

Keeping Europe healthy: ECDC in action

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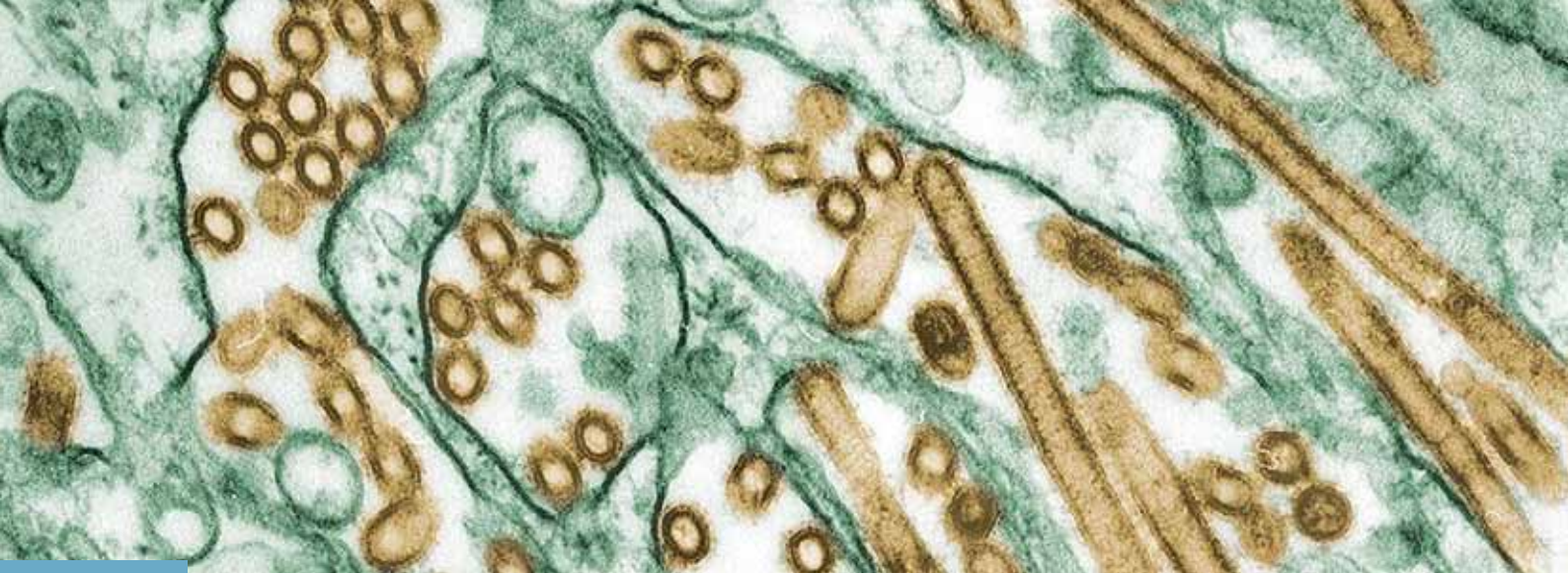
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Keeping Europe healthy: ECDC in action

Contents

Preface – EU action against infectious diseases	3
What threat do infectious diseases pose to people in Europe?	4
ECDC in action	6
What if a pandemic started tomorrow?	8
ECDC's strategic priorities for 2007–2013	10
How ECDC is organised	12
Key facts about ECDC	14
List of infectious diseases that are notifiable at EU level	16



"Our vision is of a European Union where all citizens enjoy the best protection from infectious diseases that the latest prevention and control measures allow."

Zsuzsanna Jakab, Director of ECDC



Preface – EU action against infectious diseases

The world has never been more interconnected than it is today. Millions of people and tonnes of food cross borders every day. On an average night in a major hotel in a European city you will find guests from a dozen or more countries. As SARS demonstrated in 2003, infectious disease outbreaks can spread internationally at speeds never seen before.

The good news is that in the 21st century the tools available for detecting and preventing disease outbreaks are better than at any time in history. The challenge is to make sure we use these tools to good effect.

