



European Centre for Disease Prevention and Control

# Achievements, challenges and major outputs 2013

Highlights from the Annual Report of the Director

**This digest offers a small selection of key activities from 2013 but by no means represents the entire range of ECDC's accomplishments in 2013.**

**A detailed look at ECDC's range of activities, its organisational and administrative structures, and its work plan can be found in the unabridged version of the Annual Report.**

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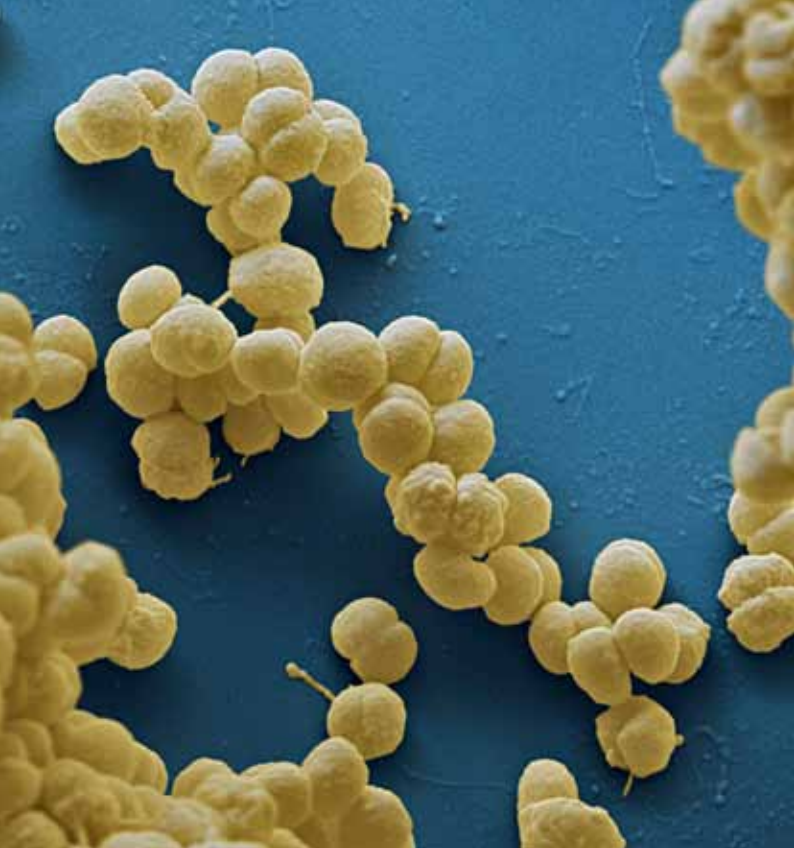
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# Achievements, challenges and major outputs 2013

Highlights from the Annual Report of the Director

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# Keeping track of infectious diseases

## Looking back at 2013

The 2013 Annual Report provides a comprehensive as well as critical look at how far ECDC has come in responding to the changing challenges of public health. ECDC's first and foremost task is to keep tabs on contagious and often deadly diseases and to track the emergence of new and potentially pandemic pathogens. This work is done by ECDC's disease surveillance experts and public health specialists in seven dedicated disease programmes.

As Europe's public health agency, ECDC puts science in the hands of decision-makers. One of the Centre's most important tasks is to offer scientific advice and guidance to the Member States. In 2013, ECDC published a guidance document on tuberculosis in children<sup>1</sup> and critically reviewed available guidance on perioperative antibiotic prophylaxis<sup>2</sup>. In addition, ECDC's Rapid Risk Assessments on current health threats typically contain recommendations and options for mitigation.

## Leadership in public health

Public health leadership, the way ECDC likes to see it, encompasses everything from scientific exchange to training to research. ESCAIDE, EPIET, and *Eurosurveillance* are three perfect examples: ESCAIDE,

the annual 'European Scientific Conference on Applied Infectious Disease Epidemiology', which every year hosts more than 500 frontline professionals from national disease control institutes, provides countless opportunities for epidemiologists to engage with each other and the wider scientific community; EPIET, the 'European Programme for Intervention Epidemiology Training', is the leading field training programme for epidemiologists in Europe and has produced hundreds of graduates; and *Eurosurveillance*, published by ECDC since 2007, is a highly regarded medical journal on epidemiology.

2013 marked the end of an era at ECDC. Over the last seven years, the entire breadth of ECDC's activities in public health – particularly disease surveillance, tracking and monitoring – followed the vision outlined in the 2007 Strategic Multiannual Plan. In 2013, the Plan reached the end of its life cycle and was superseded by a second strategy document, the Strategic Multiannual Programme 2014–2020.

While this brochure offers only a small yet pertinent selection of ECDC's achievements in 2013, it also manages to paint a picture of 2013 that allows the reader to measure ECDC's scope of activities against the goals of the 2007–2013 Multiannual Plan. Clearly, ECDC has met the vision formulated in 2007 and reached a maturity and competence level that makes it a major force in European public health.

<sup>1</sup> European Centre for Disease Prevention and Control. Investigation and control of tuberculosis incidents affecting children in congregate settings. Stockholm: ECDC; 2013.

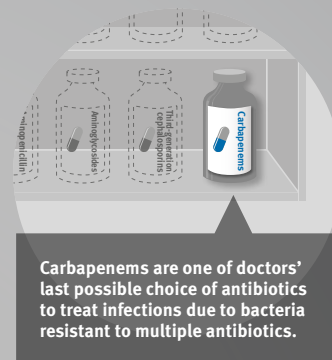
<sup>2</sup> European Centre for Disease Prevention and Control. Systematic review and evidence-based guidance on perioperative antibiotic prophylaxis. Stockholm: ECDC; 2013



