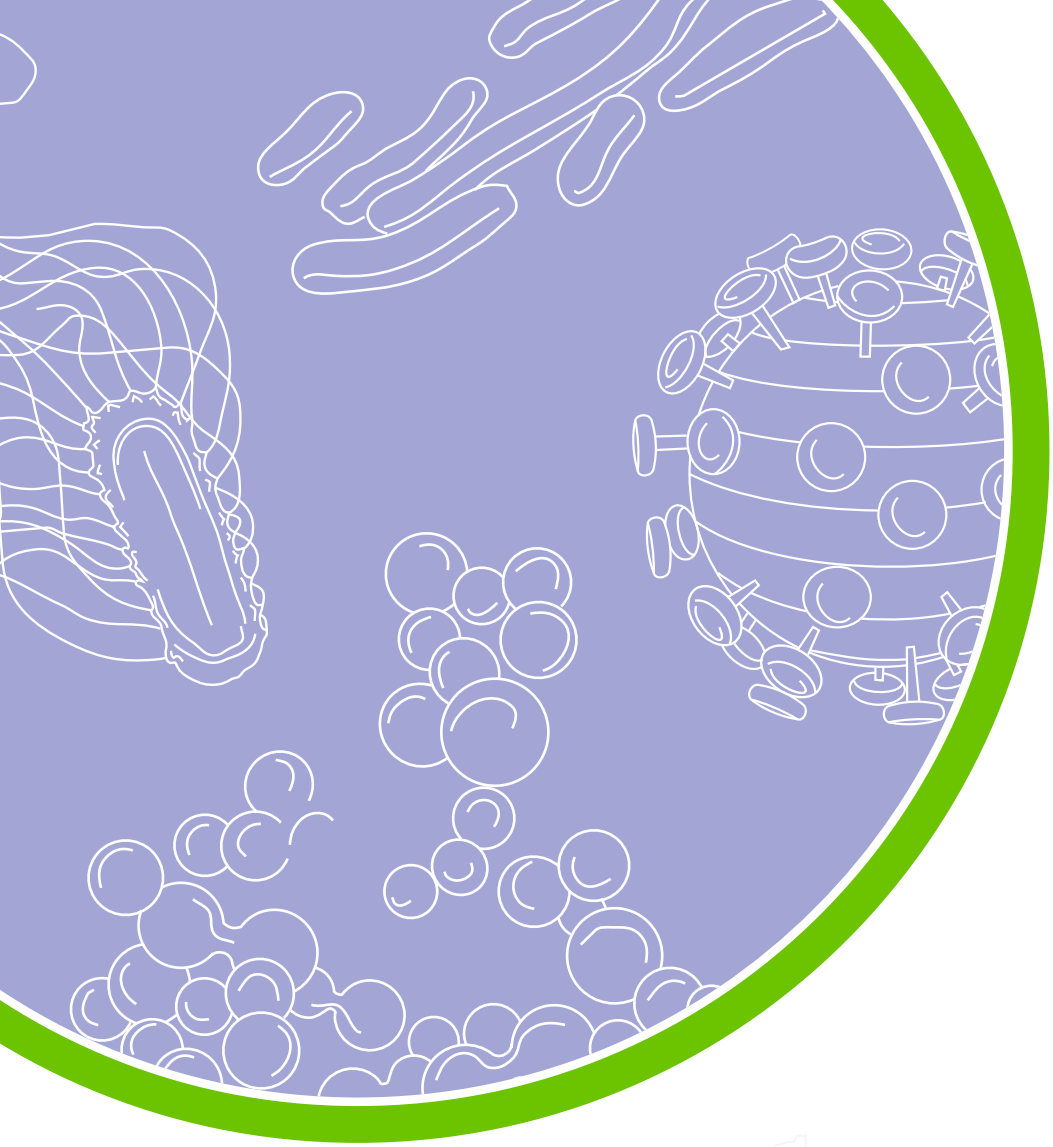

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EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

ANNUAL EPIDEMIOLOGICAL REPORT ON COMMUNICABLE DISEASES IN EUROPE 2008

REPORT ON THE STATE OF COMMUNICABLE DISEASES IN THE EU AND EEA/EFTA COUNTRIES

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European Centre for Disease Prevention and Control
2008

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PREFACE

Welcome to the second edition of ECDC's Annual Epidemiological Report on Communicable Diseases, the combined result of much hard work by colleagues all over Europe, as well as at ECDC. Our aim is to give epidemiologists, scientists and policy-makers the best available data and analysis on which to base public health decisions, enhancing the plans and programmes tackling communicable diseases.

In 2007, ECDC published the first Annual Epidemiological Report with the aim of creating a mechanism to better communicate our assessment of emerging communicable disease threats. As a result of that work we identified six major threats to the health of Europeans from communicable diseases. The analyses undertaken for this second edition confirm those conclusions and these six areas of work will remain priorities for ECDC's prevention and control activities. However, we cannot lose sight of the other issues. For instance, the high reported numbers of infection with chlamydia and campylobacter continue to warrant our close attention. I am pleased to see that there have been some positive developments across Europe on vaccine-preventable diseases, though many countries are still far from reaching goals set by the disease elimination programmes. Addressing the factors which have caused delay in measles elimination is a key priority for Europe.