The European Centre for Disease Prevention and Control (ECDC) was created in 2005 to strengthen Europe's defences against infectious diseases. We work with the EU's Institutions and Member States to facilitate cooperation, and to provide the evidence base needed for effective action. Our vision is of a European Union where all citizens enjoy the best protection from infectious diseases that the latest prevention and control measures allow.

As a scientific agency of the European Union, ECDC conducts risk assessments and provides scientific evidence to EU and national policymakers. But we also have a 'hands on' operational role in defending Europe against diseases.

In terms of our monitoring and assessment of threats to human health, we do not just do this sitting in our offices in Stockholm. We regularly have epidemiologists out in the field, assessing the facts from where events are happening. We did this in 2005 and 2006 when H5N1 avian influenza arrived in parts of Europe, and again more recently when an outbreak of the tropical virus chikungunya fever occurred.

So, while part of our work focuses on statistics and scientific analysis, we also have a role in responding to incidents that have a direct impact on people's health. This gives us a responsibility, and a motivation, to get it right.

In short, our job is to keep Europe healthy, now and in the future.

Zsuzsanna Jakab
Director of ECDC



What threat do infectious diseases pose to people in Europe?

Infectious diseases are caused by micro-organisms – such as bacteria, viruses, parasites, or fungi – that invade the human body and multiply inside it. Micro-organisms can infect people via a number of different routes. They can be present in the air we breathe, the water we drink or the food we eat. People can pick up micro-organisms from contact with other people, animals, plants or even from the invisible dirt on objects they touch.

EU countries have generally been very successful in fighting infectious diseases. Standards of hygiene are high in the EU compared to many other parts of the world, and its Member States have good public health systems. National vaccination campaigns have controlled, and in some instances even eliminated, various diseases.

For most of the 50 or so diseases that ECDC gathers data on, rates of infection have either fallen or remained

stable over the past 10 years. The majority of deaths in EU countries are caused by non-infectious diseases such as cancer and heart disease.

However, it should be realised that the present situation is the result of hard and continuing investment by health authorities, healthcare workers, researchers, and many others. Less than 100 years ago, infections were still the main killers – especially of children and young adults. If the protection we have established is not continually maintained and developed, these infections will come back with a vengeance. Even today, the burden of infectious diseases should not be underestimated. Every year in EU countries, infectious diseases cause tens of thousands of deaths, millions of lost work days and untold pain and suffering.



Infectious diseases – the major threats

- The most significant disease threat in Europe is from micro-organisms that have become resistant to antibiotics. Infections from such bacteria are a huge and rapidly growing problem both in our hospitals, and within the wider community. Every year, approximately four and a half million people in the EU catch healthcare-associated infections, of which it is estimated that as many as 40,000 patients die as a direct consequence.
- Over 25,000 new cases of HIV/AIDS were reported in EU countries in 2006. The total number of people living with HIV in the EU is estimated to be approximately 700,000. Of these, some 30% – around 200,000 – do not know that they have HIV.
- Nearly 90,000 cases of tuberculosis (TB) were reported in the EU in 2006. TB cases are rising among vulnerable groups such as migrants and HIV-positive people. Cases of drug-resistant TB, which are very difficult or even impossible to treat, are being seen across the EU.
- Each winter, hundreds of thousands of people in the EU become seriously ill with seasonal influenza. Of these, several thousand will die in an average influenza season, often unnecessarily as effective vaccines are available for the risk groups.
- Totally new micro-organisms adapt and change, with the result that new diseases can and do emerge. We saw this with HIV/AIDS in the 1980s, variant Creutzfeldt-Jakob disease in the 1990s and SARS in 2003.
- Climate change may also lead to new patterns of disease in Europe. We have seen tick-borne encephalitis spread to various parts of Europe, and even outbreaks of emerging tropical diseases in recent years.