# Growing resistance to last-line antibiotics

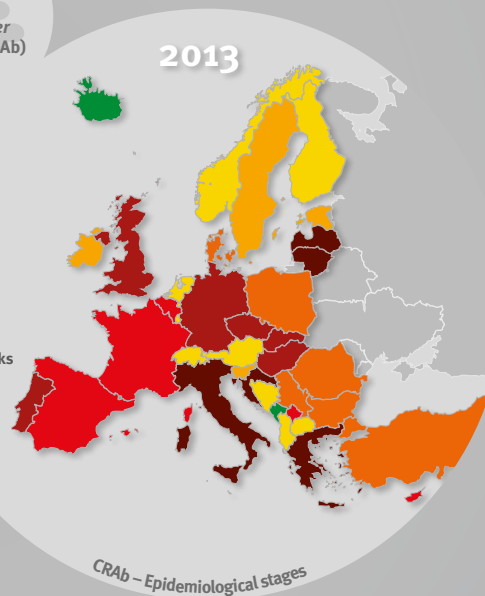
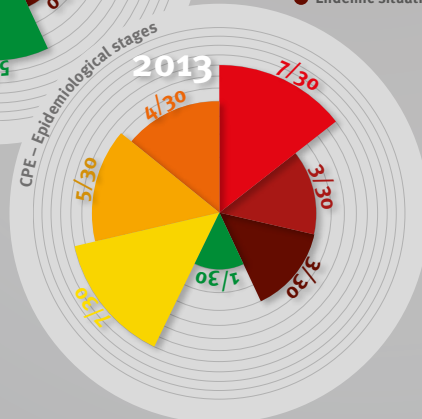
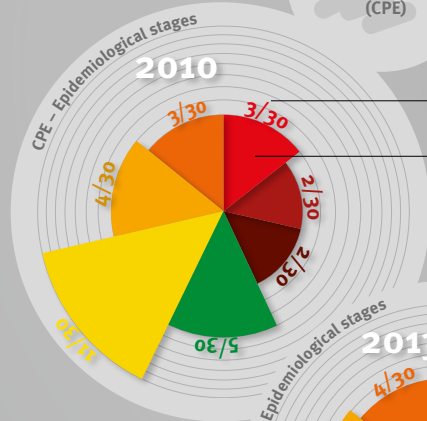
Carbapenems are a major last-line class of antibiotics to treat bacterial infections. The spread of carbapenem-resistant infections is a threat to healthcare and patient safety in Europe as it seriously curtails the ability to cure infections.

Each year, 30 EU/EEA countries report data on antimicrobial resistance to the European Antimicrobial Resistance Surveillance Network (EARS-Net) and on antimicrobial consumption to the European Surveillance of Antimicrobial Consumption network (ESAC-Net). Both networks are hosted at ECDC. For the first time, 18 countries reported data on *Acinetobacter* spp. to EARS-Net. In addition, experts in 38 European countries participated in the European Survey on Carbapenemase-Producing *Enterobacteriaceae* (EuSCAPE) done for ECDC by the University Medical Centre Groningen, in the Netherlands.



Carbapenemase-producing *Acinetobacter baumannii* (CRAB)

Carbapenem-resistant *Enterobacteriaceae* (CPE)



- No. of countries / countries surveyed
- No case
  - Sporadic occurrence
  - Single-hospital outbreak
  - Sporadic hospital outbreaks
  - Regional spread
  - Inter-regional spread
  - Endemic situation

13/38  
countries reported an **uncertain** stage

25/38  
countries reported a **certain** stage

# Protecting Europe's health, programme by programme

## The ARHAI Programme: antimicrobial resistance and healthcare- associated infections

With data from a total of 273753 patients in 1149 hospitals, ECDC's point prevalence survey of healthcare-associated infections (HAIs) generated the most comprehensive European dataset on HAIs and antimicrobial use in European acute care hospitals to date<sup>1</sup>. We can now say with some certainty that within the EU's healthcare systems, 3.2 million patients each year catch healthcare-associated infections.

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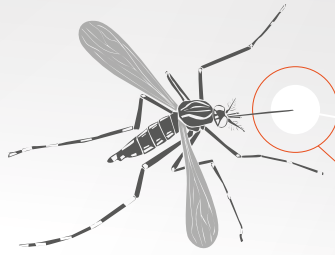
<sup>1</sup> European Centre for Disease Prevention and Control. Point prevalence survey of healthcare-associated infections and antimicrobial use in European acute care hospitals. Stockholm: ECDC; 2013.

Equally important, but on a smaller scale, ECDC conducted a pan-European survey on carbapenemase-producing Enterobacteriaceae<sup>2</sup>.

Both surveys will serve as standard benchmarks against which all future surveys will be measured.

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<sup>2</sup> European Centre for Disease Prevention and Control. Carbapenemase-producing bacteria in Europe: interim results from the European survey on carbapenemase-producing Enterobacteriaceae (EuSCAPE) project. Stockholm: ECDC; 2013.



## An emerging threat

### Mosquito-borne diseases in Europe

Tropical mosquito-borne diseases are originally prevalent in tropical and subtropical regions. Some are especially endemic in regions of Africa, Asia, and the Americas and cause substantial illness for more than one billion people globally.

An emerging (or re-emerging) infectious disease is often a disease already known but spreading to new geographic areas, new populations, or reappearing after having been eradicated.

Mosquitoes can carry infectious diseases from person to person and from place to place.

## Recent outbreaks

### Mosquito-borne disease outbreaks in Europe

#### West Nile Fever, 2010 to present **A**

*Culex pipiens* (local)

##### West Nile

In 2010, Europe witnessed an unprecedented upsurge in the numbers of West Nile fever cases. Human cases of West Nile fever were detected in several south-eastern EU countries. There have been recent outbreaks since then.

#### Dengue, 2012 **B**

*Aedes aegypti* (invasive)