In the report we have included, for the first time, a more detailed chapter on a special topic, to enable a more in depth discusssion on an issue of importance to European public health. This year the subject chosen for special attention is healthcare-associated infections (HCAI), an issue high on ECDC's agenda.

Over four million people in the EU acquire a healthcare-associated infection every year, of whom approximately 37 000 die as a direct result of the infection. The death toll from healthcare-associated infections is comparable to the number of people who die each year in road traffic accidents. It is estimated that 20–30 % of all such infections could be prevented by better hygiene and infection control procedures. The publication by the European Commission of a proposal for a Council Recommendation on patient safety, including the prevention and control of healthcare-associated infections, recognises this as a severe public health problem and calls on the EU Member States to take action. The Annual Epidemiological Report provides the evidence of the scale of the problem and proposes some measures to both improve the monitoring of these infections and succesfully reduce them.

All the information on infectious diseases in this report comes to ECDC either directly from EU, EEA/EFTA countries or from a variety of different European disease surveillance networks. Nonetheless major challenges regarding the accuracy of reporting still exist. ECDC is working to standardise and harmonise reporting from all sources to create a more accurate, understandable and accessible Europe-wide information system. Our aim is to continuously strengthen our information resources so that Europe as a whole can be rapidly informed about current and emerging infectious disease threats.

ACKNOWLEDGEMENTS

This report is the result of the concerted effort of many colleagues working all over Europe at all levels and could not have been published without them. It is not possible to list all those in the Member States and ECDC who contributed, but their input is greatly appreciated by the coordinators.

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LIST OF ABBREVIATIONS AND ACRONYMS

AI	Avian influenza
AIDS	Acquired Immune Deficiency Syndrome
AMR	Antimicrobial resistance
BSE	Bovine spongiform encephalopathy
BSI	Bloodstream infections
CCHF	Crimean-Congo haemorrhagic fever
CJD	Creutzfeldt-Jakob disease
DDD	Defined daily doses
DSN	Dedicated surveillance network
EARSS	European Antimicrobial Resistance Surveillance System
ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EFSA	European Food Safety Authority
EFTA	European Free Trade Association
EISS	European Influenza Surveillance Scheme
ESAC	European Surveillance of Antimicrobial Consumption
ESSTI	European Surveillance of Sexually Transmitted Infections
EU	European Union
EU IBIS	European Union Invasive Bacterial Infections Surveillance
EuroHIV	European Centre for the Epidemiological Monitoring of AIDS
EuroTB	Surveillance of Tuberculosis in Europe
EUVAC.NET	Surveillance Community Network for Vaccine Preventable Infectious Diseases
EWGLINET	European Working Group for Legionella Infections
EWRS	Early Warning and Response System
Gideon	Global Infectious Disease and Epidemiology Network
GOARN	WHO Global Outbreak and Response Network
GPHIN	Global Public Health Information Network
HAV	Hepatitis A virus
HBV	Hepatitis B virus
HCAI	Healthcare-associated infection
HCV	Hepatitis C virus
HELICS	Hospitals in Europe Link for Infection Control through Surveillance
Hib	Haemophilus influenzae type b
HIV	Human immunodeficiency virus
HPAI	Highly pathogenic avian influenza
HPRO	Hip prothesis
HUS	Haemolytic and uremic syndrome
ICU	Intensive care units

IDU	Injecting drug users
IHR	International Health Regulations
IPSE	Improving Patient Safety in Europe
LPAI	Low pathogenic avian influenza
MDR	Multi-drug resistant
MMR	Measles mumps & rubella
MRSA	Methicillin-resistant Staphylococcus aureus
MSM	Men who have sex with men
NI	Nosocomial infection
NNIS	National nosocomial infections surveillance system (US Centers for Disease Control and Prevention)
PN	Pneumonia
PNSP	Streptococcus pneumoniae
SARS	Severe acute respiratory syndrome
SARS-CoV	SARS-associated corona virus
SSI	Surgical site infection
STEC	Shiga-toxin producing Escherichia coli
STI	Sexually transmitted infection
TB	Tuberculosis
TESSy	The European Surveillance System
TTT	Threat tracking tool
vCJD	Variant Creutzfeldt-Jakob disease
VHF	Viral haemorrhagic fevers
VPD	Vaccine preventable disease
VTEC	Verocytotoxin-producing Escherichia coli
WHO	World Health Organization
WHO EURO	WHO European Regional Office
WNV	West Nile virus
XDR	Extensively drug resistant
YFV	Yellow fever virus

Country codes

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HU	Hungary
IE	Ireland
IS	Iceland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	The Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

SUMMARY AND CONCLUSIONS

BACKGROUND

When the first European Annual Epidemiological Report (AER) was published in 2007 it became clear that to produce another similar version in 2008 was neither feasible nor desirable. For many communicable diseases, the temporal trends have been fairly stable and changes in incidence and/or mortality were slow, necessitating no sudden change in preventive strategies from one year to another. In 2007 ECDC therefore proposed that the frequency of a comprehensive AER covering in depth all areas under ECDC surveillance could be every three to five years. Annual editions of the AER would still come out but would contain annual data on incidence of diseases in a form of standard tables and graphs with limited commentary. ECDC also proposed that each annual report would contain an assessment of health threats from communicable diseases from the year preceding the publication and that there would be a focus on one (or two) specific topic(s) for which an in-depth analysis would be included.