ECDC experts on field mission



ECDC Emergency Operations Centre

ECDC in action

Responding to health threats

Since the 1990s EU countries have routinely shared information on disease outbreaks that have the potential to spread across borders. A secure messaging system called the EU Early Warning and Response System on public health threats (EWRS) links health authorities in the Member States, ECDC and the European Commission. ECDC's 'epidemic intelligence officers' based in our Emergency Operations Centre monitor this system seven days a week, 365 days a year. They also monitor information from the World Health Organization, international partners and the media.

When a threat is detected, ECDC staff rapidly assess its significance and share their findings with the European Commission and Member States. If needed, ECDC can dispatch experts into the field to investigate the facts on the ground.

Gathering EU-level data on infectious diseases

ECDC gathers data from its member countries on approximately 50 key infectious diseases (see page 16 for a list of these diseases). This enables ECDC to put together a Europe-wide picture of what is happening with infectious diseases on our continent, and to analyse trends in the number of cases being reported. Working with Member States and the European Commission to

improve the reliability and comparability of data across Europe is a key strategic objective for ECDC. At present, differences between countries in the rate of cases being reported for various diseases often reflect differences in the way data is gathered rather than differences in the real situation.

ECDC produces an Annual Epidemiological Report, which compiles and analyses data on all the diseases it covers, as well as reports on the state of specific diseases such as HIV/AIDS and tuberculosis.

Providing the evidence for public health action

As well as providing high-quality data to decision makers, ECDC also provides them with independent scientific opinions. To do this, ECDC draws on the expertise of its own staff, experts from national public health institutes and academics. The procedure for producing an opinion is normally to set up an ad hoc Scientific Panel which produces an initial opinion, and this is then debated by ECDC's Advisory Forum.

Europe has a long tradition of excellence in the scientific fields of infection biology and clinical infectious disease medicine. Through cooperation and networking with the leading scientists in Europe, ECDC enables the pooling of knowledge on public health issues that cross geographical borders. Moreover, the current activities of

Eurosurveillance – ECDC’s scientific journal

Eurosurveillance, a leading European scientific journal devoted to the epidemiology, surveillance, prevention and control of infectious diseases, first appeared in 1995 and has been published by ECDC since March 2007. New issues are available online at www.eurosurveillance.org every Thursday, with rapid communications and news, as well as longer in-depth research articles and surveillance and outbreak reports. Most articles are also published in a quarterly print compilation. In addition,

e-alerts are sometimes released on events that need to be urgently communicated to the readers for rapid public health action.

Eurosurveillance is an open-access journal, free of charge both for readers and authors. The journal currently has more than 13,000 electronic subscribers, and the paper edition is printed in 6,000 copies.

the Centre aim to form closer links between science and policymaking, and to accelerate the application of discoveries at the laboratory bench to current public health issues in the field.

Training and capacity building

ECDC coordinates the European Programme for Intervention Epidemiology Training (EPIET), which provides training and practical experience at national centres for disease surveillance and response in the EU. Funded by ECDC and EU Member States, the programme is aimed at medical practitioners, public-health nurses, microbiologists, veterinarians and other health professionals working in the area of epidemiology applied to public health issues. The aim is to develop a European network of intervention epidemiologists, thus strengthening the surveillance and response capacity within and even beyond the European Union.

ECDC conducts regular consultations with national officials and arranges short training modules for them. These enable ECDC to assess Member States’ public health capacity and focus on key areas where capacity building is needed.

Health communication: information to enable action

ECDC’s aim is to provide information and analysis that can be acted on. However, public health decision makers in the EU and its Member States can only act on new data or new advice if they are aware that it exists. Dissemination of our scientific output is therefore of prime importance to ECDC.

While public health experts and decision makers are ECDC’s main target audience, infectious diseases have an impact on everyone. European citizens and the media therefore have a legitimate interest in what ECDC is doing. ECDC proactively communicates with the media and also targets some of its publications directly at citizens.