Dengue – imported through travel

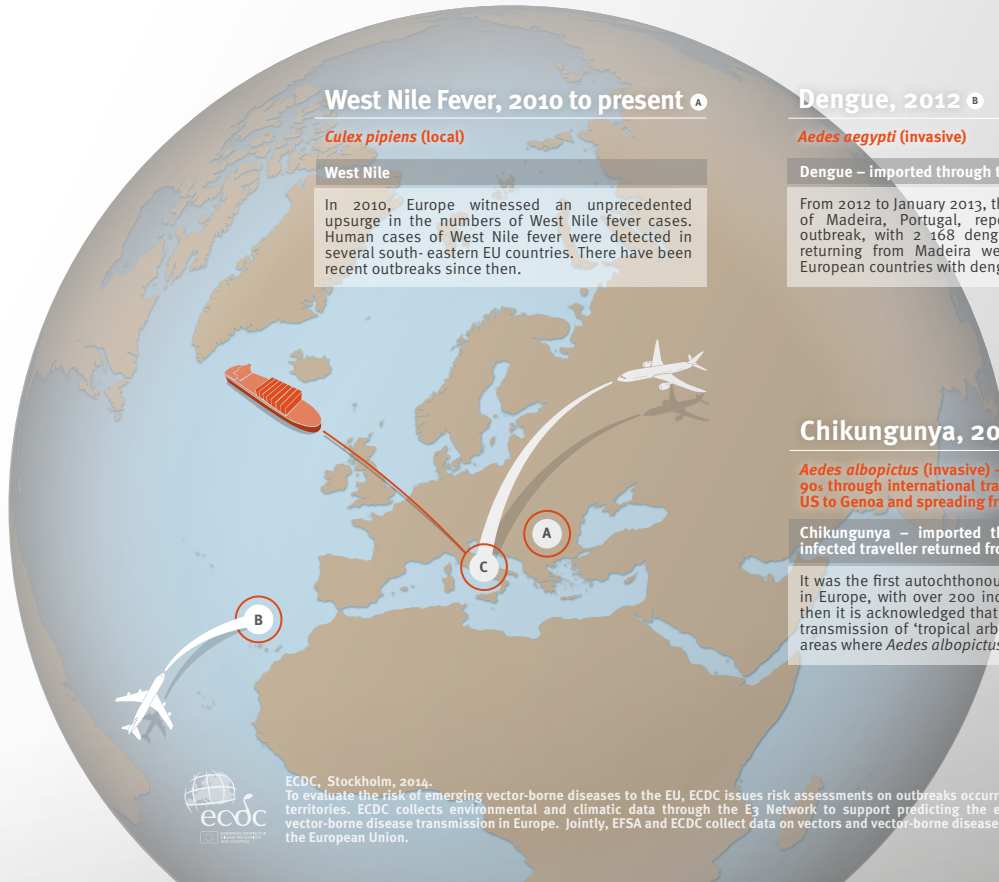
From 2012 to January 2013, the autonomous province of Madeira, Portugal, reported its first dengue outbreak, with 2 168 dengue cases. 87 patients returning from Madeira were diagnosed in other European countries with dengue infection.

#### Chikungunya, 2007 **C**

*Aedes albopictus* (invasive) – Imported to Italy in the 90s through international trade: in car tyres from the US to Genoa and spreading from there.

Chikungunya – imported through travel, after an infected traveller returned from India

It was the first autochthonous chikungunya outbreak in Europe, with over 200 individuals affected. Since then it is acknowledged that Europe is vulnerable for transmission of 'tropical arboviruses', particularly in areas where *Aedes albopictus* is present.



ECDC, Stockholm, 2014.

To evaluate the risk of emerging vector-borne diseases to the EU, ECDC issues risk assessments on outbreaks occurring in Europe or EU overseas territories. ECDC collects environmental and climatic data through the E3 Network to support predicting the environmental suitability for vector-borne disease transmission in Europe. Jointly, EFSA and ECDC collect data on vectors and vector-borne diseases and analyse their spread in the European Union.



# The EVD Programme: emerging and vector-borne diseases

It is a scenario that has become a frightful reality: Diseases like malaria, traditionally considered as tropical diseases, are now appearing in Europe. Mosquito species once native only to southeast Asia and carriers of pathogens that cause dengue, chikungunya and West Nile fever, are now routinely caught outside their indigenous areas of distribution and cause disease in the south of Europe.

Fortunately, case numbers are still low, but ECDC is far from being complacent. For example, ECDC released a comprehensive West Nile virus risk assessment tool. This tool defines a set of indicators from a range of surveillance systems that can trigger an alert for potential human West Nile virus infection<sup>1</sup>.

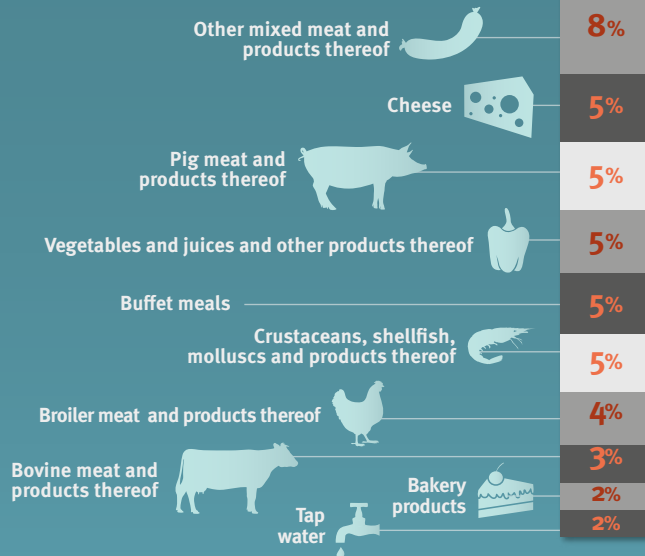
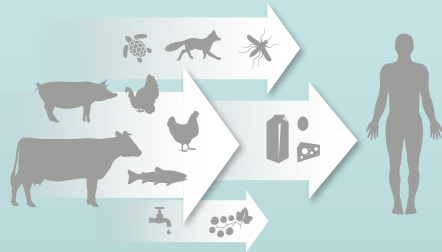
ECDC's vigilance relies heavily on two elements: national focal points in the Member States and an international network of medical entomologists specialised in the study of vector-borne diseases (VBORNET). (In epidemiology, a vector is a person, animal or microorganism that carries and transmits a pathogen.) Together with in-house and external experts, ECDC regularly produces up-to-date maps showing the current distribution of invasive mosquitoes, sandflies and ticks.

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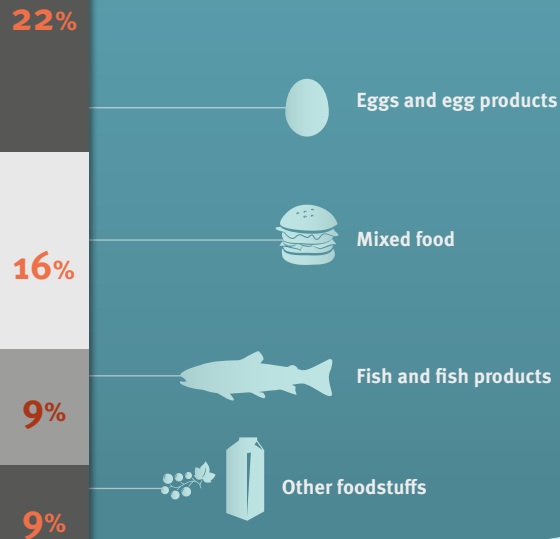
<sup>1</sup> European Centre for Disease Prevention and Control. West Nile virus risk assessment tool. Stockholm: ECDC; 2013.