AIM OF THE AER

Along these lines, this report:

- focuses on a comprehensive description of healthcare-associated infections (HCAI), including antimicrobial resistance (AMR);
- contains an overview of communicable disease surveillance from 2006 in a tabular form with limited comments; and
- provides a description of acute threats to human health from communicable diseases in 2007.

MAJOR PUBLIC HEALTH BURDEN FROM INFECTIOUS DISEASES

The major threats related to communicable diseases in the EU have not changed from the previous edition of this report and include the following:

- Antimicrobial resistance;
- Healthcare-associated infections;
- HIV infection;
- Pneumococcal infections;
- Influenza (pandemic potential as well as annual seasonal epidemics);
- Tuberculosis.

MAIN TOPIC OF THIS EDITION

As agreed by the ECDC Advisory Forum in September 2007, the main topic for this edition of AER is healthcare-associated infections, including antimicrobial resistance.

Healthcare-associated infections (HCAI)

The surveillance of healthcare-associated infections (HCAI) in Europe is performed through the IPSE (Improving Patient Safety in Europe) network (2005–June 2008), which includes surgical site infection surveillance (Hospitals in Europe Link for Infection Control through Surveillance, HELICS-SSI) and intensive care unit surveillance (HELICS-ICU).

The incidence of surgical site infections in 2006 remained stable as compared with 2004–05 except for hip prosthesis operations where a significant decreasing trend was observed; from 2.2 % in 2004 to 1.6 % in 2005 and 1.3 % in 2006 (p = 0.039).

Out of 51621 patients staying more than two days in the intensive care unit, 6.8 % acquired a pneumonia. The incidence varied from 1.5 % in unventilated patients to 22.2 % in patients ventilated for one week or more. The most frequent micro-organism isolated in ICU-acquired pneumonia was *Pseudomonas aeruginosa* and in ICU-acquired bloodstream infections coagulase-negative staphylococci.

The surveillance of HCAI was further extended in 2006, and the extension process will continue after the transition of the surveillance components of the IPSE network to ECDC in 2008.

In general terms, HCAI infection rates remained stable across Europe in 2006. However, substantial inter-country differences in surveillance persist and further emphasis should be put on harmonisation of methods.

Antimicrobial resistance (AMR)

The data on antimicrobial resistance come from the European Antimicrobial Resistance Surveillance System (EARSS) which is a dedicated network for the surveillance of AMR in Europe.

Streptococcus pneumoniae

In 2006, most northern European countries had levels of *S. pneumoniae* non-susceptibility (PNSP) below 5 % while in the southern European and Mediterranean countries, PNSP proportion ranged from 7 % to › 25 %.

Staphylococcus aureus

Methicillin-resistant *Staphylococcus aureus* (MRSA) continued to spread in high-, medium- and low-endemic countries in Europe in 2006. Fifteen out of 31 countries (mainly southern European countries, the UK and Ireland) reported the proportion of all *Staphylococcus aureus* isolates resistant to methicillin to be 25 % or higher with proportions stabilising in some of the high-endemic countries. In northern Europe the proportion of MRSA remained ‹ 4 %.

Escherichia coli

Increasing level of fluoroquinolone resistance in Europe was particularly alarming.

Pseudomonas aeruginosa

In 2006, almost one-fifth of the invasive *P. aeruginosa* isolates were resistant to three or more antibiotics, particularly in southern European countries.

SUMMARY OF COMMUNICABLE DISEASE SURVEILLANCE 2006

Below is a brief summary of new findings from surveillance on communicable diseases in 2006 for the main disease groups/conditions/areas of concern.

HIV, sexually transmitted infections, hepatitis B and C, and HIV

In 2006, HIV infection remained of major public health importance in Europe, with over 25 000 newly diagnosed cases being reported by 29 countries (excluding Italy, Spain and Liechtenstein), giving an overall incidence of 6 per 100 000. A wide diversity in the epidemiology of HIV infection exists across the countries. Increasing numbers of HIV cases were being reported in some European countries: mainly Estonia, Latvia, Luxembourg, Portugal and the United Kingdom. In contrast, the number of newly reported AIDS cases in the EU and EEA/EFTA countries was 7 035, translating into a rate of 1.4 per 100 000, which corresponds to a decline by more than one third since 1999.

Heterosexual contact (53%) was the predominant mode of transmission for HIV infection, however around 40% of these were diagnosed in persons originating from countries with a generalised epidemic. If these cases are excluded, the predominant mode of transmission is sex between men (37%).

A high number of HIV-positive persons in the EU continue to be unaware of their infection. This underscores the need for efforts to increase the uptake of HIV testing.

Sexually transmitted infections

In 2006, *Chlamydia trachomatis* infections continued to be the most frequently reported STI (and the most common reportable disease overall in Europe), accounting for almost a quarter of a million cases reported by the 22 EU and EEA/EFTA Member States that carry out surveillance on this disease. The reported rate was 92 per 100 000.

In 2006, a new variant of *Chlamydia trachomatis* was reported in Sweden, which had escaped detection by the commonly available commercial tests. This prompted a study to look for this new variant in other Member States, but it still seems mostly confined to Sweden.