As well as communicating the results of its activities, ECDC also acts as a source of expertise for Member States on best practice in health communication and facilitates multi-country information campaigns. During disease outbreaks ECDC and the European Commission have an important role in fostering coherence in emergency risk communication across the EU.



Emergency hospital during Spanish influenza epidemic in 1918



What if a pandemic started tomorrow?

What if a new, extremely virulent form of influenza emerged and spread around the world? What role would ECDC play in protecting people in Europe from the disease?

The likelihood is that the pandemic would emerge outside Europe. It could also happen that the first outbreak of the new disease might not be immediately recognised as pandemic influenza. The initial signal that a pandemic could be starting would be picked up by ECDC's epidemic intelligence officers, either through media reports from the affected country or from official information. This official information could come either directly, as a briefing from health officials in the affected country, or via the World Health Organization (WHO).

ECDC's task would then be to assess the seriousness of the threat posed to health in Europe. Given the international interest in pandemic influenza, this assessment would have to be conducted in close collaboration with WHO and other international partners.

In the early stages of the outbreak there would be major gaps in our knowledge about the new virus. Health authorities would want to know how contagious the new virus is (i.e. what percentage of the population is likely to get sick), and how dangerous it is (i.e. how likely it is that infected people will die). They would also want

to know whether the virus is affecting specific population groups – for example children or the elderly – more than others. It is likely that WHO would offer to send an international Outbreak Assistance Team to the affected country. ECDC would contribute experts to this team and – via these experts – health authorities across Europe would have rapid access to the findings of the Outbreak Assistance Team.

ECDC has worked closely with Member States to develop their preparedness against an influenza pandemic. Should a pandemic occur, Member States would activate their preparedness plans.

ECDC would have a role throughout the pandemic in collating European-level surveillance data on the spread of the illness across our continent. Systems for providing such surveillance have been developed in advance and build on the existing systems for surveillance of seasonal influenza in Europe.

ECDC would provide rapid information on the developing situation via its website and its scientific publications.

Responding to an emerging threat: Chikungunya fever in Europe

Chikungunya is a mosquito-borne virus that causes high fever and joint pains. While rarely life threatening, it is an unpleasant disease that can spread rapidly once it takes hold in a local mosquito population. In the winter of 2005-06, there was a major outbreak of chikungunya on the island of La Réunion in the Indian Ocean. ECDC brought together leading experts to assess whether there was a risk of chikungunya fever being spread to Europe. The experts identified several regions of Europe where there were mosquitoes capable of carrying the



virus. Given the significant amount of travel between Europe and the Indian Ocean region they concluded there was a real risk of an outbreak in Europe.

Following this assessment, ECDC and the European Commission assisted Member States in sharing knowledge and strengthening preparedness against chikungunya.

In the summer of 2007 the first outbreak of chikungunya virus in Europe occurred in the district of Ravenna in North Eastern Italy. Because of the investment made in preparedness, local public health officials were aware of the threat of chikungunya and had the resources needed to test for the virus. The outbreak was spotted early and successfully contained. Nonetheless, the incident confirmed that chikungunya is a threat that Europe needs to take seriously. A joint ECDC/WHO team visited Ravenna district during the outbreak, and produced a joint assessment of its implications for European countries.

ECDC would work with the European Commission, Member States and other key partners to foster coherence in risk communication about the pandemic.

Throughout the pandemic ECDC would also work with Member States and the European Commission to evaluate the effectiveness of the control measures being taken. ECDC would work to facilitate the pooling of scientific knowledge and the sharing of experience on what works in combating the pandemic.



ESCAIDE conference 2007, Stockholm



Zsuzsanna Jakab at the European Parliament

ECDC's strategic priorities for 2007–2013

ECDC's Strategic Multi-annual Programme for 2007–2013 analyses the challenges that infectious diseases will pose to Europe in coming years and defines ECDC's role in helping Member States address those challenges.