# Zoonoses

Zoonoses are diseases that can be transmitted directly or indirectly between animals and humans, for instance by consuming contaminated foodstuffs or through contact with infected animals. Most zoonotic infections have mild symptoms and do not require medical treatment. However, they can also turn into life-threatening conditions.



## Food types causing outbreaks in the EU in 2012



## Prevention and control

In order to prevent zoonoses from occurring, it is important to identify which animals and foodstuffs are the main sources of infections. The European Centre for Disease Prevention and Control (ECDC) and the European Food Safety Authority (EFSA) analyse the information submitted by Member States on human cases and prevalence of zoonotic agents in animals and food, and publish an annual joint report.

Source: European Union summary report on trends and sources of zoonoses, zoonotic agents and food-borne outbreaks in 2012, published by EFSA and ECDC in 2014



# The FWD Programme: food- and waterborne diseases and zoonoses

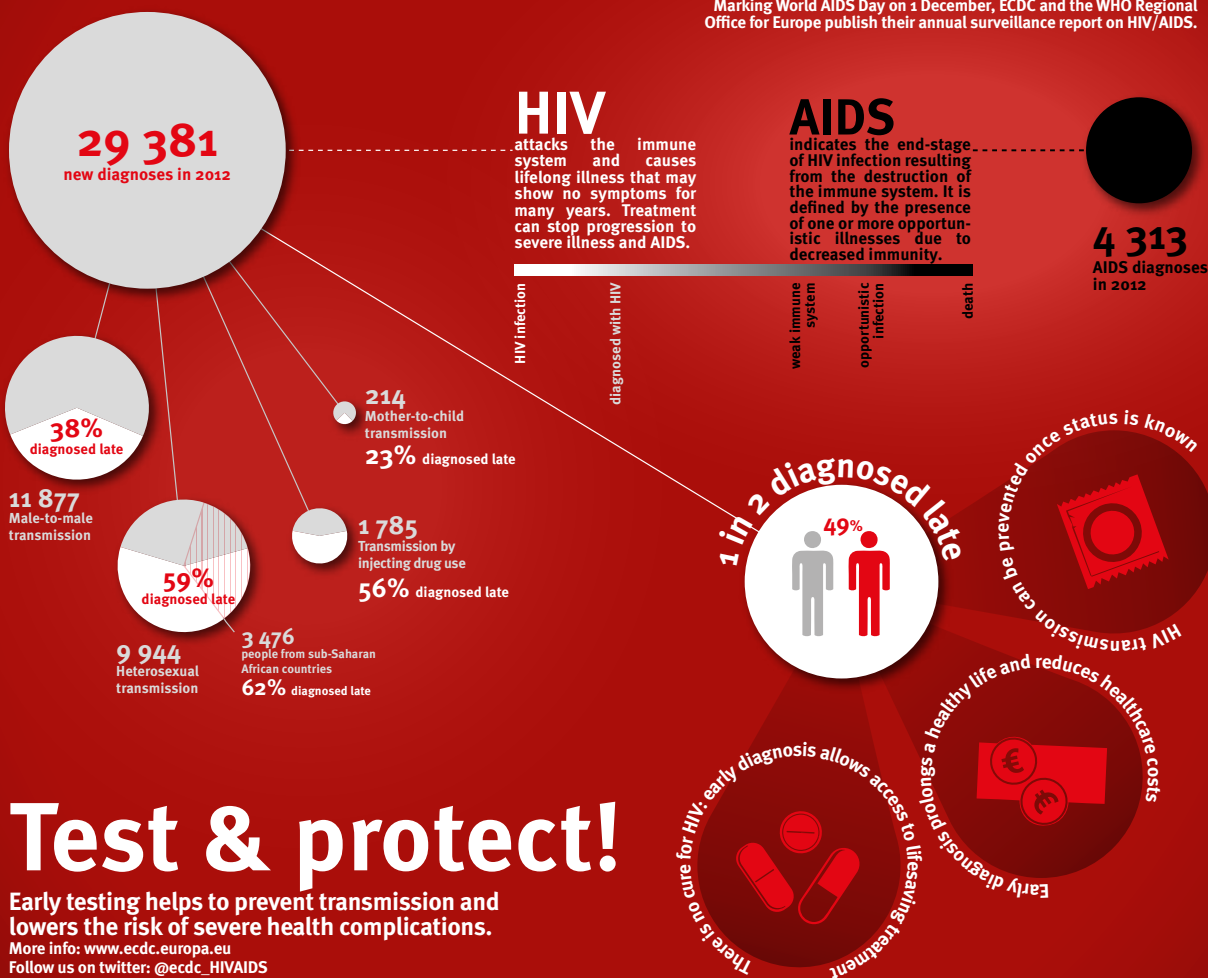
Nineteen Member States have recently stepped up the molecular surveillance of several foodborne pathogens to improve surveillance, outbreak management, diagnosis, and treatment. In a pilot project that started in 2013, ECDC coordinates how these 19 Member States use molecular-based techniques for the accurate identification of *Salmonella*, *Listeria monocytogenes* and STEC/VTEC.

A large multinational outbreak of hepatitis A in Italy, Ireland and the Netherlands kept ECDC's experts busy in November. Together with their colleagues at the European Food Safety Authority, ECDC's FWD experts produced several outbreak assessments and participated in a joint trace-back investigation, which eventually linked the outbreak to frozen berries.

# HIV and AIDS in Europe



HIV infection remains of major public health importance in the European Union and European Economic Area (EU/EEA): there is no indication of a decline in transmission. Since the start of reporting on the HIV epidemic, more than 455 000 HIV diagnoses have been recorded in the EU/EEA. Marking World AIDS Day on 1 December, ECDC and the WHO Regional Office for Europe publish their annual surveillance report on HIV/AIDS.



## Test & protect!

Early testing helps to prevent transmission and lowers the risk of severe health complications.

More info: [www.ecdc.europa.eu](http://www.ecdc.europa.eu)

Follow us on twitter: @ecdc\_HIVAIDS

# The HSH Programme: HIV, sexually transmitted infections and viral hepatitis

The HSH Programme uses a multi-pronged approach, focussing on surveillance, monitoring, prevention, and testing/diagnostics. This is reflected in the wide spectrum of the Programme's publications.