In 2006, the first vaccine against human papilloma virus infection was licensed.

Influenza

2006 saw the first cases of highly pathogenic avian influenza (A(H5N1)) in wild birds and poultry in the European Union. However, no human cases of infection by A(H5N1) were reported in the EU during 2006; only one case of infection by a low-pathogenic H7 avian strain was reported, in a poultry worker in the UK. Nonetheless, an enhanced package of animal health legislation ensured a consistent response to the increasing threat posed by the A(H5N1) virus in the EU Member States. As it remained primarily a bird virus, rapid identification and eradication of infection in birds and especially domestic poultry flocks remained the first line of defence for humans.

Tuberculosis

Tuberculosis (TB) incidence continued to decline in the indigenous populations of almost all Member States, where it is mostly a disease of old people, now being re-activated after a primary infection many decades

ago. However, recent demographic, political and socioeconomic changes in Europe, such as increasing migration, are affecting the situation. As a result, TB is becoming more common in migrants, the homeless, poor people in inner cities, prisoners, people living with HIV, and drug users in the EU.

Furthermore, there are areas with high levels of drug-resistant tuberculosis, mostly due to incomplete or ill-designed treatment regimes.

Vaccine-preventable diseases

In the area of vaccine-preventable diseases (VPD) a few trends deserve attention. Since the introduction of the universal childhood vaccination with *Haemophilus influenzae* type B (Hib) vaccine in most EU countries, the incidence of invasive Hib disease has fallen and continues to be low for the whole population in the EU countries (in 2006 below 1 per 100 000).

Several European countries have added pneumococcal conjugated vaccine 7 (PCV7) to their vaccination schedules, at least for high-risk groups. This has raised concerns over the possibility that common serotypes might be gradually replaced by serotypes not covered by PCV7, as has already been observed in the United States. This reinforces the importance of surveillance systems covering not only the disease but also the serotype distribution.

Despite an overall decreasing trend over the last decade, measles was still a public health priority in 2006 with over 7 000 confirmed cases and six reported deaths. Several events also clearly demonstrated the high outbreak potential of measles.

Most EU countries used acellular pertussis (aP) vaccine in 2006. After a period of stability, the notification rate appears to have been increasing slightly in some EU countries since 2003.

Food- and waterborne diseases

Campylobacter continues to be the most frequently reported gastro-enteric pathogen in the EU and EEA/EFTA countries with an incidence of almost 40 cases per 100 000, even though there seems to be a slight decline in numbers from 2005 to 2006.

VTEC/STEC infections also appear to be declining, with a notification rate in 2006 of just over 1 case per 100 000, although some countries report substantially higher numbers, especially in young children.

SUMMARY OF THREATS 2007

In 2007, ECDC monitored 168 threats of which:

- 142 (85 %) were new;
- 21 were opened in 2006 and still active in 2007;
- five were opened in 2005 and still active in 2007;
- 66 threats required an active follow-up by ECDC;
- 10 of them resulted in a detailed threat assessment circulated to the EU Member States and the European Commission through the EWRS.

Overall, in 2007, threats of EU interest remained widespread. Food- and waterborne diseases remained the most common source of threats monitored in the EU. Importantly, there was a significant increase in threats related to tuberculosis in 2007, and in particular, events related to multidrug-resistant and extensively drug-resistant (XDR) TB, as well as exposure of co-passengers to tuberculosis patients travelling while infectious.

Most of the threats identified as having a potential impact on the EU in 2007 were reported through the EWRS or through European networks designed for this purpose (EWGLI for Legionnaires' disease and ENTERNET for food- and waterborne diseases). The EWRS has continuously proven to be an effective tool for coordination of timely implementation of public health measures by EU Member States to contain confirmed threats. In 2007, ECDC began developing an EU-wide communication platform for epidemic intelligence.

The key threats in 2007 are summarised below.

Chikungunya outbreak in Italy, August 2007

In August 2007, an outbreak of the tropical disease chikungunya fever was reported from Italy. 217 laboratory-confirmed and 30 probable cases were reported following the initial notification on 30 August 2007 up to the end of October 2007 when the outbreak was declared controlled. Local transmission of chikungunya virus followed its introduction by a single returning visitor to India and indicated that the *Aedes albopictus* mosquito is indeed a vector capable of transmitting the virus efficiently at EU latitudes.

Viral haemorrhagic fevers

Viral haemorrhagic fever threats monitored by ECDC in 2007 included:

- Ebola outbreaks in the West Kassai province of the Democratic Republic of Congo and in the Bundibugyo district in Uganda;
- Rift Valley fever outbreaks in Kenya, Somalia, the United Republic of Tanzania, and Sudan;
- increased reporting of dengue fever in Brazil and in the British Virgin Islands; and
- an increase in cases of Crimean-Congo haemorrhagic fever in Turkey.

Food- and waterborne diseases

Forty-two alerts related to food- and waterborne diseases were recorded and monitored in the Threat Tracking Tool in 2007. Eleven outbreaks involved norovirus, two reports concerned hepatitis A in Ethiopia and Serbia, and a single threat related to hepatitis E among pigs.