The key challenges the EU faces in strengthening its public health systems include:

- Improving the quality and comparability of EU-level disease surveillance data. Present differences in disease incidence are as often due to differences in reporting as to differences in the 'real world' situation.
- Distilling the collected scientific knowledge in the EU into evidence-based public health advice that Member States and their citizens can act on.
- Having the right system to detect, and then respond to, the emergence of new diseases.
- Addressing these systemic challenges is a central task for ECDC. Our Strategic Multi-annual Programme provides a framework for doing this.



Meeting of Management Board at ECDC

Targets for 2013

By the year 2013:

Target 1: ECDC will have made significant contributions to the scientific knowledge base of infectious diseases and their health consequences, both to individuals and society at large.

Target 2: ECDC is the central focal point for infectious disease surveillance in the EU and the authoritative point of reference for strengthening surveillance systems in Member States.

Target 3: ECDC's reputation for scientific excellence and leadership is firmly established among its partners, and ECDC is the prime resource for scientific information and advice on infectious diseases.

Target 4: ECDC is the reference support point in the EU for the detection, assessment, investigation and coordinated response to emerging threats from infectious diseases.

Target 5: ECDC is the key reference support centre in the EU for strengthening and building the capacity through training for the prevention and control of infectious diseases.

Target 6: ECDC communication output is the main European source of authoritative and independent scientific and technical information in its field, and ECDC is the reference support point in the EU for risk communication.

Target 7: ECDC has a structured infectious diseases co-operation programme with all key partners.



ECDC Advisory Forum meeting

How ECDC is organised

The structure of the Centre is based on key functions. It currently comprises four technical units (Scientific Advice, Surveillance, Preparedness and Response, and Health Communication), supported by a unit for Administrative Services. The responsibility for overall leadership, management and coordination as well as external relations lies with the Director's Cabinet. The disease-specific activities cut across the four technical units: ECDC has so far established six such programmes: Respiratory tract infections; Sexually-transmitted infections including HIV and blood-borne viruses; Vaccine-preventable diseases; Antimicrobial resistance and healthcare-associated infections; Food- and waterborne diseases and zoonoses; and Emerging and vector-borne diseases.

The Centre's governing bodies

As an independent EU Agency, ECDC reports to a Management Board whose members are nominated by the Member States, the European Parliament and the European Commission. The Management Board appoints ECDC's Director and holds him/her accountable for the leadership and management of the Centre. It must also ensure that the Centre carries out its mission and tasks in line with the Founding Regulation. The Management Board approves and monitors implementation of ECDC's work programme and budget, adopts its annual report

and accounts – all in all it acts as the Governing Body of the Centre. It meets at least twice a year.

The Advisory Forum advises the Director of the Centre on the quality of the scientific work undertaken by ECDC. It is composed of senior representatives of national public health institutes and agencies, nominated by the Member States on the basis of their scientific competence, and a public health official from the European Commission. European scientific associations and civil society groups may also send observers to the Advisory Forum. The ECDC Director invites WHO to attend the meetings to



ECDC staff

ensure synergy between its scientific work and that of ECDC. In addition to advising ECDC, the Advisory Forum also acts as a channel for exchanging information and pooling health knowledge between Member States. The Advisory Forum meets at least four times a year.

The Executive Management Committee (EXC) is an advisory committee to the Director and meets every week. Made up of the senior managers in ECDC, the EXC is the main forum for policy, strategic planning and programme development, but also serves as a forum for consultations and coordination of the day-to-day activities of the Centre, including follow-up of budget and work plans.

ECDC Competent Bodies are institutions or scientific bodies providing independent scientific and technical advice or capacity for action in the field of the prevention and control of human disease. They have been designated by the Member States' governments.

They provide support to ECDC, and equally ECDC cooperates with them in all its missions, particularly on preparatory work for scientific opinions, scientific and technical assistance, collection of data, identification of emerging health threats and in public information campaigns.