In a major effort to support the *Dublin Declaration on Partnership to Fight HIV/AIDS in Europe and Central Asia*, ECDC published 11 thematic reports and nine evidence briefs which document in detail the progress on monitoring the implementation of the Declaration.

2013 also saw the publication of a surveillance report on sexually transmitted infections in Europe<sup>1</sup> and the release of a technical report on HIV/STI prevention in the context of sexual health in the EU/EEA<sup>2</sup>.

The first enhanced surveillance report on hepatitis B and C covering the years 2006–2011 describes basic trends and epidemiological features of both diseases<sup>3</sup>.

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<sup>1</sup> European Centre for Disease Prevention and Control. Sexually transmitted infections in Europe 2011. Stockholm: ECDC; 2013.

<sup>2</sup> European Centre for Disease Prevention and Control. A comprehensive approach to HIV/STI prevention in the context of sexual health in the EU/EEA. Stockholm: ECDC; 2013.

<sup>3</sup> European Centre for Disease Prevention and Control. Hepatitis B and C surveillance in Europe, 2006–2011. Stockholm: ECDC; 2013.



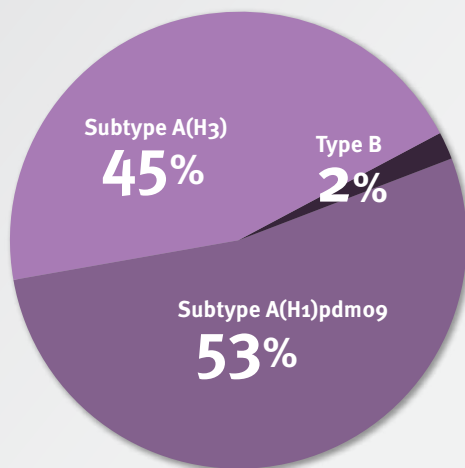
# Influenza in Europe

Week 14 (31 March–6 April 2014)



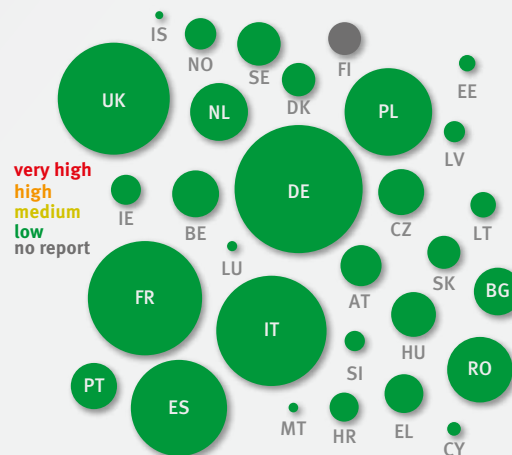
## Viruses circulating in 2013–2014

Only subtyped viruses are included



## Influenza intensity in week 14

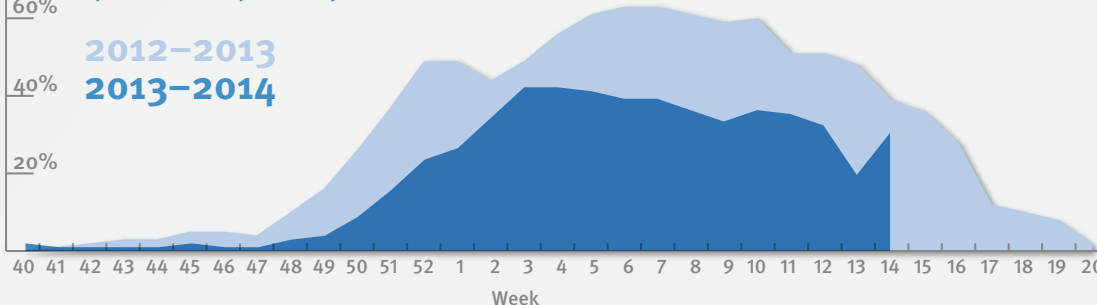
based on sentinel reports of influenza-like illness and/or acute respiratory infections in European countries



Bubble size is indicative of country population

## Influenza trend

based on the percentage of sentinel specimens found positive, by week



# The IRV Programme: influenza and other respiratory viruses

It is a common misconception to think of the flu as a 'very bad cold'. In fact, seasonal influenza is a very serious disease. Despite intensive efforts to promote vaccination, vaccination rates in many EU countries have been declining over the last few years (ECDC monitors vaccination coverage through the VENICE project<sup>1</sup>).

Together with its partners in Europe, ECDC has worked hard to improve vaccination coverage and preparedness. One way to do this is by working with public health experts in the Member States. The 2013 participation figures for ECDC training activities were encouraging: all Member States participated in the annual influenza surveillance meeting, 20 participated in a workshop on pandemic preparedness, and 12 took part in an immunisation training workshop.

As a result of ECDC's training programmes and intensified technical support aimed at public health organisations in the Member States, Europe has come a small but important step closer to achieving this goal.

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<sup>1</sup> VENICE III. Vaccine European New Integrated Collaboration Effort. [homepage on the internet]. 2013 [cited 2013 Dec 21]. Available from: <http://venice.cineca.org/reports.html>

## Tuberculosis (TB)

is a serious and sometimes lethal infectious bacterial disease which most commonly affects the lungs. It is usually caused by *Mycobacterium tuberculosis*

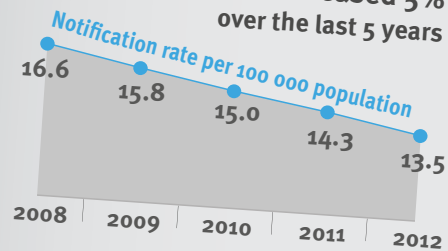


One untreated person with TB can infect **10–15 other** individuals per year



**187** people in the EU are diagnosed with TB every day

TB cases decreased 5% over the last 5 years



## MDR TB

Multidrug-resistant tuberculosis

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



# The TB Programme: tuberculosis

Eliminating tuberculosis in the EU is still an elusive goal. The fifth annual TB report<sup>1</sup>, launched jointly by ECDC and the WHO Regional Office for Europe, stated that it would ‘not be possible to reach the target of 50% reduction [in TB incidence] by 2015’.

