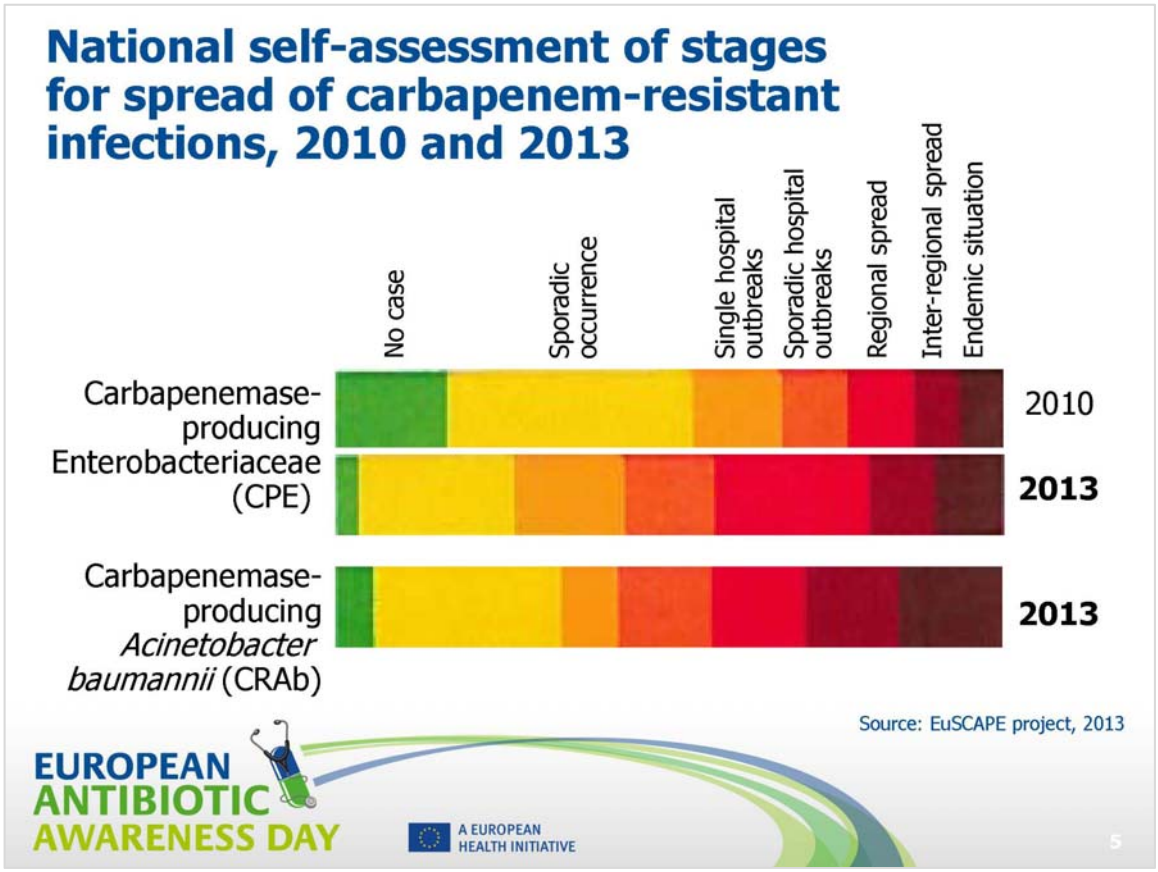
And many of these countries have **reported either regional spread** within their country, **inter-regional spread** of these infections, or have even an **endemic situation**.

I would also like to speak about a **new serious concern** highlighted in this survey; the **emergence and spread of carbapenem-resistant *Acinetobacter baumannii* infections, so-called CRAb infections.**

CRAb is responsible for healthcare-associated infections, in particular for ventilator-associated pneumonia and urinary tract infections.

The percentage of CRAb was **above 80 % in 3 countries (Greece, Italy and Romania) out of the 18 countries that reported on this particular infection**.

So CRAb infections may indeed be the **next challenge for hospitals** in many European countries.



Many EU countries lack guidance on prevention and control of carbapenem-resistant infections

As part of this survey, experts also reported on the **availability of national guidance documents** for the control of carbapenem-resistant infections.