Key facts about ECDC

- Operational since: **May 2005**
- Seat of agency: **Stockholm, Sweden**
- Director: **Zsuzsanna Jakab**
- Member States: **EU-27 plus the EEA/EFTA countries**
- Founding Regulation: **European Parliament and Council Regulation (EC) No 851/2004**
- Budget: **€41.1 million in 2008**
- Next steps: **ECDC's budget will grow to over €56 million by 2010 and its staff to 350 or so under its current mandate.**

ECDC's mission

ECDC's Founding Regulation defines the mission, tasks and modes of operation of ECDC. These can be summarised as follows:

- ECDC should focus on infectious diseases and outbreaks of unknown origin.
- ECDC should be a proactive centre of excellence as regards information and scientific knowledge on all aspects of infectious diseases.
- ECDC should be an agent of change, by actively supporting the whole EU system and its Member States in their efforts to improve the prevention and control of infectious diseases.

Find out more about ECDC

Website

You can find out more about ECDC and its activities on our website. Here you will for example find detailed information on the key infectious diseases which ECDC monitors, links to relevant organisations (e.g. national and EU surveillance bodies), a news archive and information on upcoming events. www.ecdc.europa.eu

Eurosurveillance

ECDC produces a weekly online scientific journal called Eurosurveillance. Founded in 1995, Eurosurveillance has become the leading journal on infectious diseases in Europe. It is an open-access journal and includes optional e-alerts and an RSS Feed. www.eurosurveillance.org

Member States

The ECDC's network comprises the following member countries:

The 27 EU Member States:

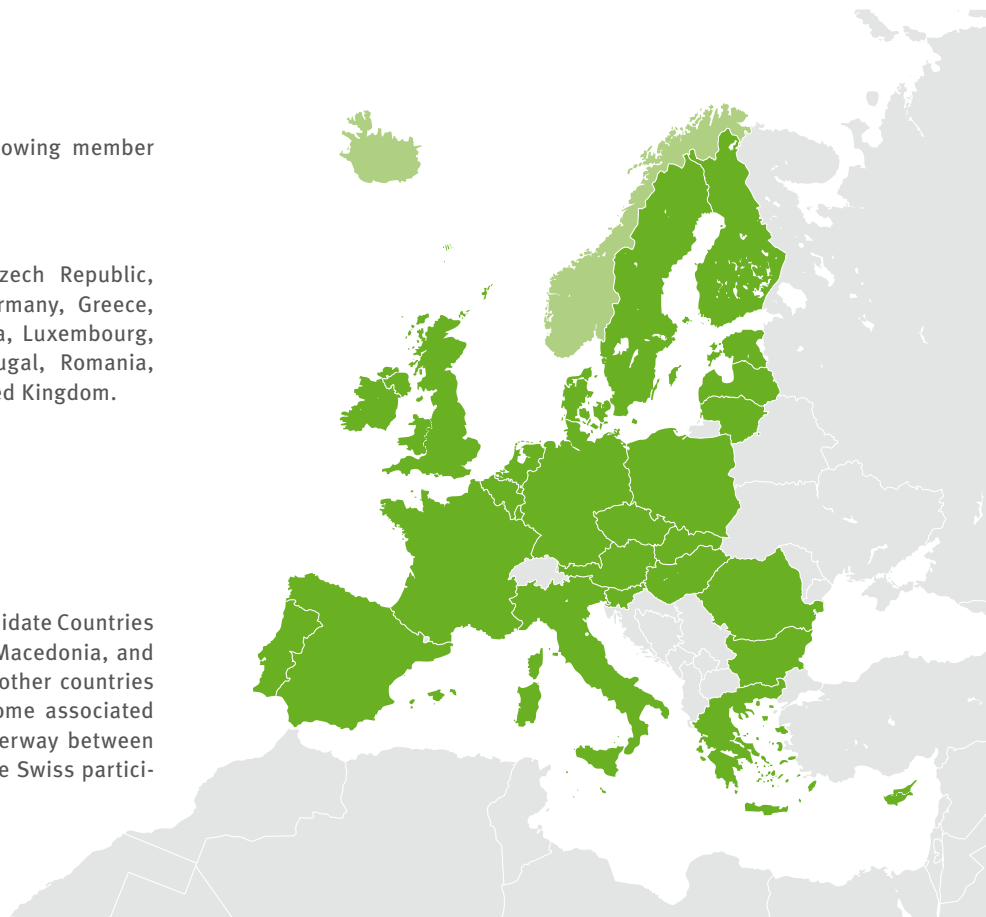
Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

The EEA/EFTA Countries:

Iceland, Liechtenstein, Norway.