Airline traveller with suspected XDR TB flying between USA and Europe

In May 2007, a passenger from Atlanta, USA, affected by suspected XDR tuberculosis, travelled on two long-haul international flights across the Atlantic. As a precautionary measure, contact tracing of the passengers in the same row as the case, in two rows ahead and behind, as well as of po-

tentially exposed crew members, was conducted. ECDC also issued a risk assessment for this event. (The patient was later found to indeed have had a resistant form of tuberculosis, but not the extremely resistant type.)

Influenza

Reports of human cases of H5N1 from several countries continued throughout 2007. These were all outside the EU, although two WHO EURO member countries (Azerbaijan and Turkey) had reported cases and fatalities in 2006.

CONCLUSIONS

Based on the summary of key figures and trends we can conclude that the priorities for communicable disease prevention and control in the EU have not changed substantially since the previous edition of the AER.

On one hand, the areas of concern, including conditions with a consistently high burden continue to be the same. In addition to the six major threats listed at the beginning of this chapter, the high reported numbers of infection with chlamydia and campylobacter deserve our attention.

On the other hand, in some disease areas, such as some of the VPDs (including Hib), there has been a reduction in incidence, and some other VPDs (e.g. diphtheria) are at extremely low incidence levels – around 0.1 case per 100 000. However, EU Member States are still far from reaching the goals set by the disease elimination programmes, especially as concerns measles.

The quality of the data on which these conclusions can be made remains far from perfect and substantial effort must be still invested in improving surveillance of communicable diseases in the European Union. Most importantly, large problems still remain around the comparability of data from different Member States, which obviously lessens the usefulness on the European level of the data collected.

New approaches to providing data for priority setting in the field of communicable disease need to be explored, including estimating the current and future burden of communicable diseases.

Looking into the future, it is obvious that some long-term trends will affect the communicable disease panorama in the EU, such as:

- the ageing EU population;
- environmental change, including climate change;
- increased travel and migration; and
- social changes.

Continuous monitoring of the burden and trends of communicable disease in the EU will have to be upheld to provide sound data on which a common health policy should be built.

Table A. Overview of general trends (1995–2005), EU incidence (2006), main age groups affected (2006), for communicable diseases reported on EU level

Disease	General 10 year trends	EU incidence per 100 000 (2006)	Main age groups affected (2006)
Respiratory tract infections			
Influenza	⟷	No data	0–14
Avian influenza	↑	0	insufficient data
Legionnaires' disease (legionellosis)	↑	1.1	65+
Tuberculosis	↓	17.6	25–44
HIV, sexually transmitted infections and blood-borne viral infections			
Chlamydia infection	↑	91.9	15–24
Gonorrhoea	⟷	8.9	25–44
Hepatitis B	↓	1.7	25–44
Hepatitis C	↑	6.7	25–44
HIV	↑	6.0	25–44
AIDS	↓	1.4	25–44
Syphilis	⟷	3.9	25–44
Food- and waterborne diseases and zoonoses			
Anthrax	↓	<0.01	insufficient data
Botulism	⟷	<0.1	15–24
Brucellosis	↓	0.2	25–44
Campylobacteriosis	↑	39.5	0–4
Cholera	↓	<0.01	25–44
Cryptosporidiosis	insufficient data	2.2	0–4
Echinocccosis	↓	0.2	45–64
Verocytotoxin-producing Escherichia coli (VTEC/STEC)	↑	0.7	0–4
Giardiasis	insufficient data	58.1	0–4
Hepatitis A	↓	3.9	5-14
Leptospirosis	⟷	0.2	45–64
Listeriosis	↑	0.4	65+
Salmonellosis	⟷	33.9	0–4
Shigellosis	↓	1.7	0–4
Toxoplasmosis	↓	1.6	15–24
Trichinellosis	↓	0.1	25–44
Tularaemia	⟷	0.2	45–64
Typhoid/paratyphoid fever	↓	0.3	0–4, 5–44
Variant CJD	⟷	<0.01	15–44
Yersiniosis	↑	2.3	0–4

Table continues overleaf

Table A *continued*

Disease	General 10 year trends	EU incidence per 100 000 (2006)	Main age groups affected (2006)
Emerging and vector-borne diseases			
Malaria	↑	1	25-44
Plague	insufficient data	0	insufficient data
Q Fever	↓	0.1	25–44
Severe acute respiratory syndrome (SARS)	insufficient data	0	insufficient data
Smallpox	insufficient data	0	insufficient data
Viral haemorrhagic fevers (VHF)	insufficient data	insufficient data	insufficient data
Chikungunya	insufficient data	<0.01	insufficient data
West Nile Fever	insufficient data	<0.01	insufficient data
Yellow fever	insufficient data	0	insufficient data
Vaccine-preventable diseases			
Diphtheria	↓	<0.01	5–14, 45–64
Invasive infection caused by Haemophilus influenzae type b	↓	<0.1	0–4
Invasive pneumococcal infection	↔	6.1	0–4, 65+
Measles	↓	1.5	0–4
Invasive meningococcal disease	↓	1.0	0–4
Mumps	↓	9.0	5–14
Pertussis	↓	4.5	5–14
Poliomyelitis	↓	0	insufficient data
Rabies	↓	0	insufficient data
Rubella	↓	1.3	0–4
Tetanus	↓	<0.1	65+
Antimicrobial resistance (AMR) and healthcare-associated infections (HCAI)			
AMR	↑	Not applicable	No data
Nosocomial infections	No data	Not applicable	No data

1 INTRODUCTION

1.1 BACKGROUND

This report aims to give an overview of the situation of the 49 communicable diseases and health issues for which surveillance is mandatory in the EU and three EEA/EFTA countries. The report is based on data collected from the surveillance systems of the Member States and uploaded into The European Surveillance System (TESSy), data and reports made available by the Dedicated Surveillance Networks (DSNs); reports from the Member States including those involved in epidemic intelligence, preparedness and response; information collected by ECDC from other sources such as WHO; and various technical and scientific reports and publications related to the epidemiological situation of communicable diseases in 2006 and the threats they posed during 2006 and 2007.