Nonetheless, ECDC’s TB Programme continued to serve as a central reference point for EU/EEA countries, providing information on TB epidemiology, scientific advances, and laboratory quality control.

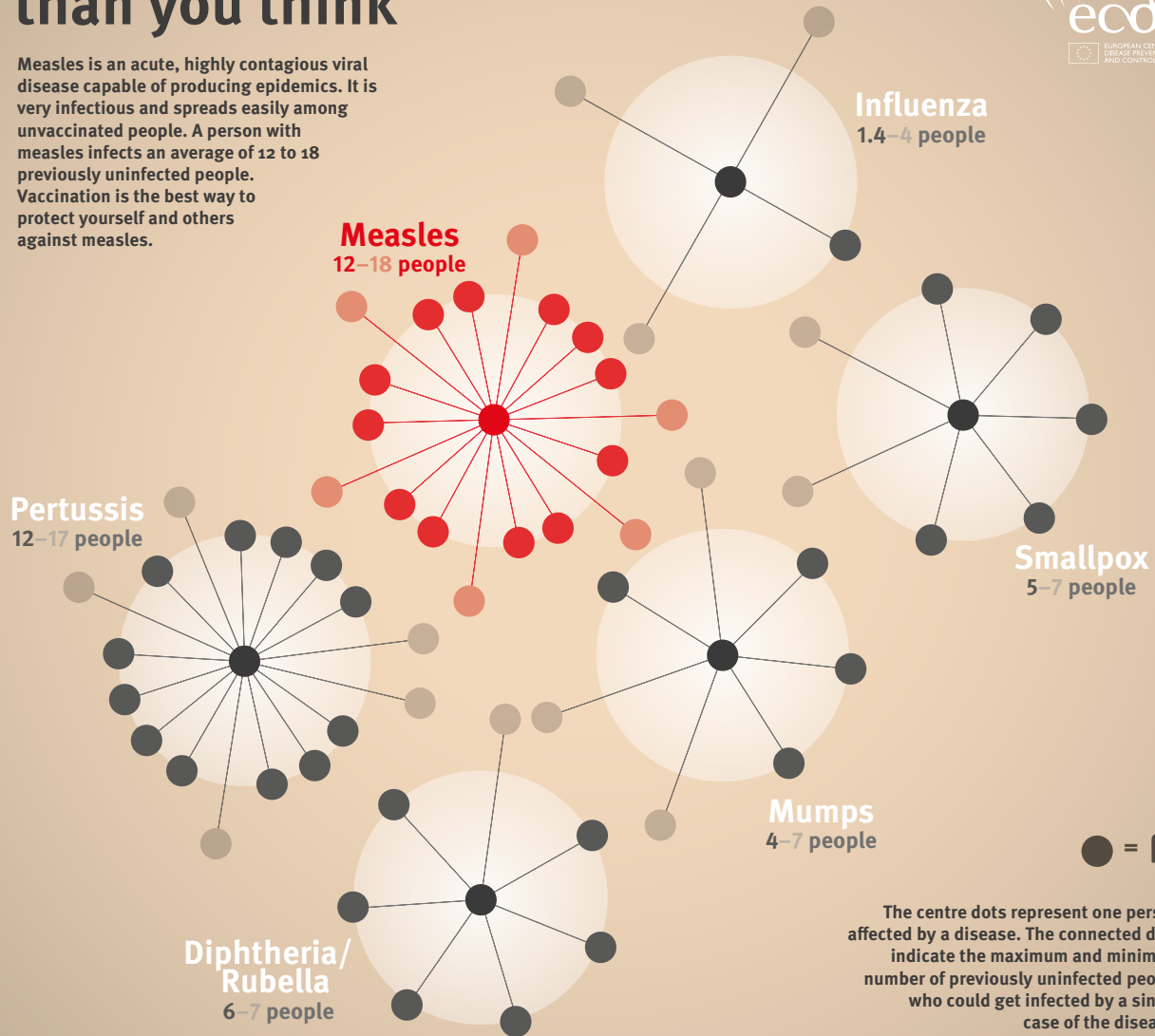
Timely and accurate laboratory diagnosis of TB is a central component of any TB control programme. In 2013, ECDC’s TB Programme invested in two external quality assurance studies in order to maintain high quality standards in European laboratories and ensure sufficient laboratory capacity in all Member States

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<sup>1</sup> European Centre for Disease Prevention and Control/WHO Regional Office for Europe. Tuberculosis surveillance and monitoring in Europe 2013. Stockholm: ECDC, 2013

# 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.



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.

Source: Plotkin S, Orenstein W, Offit P. Vaccines. Fifth Edition, 2008, Elsevier Inc.



# The VPD Programme: vaccine-preventable diseases

The words ‘adverse effects of vaccination’ strike fear in the hearts of many parents. ECDC wants to separate the truth from the fiction and has renewed its commitment to VENICE III<sup>1</sup>, a network dedicated to measuring vaccine safety and effectiveness across Europe.

The Programme also emphatically supports efforts in the Member States to eliminate measles and rubella and provides a number of tools to support national vaccination efforts. The ECDC Vaccine Schedule, an interactive database which contains information on the different vaccines and vaccination schedules in the Member States, has been one of the most accessed applications on ECDC’s website.

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<sup>1</sup> VENICE III. Vaccine European New Integrated Collaboration Effort. [homepage on the internet]. 2013 [cited 2013 Dec 21]. Available from: <http://venice.cineca.org/reports.html>



Good hygiene at school and at home keeps gastroenteritis away



Let's talk about protection

enhancing childhood vaccination uptake



Cold? Flu? Take care not antibiotics!

01 Practice good hand hygiene

Wash hands with soap and water, and dry them well, before handling food or eating, after toilet use and after having been outside



02 Ensure food safety

Follow recommendations on food handling,



03 Clean and disinfect properly

Frequently touched surfaces should be cleaned often and areas where vomiting

04 Stay at home if infected

Anyone with diarrhoea and/or vomiting should stay home

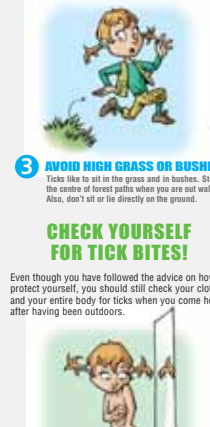
PROTECT YOURSELF AGAINST TICKS!