Other countries in the EU neighbourhood:

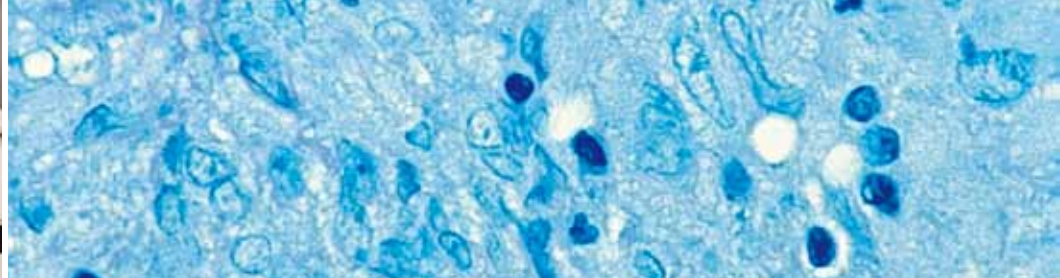
ECDC has begun to involve the three Candidate Countries – Croatia, Former Yugoslav Republic of Macedonia, and Turkey – in its work. It is possible that other countries in the EU neighbourhood will also become associated with ECDC's work. Negotiations are underway between Switzerland and the EU with a view to the Swiss participating in ECDC.



ECDC publications

ECDC produces a range of publications aimed at both experts and the public. Scientific publications are produced in English only while publications aimed at the general public are produced in the 23 official EU languages plus Icelandic and Norwegian.

ECDC produces a quarterly newsletter on its activities called 'ECDC Insight', as well as short quarterly briefings to policymakers on scientific topics ('ECDC Executive Science Update').



Histopathology of tuberculosis, endometrium

Diseases covered by ECDC's scientific work

Respiratory tract infections

Influenza, tuberculosis, legionellosis.

STIs, including HIV and blood-borne viruses

Chlamydia, gonococcal infections, hepatitis B, hepatitis C, HIV and syphilis.

Food- and waterborne diseases and zoonoses

Campylobacteriosis, cryptosporidiosis, infection with enterohaemorrhagic *Escherichia coli* (EHEC), norovirus infection, salmonellosis, hepatitis A and E, listeriosis, botulism, brucellosis, Creutzfeldt-Jakob disease and other transmissible spongiform encephalopathy (TSE), shigellosis, toxoplasmosis, trichinosis and yersiniosis, anthrax, cholera, tularaemia, echinococcosis, giardiasis, leptospirosis.

Emerging and vector-borne diseases

Malaria, Q-fever, chikungunya, hanta, dengue and yellow fevers, West Nile fever, borreliosis, tick-borne encephalitis (TBE), plague, severe acute respiratory syndrome (SARS), smallpox, viral haemorrhagic fevers, emerging/other diseases of unknown cause.

Vaccine-preventable diseases

Haemophilus influenza type b, measles, meningococcal disease, mumps, pertussis, rubella, pneumococcal infections (invasive), diphtheria, tetanus, poliomyelitis, rabies, rotavirus infection, varicella, human papilloma virus (HPV).

Healthcare-associated infections and antimicrobial resistance

Nosocomial infections, antimicrobial-resistant pathogens.

How to obtain EU publications:

Priced publications are available from EU Bookshop (<http://bookshop.europa.eu>), where you can place an order with the sales agent of your choice.

The Publications Office has a worldwide network of sales agents. You can obtain their contact details by sending a fax to (352) 29 29 42758.



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Swedish