The Annual Epidemiological Report is intended for epidemiologists, scientists, policymakers and their key advisors to enable them to make better evidence-based decisions, using the available data to enhance plans and programmes dealing with these diseases.

1.2 STRUCTURE OF THE REPORT

As agreed with the Member States during discussions at a meeting of ECDC's Management Board in 2007, a more comprehensive Annual Epidemiological Report (as was the previous one) will be produced every three years; otherwise a more focused report, as is this report, will be published.

Summary and Conclusions—a synthesis of the main findings in the disease-specific chapters and the overall conclusions of the remainder of the report.

Chapter 1 is the background and methods section, where the main data sources and their limitations, as well as the analytical methods used, are briefly described.

Chapter 2 provides an in-depth review of the current situation of healthcare-associated infections across Europe and its implications. Together with a discussion of the major challenges in this area it also explores measures for prevention and control.

Chapter 3 is the main section containing the epidemiological situation of communicable diseases in Europe, and covers each of the 47 communicable diseases and two health issues under mandatory EU-wide surveillance (Commission Decisions 2000/96/EC, 2003/534/EC and 2007/875/EC). Tables and graphs are used to summarise the key findings and to illustrate/emphasise the text. The data used in this chapter were uploaded and validated by the Member States using ECDC's online system for the collection of surveillance data (TESSy) The deadline for updates and corrections was 31 March 2008.

Chapter 4 summarises the main communicable disease threats identified and investigated by ECDC during 2006 and 2007.

References are listed after each chapter or sub-chapter.

This Epidemiological Report on Communicable Diseases in Europe has seen some progress in the harmonisation of systems and data at the EU level with the first application of one data collection and validation method by all countries using TESSy, but it is just the start. The basic epidemiological data provided by the Member States still show a number of inconsistencies. There are a number of examples where the quality and comparability of the data are clearly not ideal and more work is planned to see how best to improve this situation.

1.3 DESCRIPTION OF METHODS FOR THE EPIDEMIOLOGICAL ANALYSIS (CHAPTER 3)

This section describes the main data sources and their limitations.

Data collection

For the description of the 2006 epidemiological situation, Member States chose, for each disease, whether ECDC used the data that had already been submitted to the respective DSN (this then provided a breakdown by age, gender, month of report, etc.), or whether to forward their data (cases or aggregate numbers) directly to ECDC. The ECDC data manager helped the Member States to validate their submission, and a draft of all the tables was returned to them for confirmation. In some cases, Member States preferred not to report any data at all on a particular disease, or preferred to report zero cases, even if other past epidemiological reports had quoted some figures for that disease in that particular country.

Overall inclusion criteria and summary tables

For all analyses, only confirmed cases were taken into account for most of the diseases. For some diseases (e.g. TB), the numbers of cases by case categories were not available, in which case total numbers of cases were used in the analyses. The total number of reported cases (independent of case classification) is also shown in the general overview table. This large table at the start of the analysis for each disease presents an overview of the number of cases and the disease-specific notification rates (considered to be a preferred term to 'incidence rate') for all countries that provided information throughout the whole of 2006. This table suffers from the limitation that some countries report a figure that was collected by a sentinel system or by voluntary notification systems that are known not to be nationally representative. These figures are listed alongside figures collected from other countries that may have national mandatory notification systems, or even active surveillance and case-finding practices for that particular disease. Wherever ECDC was informed of such a situation this is annotated in the text and that country's figure has not been used to estimate the overall rates.

The report type indicates the way a country reports the data ('C' = Case-based reporting; 'A' = Aggregate data reported; '—' = Not reported; 'U' = Unspecified).

Population data used

Eurostat was the source of all the population denominator data. These data have been extracted from the Eurostat data-

base under 'Population by sex and age on 1 January of each year' (http://epp.eurostat.ec.europa.eu). Totals per year and per country are available for all countries for 2006. For the age- and gender-dependent rates, age- and gender-specific population data from Eurostat were used: the 'Population by sex and age as on 1 January of each year' dataset for 2006. The Eurostat age-specific population data were aggregated into the following age groups used in the analysis: 0–4, 5–14, 15–24, 25–44, 45–64 and ≥ 65 years. The main limitations of these data and information are documented in the primary source itself and the usual limitations with regard to the use of secondary sources apply.

Age distribution

This presents the distribution of the specific disease's notification rates by age group. Only those Member States that provided the age data were included. The numerator consists of all the cases within the given age group from those countries that provided this variable, while the denominator is the sum of the populations within the respective age group, of all these countries that did have cases and provided age-specific information (including those with zero cases reported).