Ticks are so small it is impossible to see them when you play outdoors. But you can protect yourself by following this advice when you are in the countryside:



1 USE INSECT REPELLENTS

Let an adult apply the repellent for you and don't forget to wash it off when you come back home.



3 AVOID HIGH GRASS OR BUSHES

Ticks like to sit in the grass and in bushes. Stay in the centre of forest paths when you are out walking. Also, don't sit or lie directly on the ground.

CHECK YOURSELF FOR TICK BITES!

Even though you have followed the advice on how to protect yourself, you should still check your clothes and your entire body for ticks when you come home after having been outdoors.



5 REMOVE THE TICK

If you find a tick on your body, ask your parent or another adult to remove it for you with tweezers. Wrap the tick in some toilet paper and flush it in the toilet. Be careful that it does not bite again!



seasonal

Influenza

Communication

toolkit guidelines



# Health communication: spreading the news

ECDC's Public Health Capacity and Communication Unit serves as ECDC's dissemination hub for scientific and corporate publications, social media activities, infographics, and risk communication output. It also manages the ECDC website and produces a series of communication tools for the Member States. In 2013, the Unit published new or updated toolkits on influenza, gastrointestinal diseases, and childhood vaccination, in addition to the materials offered for the European Antibiotic Awareness Day. The Unit also published the final instalment of the 'Translating health communication' series which supports the use and development of health communication activities for the prevention and control of communicable diseases.

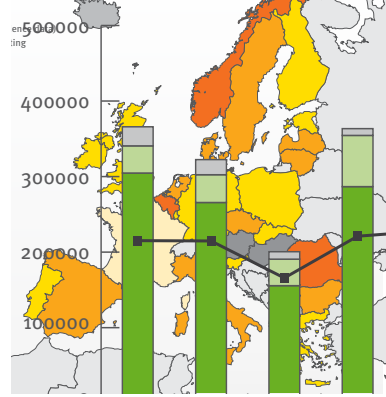
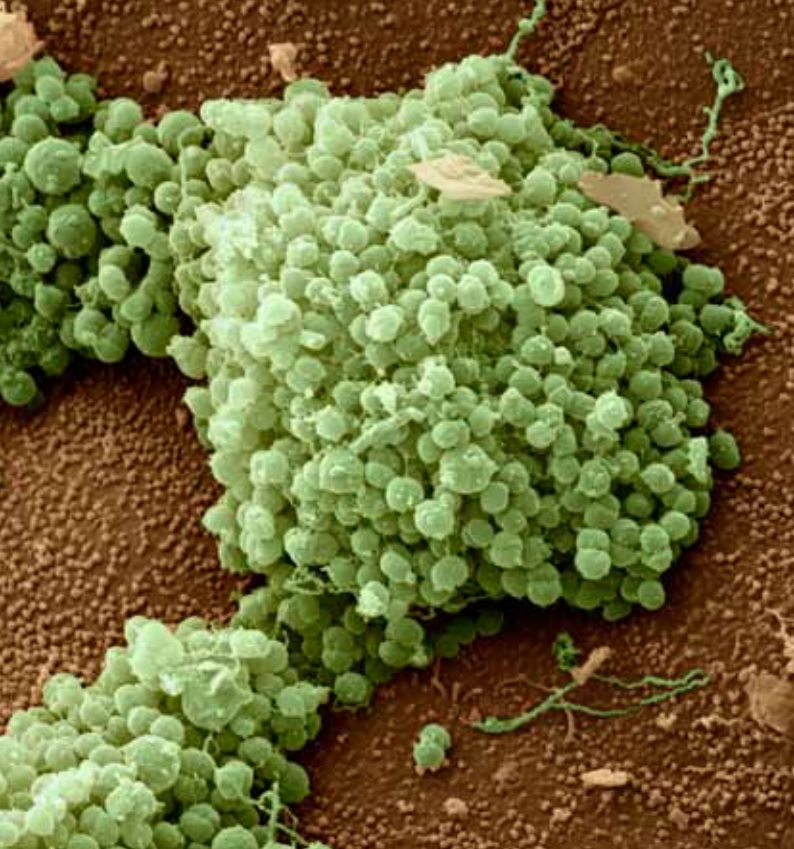




# Training and capacity building: passing on the knowledge

Following a clearly defined training strategy for capacity building, the Public Health Training Section and its staff aim to fulfil a training centre function for all EU Member States and the European Commission. In 2013, 117 fellows were enrolled in the EUPHEM and EPIET programmes – a significant contribution to strengthening capacity in the Member States. Other accomplishments included the work plan for the first year of the Mediterranean Programme for Intervention Epidemiology Training (MediPIET), the completion of an e-learning strategy, several short courses for public health professionals, and training support for the various disease networks.





# Keeping tabs on contagious diseases

Since its inception, disease surveillance and monitoring has been at the very core of ECDC's mandate. The Centre's experts see disease surveillance as contextual and not as an isolated discipline: only in combination with other public health functions such as scientific advice, preparedness, response, training and health communication can the Centre live up to its true potential and position itself as a leading force in the protection of public health in Europe.

In a recent editorial<sup>1</sup>, *Nature Reviews Microbiology* called ECDC's 2013 surveillance report<sup>2</sup> a comprehensive 'European report card':

'This annual report card for European health makes interesting reading. Overall, although progress has been made in some areas, there is definite room for improvement [in European health].'

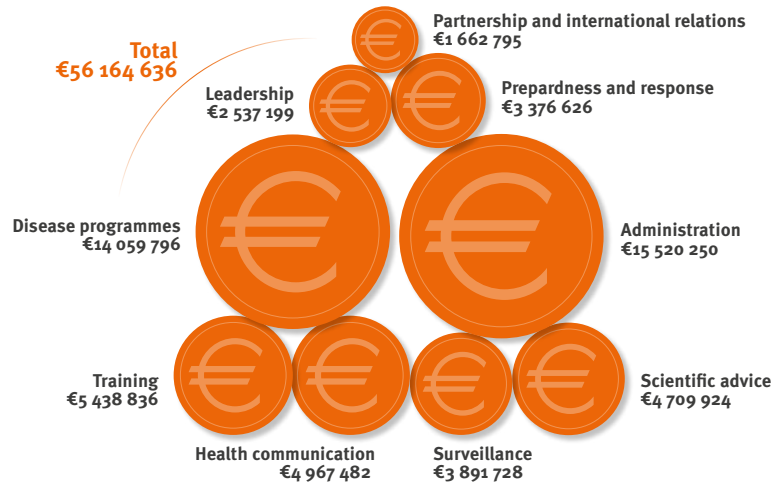
Here at ECDC, we wholeheartedly agree. European public health remains fragile and warrants constant vigilance. With 52 communicable diseases that fall under its watchful eye, it is highly unlikely that ECDC and its epidemiologists, public health specialists and communications experts will ever run out of work.