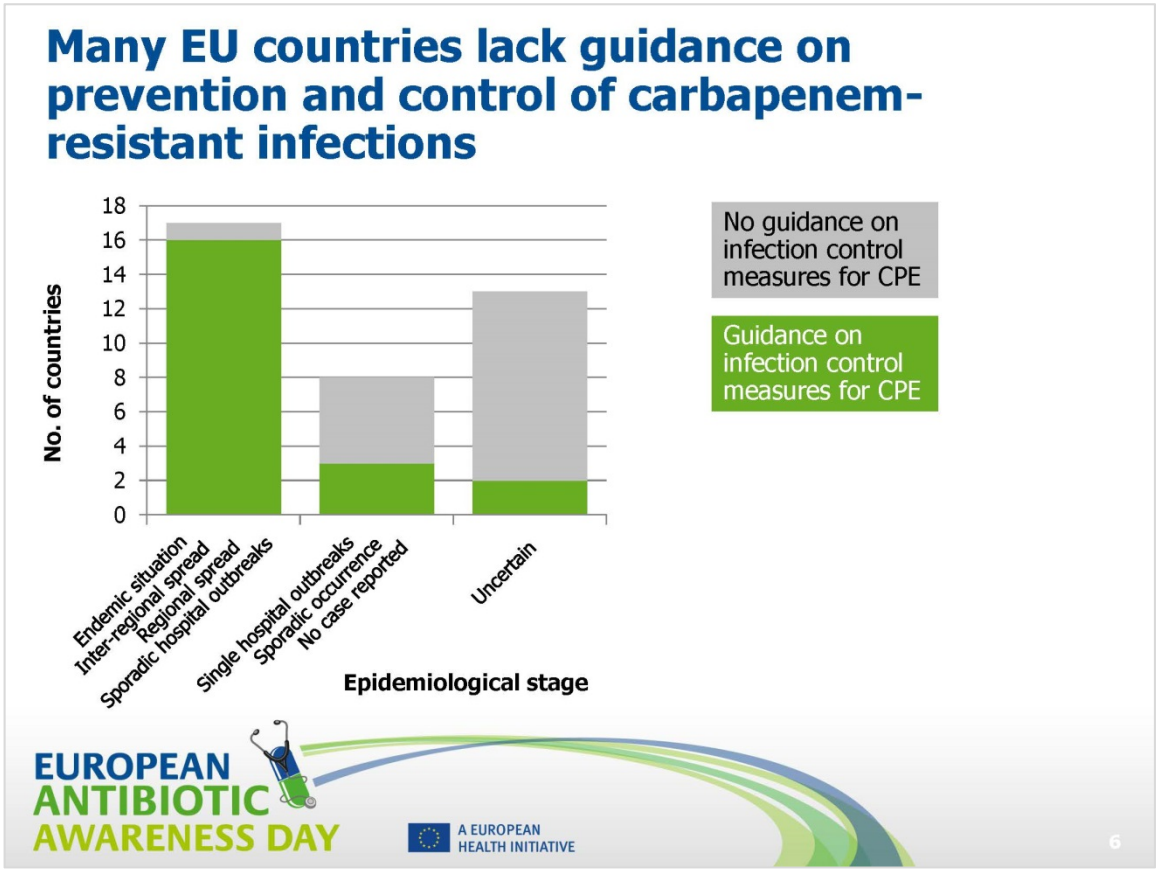
Results show **that 17 of the 38 reporting countries still lack national guidance documents**

Now the good news is that **most of the countries that report hospital outbreaks, regional or inter-regional spread** or even an **endemic situation** (*on the left of this slide*) **already have such national guidance in place**.

However, in **countries that report single hospital outbreaks, sporadic occurrence or no cases** (*the middle column*), and in countries that are **uncertain** about their situation for carbapenem-resistant infections (*on the right*), there is a **much smaller proportion of countries with such guidance**.

My message is, therefore, that **there is an urgent need for all European countries to have in place national guidance documents.**

National guidance documents are key so that hospitals that are faced with these type of infections can **take action to control the spread and minimise the impact** of outbreaks carbapenem-resistant infections.



Actions to control outbreaks in hospitals of carbapenem-resistant infections

I would now like to give you 2 examples of outbreaks of carbapenem-resistant infections;

The **first example** relates to a patient infected with CRAb who was transferred from outside the EU to the intensive care unit of a French hospital.

This is a hospital that implements strict measures on surveillance, to detect and screen repatriated patients on admission and to isolate patients that are found positive for carbapenem-resistant bacteria.

The CRAb infection of this patient was therefore detected on admission. But despite these measures, 5 additional patients were infected by CRAb.

Cohort nursing by a separate dedicated staff and equipment, enforced hygiene precautions and prudent use of antibiotics could have further reduced the spread.