Gender distribution

For most diseases, gender-specific notification rates are presented, including the total for the EU/EEA region and with a possible male to female ratio or sub-division by country where relevant. Again only all those countries that did provide gender-specific information (including those with zero cases reported) were included in the numerator and denominator.

Distribution by season

This section presents the distribution of the total number of cases per month for each disease for 2006, to show any seasonal trend. Only those countries that provided seasonal data were included. The 'month' variable is in fact the 'DateUsedForStatistics', which is the date that the country chooses as its preferred date for reporting (this could be either date of onset of disease, date of diagnosis or date of notification).

1.4 DESCRIPTION OF METHODS FOR THE ANALYSIS OF THREATS (CHAPTER 4)

Epidemic intelligence is the activity consisting of systematically monitoring information pertaining to potential public health threats, validating them and assessing their public health significance. It results in a threat assessment that facilitates the implementation of appropriate control measures in a timely fashion.

Epidemic intelligence: capacity

Since its establishment in May 2005, ECDC has developed its capacity to perform effective epidemic intelligence. This capacity consists of the following components.

A facility: the ECDC Emergency Operation Centre

The ECDC Emergency Operation Centre (EOC) was funded through a specific budget

from the European Parliament and has been operational since May 2007.

Dedicated staff: the epidemic intelligence section of the Preparedness and Response Unit

At the end of 2007, the section comprised three staff members in charge of scanning news and preparing daily and weekly reports.

Appropriate tools: the Threat Tracking Tool (TTT)

All events identified by the epidemic intelligence team are entered in the ECDC TTT, which is used to monitor the validation, assessment and response processes, as well as to produce daily and weekly reports and data for the annual report on emerging threats.

Comprehensive procedures

Epidemic intelligence in ECDC relies on a set of procedures to ensure a systematic and robust approach to threat detection validation and assessment. These procedures include:

- a 24 hour/7 day on duty system, involving first and second line duty officers who ensure the continuity of epidemic intelligence after hours and during public holidays and weekends;
- the Public Health Emergency Plan, which lays out the procedures for responding to a public health crisis in the EU to ensure the availability of resources at all stages of the management of a public health crisis. The plan, together with other procedures, and ECDC's EOC were thoroughly tested during a two-day simulation exercise in June 2007 and subsequently improved as a result;
- epidemic intelligence and response procedures, defining the roles and responsibilities of ECDC in these activities, in relation to the European Commission, EU Member States and WHO stakeholders[1].

Epidemic intelligence: surveillance

A major challenge for global disease surveillance and threat detection is not only the recognition and reporting of well-characterised 'known' infectious diseases, but also the ability to detect novel, emerging, or re-emerging infectious diseases.

The framework for epidemic intelligence developed by ECDC distinguishes two complementary surveillance components: 'indicator-based surveillance'; and 'event-based surveillance'[2].

Indicator-based surveillance refers to the detection of events resulting from the routine analysis of surveillance data. Detection of events based on the capture of ad hoc reports is referred to as event-based surveillance. This is also used for the rapid detection of previously unknown or emerging threats. Data can emerge from the active search for information on health events using internet scanning tools, email distribution lists or networks that complement the early warning function of routine surveillance systems.

After verification (in the case of event-based surveillance) or analysis and inter-

pretation (for indicator-based surveillance), the detected signals are assessed in order to determine the impact that they may have on the population in question. This assessment can help to define options for public health measures, but further investigation may be required in order to propose appropriate control measures. Within Europe, confidential dissemination of information on public health threats is carried out through the Early Warning and Response System (EWRS). Public dissemination of relevant information is usually done through the journal *Eurosurveillance*, Health Ministry press releases and WHO, the European Commission and ECDC websites.

Scope of epidemic intelligence activities

Epidemic intelligence activities in ECDC focus on the detection and investigation of emerging threats potentially affecting the EU. The ECDC founding regulation[3] defines a health threat as 'a condition, agent or incident which may cause, directly or indirectly, ill health' (Article 2). This definition is very broad as it encompasses agents as well as incidents.

The scope of epidemic intelligence at ECDC covers the following:

1. Threats related to communicable diseases originating in the EU and EEA countries and presenting a risk for spread to other Member States. These are the threats that meet the EWRS notification criteria and are therefore notified by Member States through that system, now operated by ECDC.
2. Threats related to communicable diseases originating outside of the EU or EEA and posing a risk for spread into any of the Member States. Such threats are identified by actively searching international sources of information.
3. Threats of unknown origin, until an initial assessment and investigation is able to identify its origin.

Threats potentially affecting EU citizens travelling to or residing in third countries are not comprehensively monitored, unless they present a significant risk of secondary transmission upon importation to the EU by a returning traveller or foreign residents. For example, the risk of acquiring malaria while travelling abroad is not systematically monitored by ECDC, as this is already covered by travel medicine institutions in the Member States and the risk for secondary transmission within the EU or EEA is limited. However, the worldwide distribution of chikungunya fever is closely monitored as there is a possibility that local transmission could become established in EU Member States where the *Aedes albopictus* mosquito is present.