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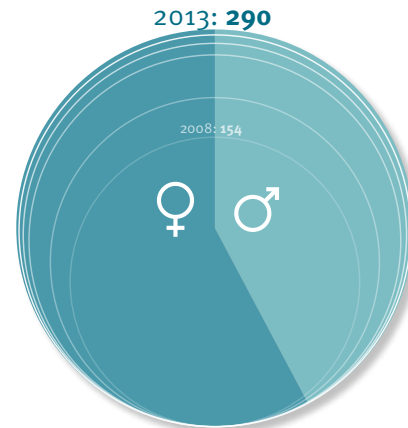
<sup>1</sup> Editorial. European report card issued. *Nat Rev Micro* 2014; 12(2):71.

<sup>2</sup> European Centre for Disease Prevention and Control. Annual Epidemiological Report 2013. Reporting on 2011 surveillance data and 2012 epidemic intelligence data. Stockholm: ECDC; 2013.

## ECDC budget

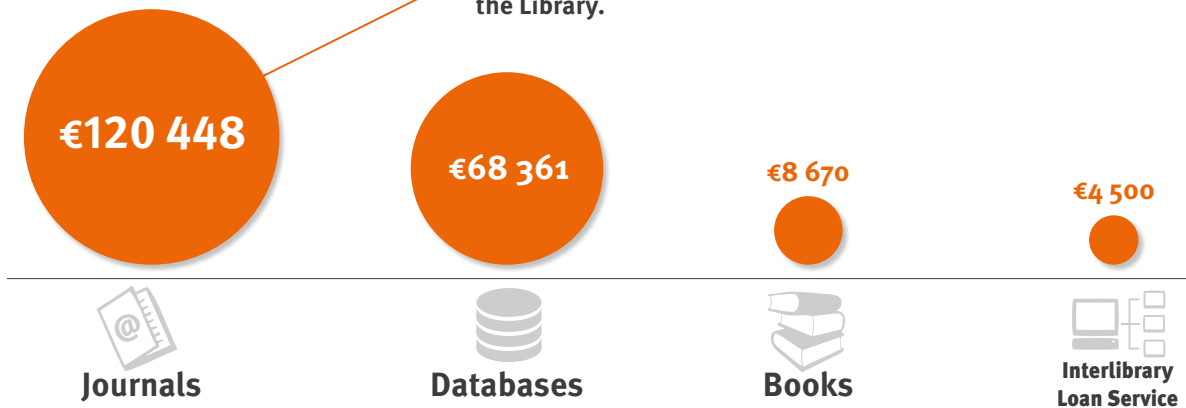


## ECDC employees



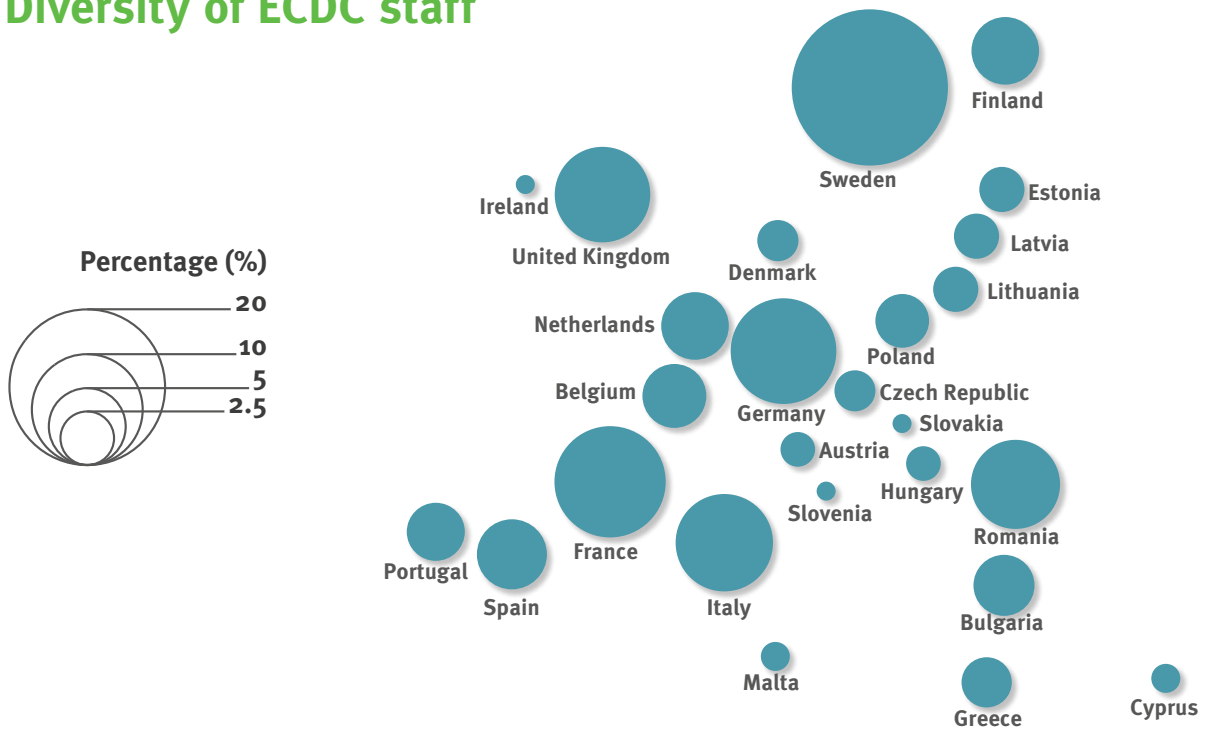
## Library budget

In 2012, the budget allocated to the maintenance of the journal collection corresponds to **60%** of the total amount of the budget allocated for the Library.



# The administration side of things

## Diversity of ECDC staff



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