The **second example** relates to a large scale hospital-wide outbreak of carbapenem-resistant *Klebsiella pneumoniae* in Israel.

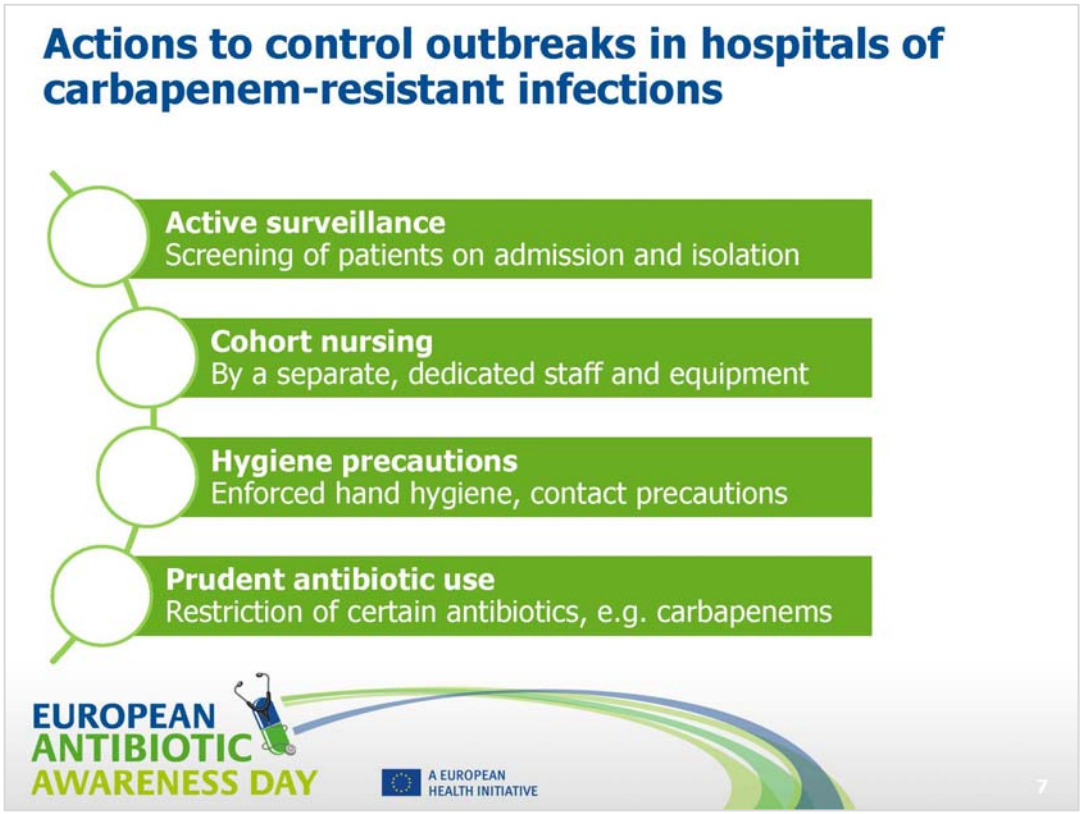
Given that the hospital already had an outbreak situation when the measures were implemented, a multifaceted strategy needed to be applied over 3 years to bring the situation under control.

The strategy was based on 5 key elements;

1. an emergency department flagging system;
2. the building of a cohort ward;
3. the eradication of clusters;
4. environmental and personnel hand cultures/samples;
5. and a carbapenem-restriction policy.

As a result, the rate of carbapenem-resistant *Klebsiella pneumoniae* infections decreased by more than 10-fold in this hospital. And no further such healthcare-associated infections have since been diagnosed there.

In 2011, ECDC provided guidance in a risk assessment on the spread of carbapenem-resistant infections through patient transfer between healthcare facilities, looking in particular at cross-border transfer of patients.



Together with infection control measures, **improving antibiotic use** is the most important action needed to slow down the very worrying development and spread of antibiotic-resistant bacteria.

Antibiotics are **frequently used inappropriately**, or when they are not needed, in both humans and animals.

This is why European Antibiotic Awareness Day, not only here in Brussels but everywhere in Europe, is so important.

Over the course of the next week, there will be activities promoting prudent use of antibiotics under the banner **"Everyone is responsible**" in more than 40 countries across Europe, including all EU member states.

ECDC is also cooperating with its partners in other regions of the world, such as in the US, Canada and Australia.

We are **all responsible; patients, parents, doctors, all healthcare personnel, veterinarians, farmers, policy makers… you and me!**