Data description

ECDC monitors information provided by, or retrieved from, various sources. Such relevant information may consist of the occurrence of 'events' detected through event-based surveillance, or 'data' derived from indicator-based surveillance that present an unusual pattern. Events, once logged, filtered and validated become 'signals'. So do data, after collection, analysis and interpre-

tation. Signals originating from both indicator- and event-based surveillance undergo an initial assessment to determine their public health significance and impact. This process, once a significant public health impact is confirmed, defines 'threats' which correspond to public health alerts requiring containment measures.

Threats recorded in the ECDC TTT are characterised by the source of information at the origin of the detection. The country first affected is recorded, as well as all additional countries involved, whether in relation to case occurrence or the origin of the case exposure (food manufacturer, location of hotel, etc.).

In all tables, 2005 data refers only to the period June to December 2005.

Sources of information

For signal detection, ECDC systematically screens sources on a daily basis. These sources can be divided into three categories:

- Regulated confidential sources:
  - the Early Warning and Response System in the European Union (EWRS);
  - the International Health Regulation (2005 revision).
- Sources available by subscription involving a fee:
  - Global Public Health Information Network (GPHIN);
  - Gideon (Global infectious disease and epidemiology network).
- Public sources:
  - national epidemiological bulletins;
  - partners' websites, at national and international levels (WHO);
  - media websites.

Filtering of epidemic intelligence information

Detected events that are added to the monitoring process include occurrences of cases of:

- diseases with a high potential for spread;
- severe diseases or diseases with limited possibilities for treatment;
- diseases that require infection control measures;
- emerging or resurging diseases;
- diseases that change spread or resistance patterns;
- diseases that are of unknown origin,

and at least one of the following:

- cases occur or are expected in more than one Member State;
- exposure to a source to which citizens from more than one Member State may have been in contact (including environmental, food or medical sources);
- considerable or unclear risk of importation into Europe through trade and travel;
- adequate verification and investigation of the event might require assistance from ECDC and/or partner organisations;
- the event affects a single country but requires information from the national

health authorities of other European Member States;
- high media or political attention.

Events which meet one or more of these criteria are included into a Threat Tracking Tool (TTT) for follow-up. The decision to include an event is made in a daily meeting and once included for follow-up, the event is considered an active threat. In addition, all events reported through the EWRS are entered into the TTT.

References

1 Kaiser R, Coulombier D. Different approaches to gathering epidemic intelligence in Europe. Euro Surveill. 2006 Apr 27;11(4):E060427.1. http://www.eurosurveillance.org/ViewArticle.aspx?PublicationType=W&Volume=11&Issue=17&OrderNumber=1

2 Paquet C, Coulombier D, Kaiser R, Ciotti M. Epidemic intelligence: a new framework for strengthening disease surveillance in Europe. Euro Surveill. 2006;11(12):212-4. http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=665

3 Regulation (EC) No 851/2004 of the European Parliament and of the Council of 21 April 2004 establishing a European Centre for disease prevention and control.

2 HEALTHCARE-ASSOCIATED INFECTIONS

2.1 INTRODUCTION AND DEFINITION

Healthcare-associated infections (HCAI) are infections occurring after exposure to healthcare, often, but not always, as a consequence of this exposure. Hospital-acquired infections (HAI), also referred to as 'nosocomial infections' (NI) or simply 'hospital infections', are infections occurring during a stay in hospital that were neither present nor incubating at the time of hospital admission[1,2]. Mostly, nosocomial infections only appear in patients hospitalised for 48 hours or longer, which resulted in the use of the 48-hours criterion in several epidemiological surveillance systems. Friedman et al. have proposed HCAI as a distinct category defined as 'infections occurring in patients at the time of hospital admission or within 48 hours of admission if the patient received specific home care (such as intravenous therapy, wound care or specialised nursing care) or attended a hospital or haemodialysis clinic in the 30 days before the infection, if the patient was hospitalised two or more days in the 90 days before infection or if he or she resided in a nursing home or long-term care facility'[3]. The latter group of infections are often referred to as nursing home-acquired infections and long-term care-acquired infections[4,5,6]. Community-acquired infections are infections in patients not meeting any of the above criteria, and therefore, although one may find many examples to the contrary in scientific literature, they do not include nursing home-acquired infections. In the following text, we will follow the concepts introduced by Friedman et al. although the term 'health care-associated infections' will encompass hospital-acquired (nosocomial), nursing home-acquired, long-term care-associated, outpatient care-associated (e.g. dialysis, chemotherapy) and finally home care-associated infections.

Finally, it should be noted that further difficulties emerge in defining unequivocal subcategories of healthcare-associated infections because the way healthcare services are organised reflects the country-specific division of labour between healthcare providers, which is becoming increasingly complex in many countries. It is a commonly observed phenomenon that institutions with similar names such as 'general hospital', 'acute hospital', and 'psychiatric hospital' often do not perform identical roles in different healthcare systems[7]. Similarly, the term 'nursing home' may or may not include residential care for the elderly.

2.2 EPIDEMIOLOGY OF HEALTHCARE-ASSOCIATED INFECTIONS

The incidence of healthcare-associated infections varies by body site and is determined to a large extent by underlying disease conditions in the patients and their exposure to high risk medical interventions, such as surgical procedures and invasive devices.

National or multicentre point prevalence surveys of nosocomial infections performed in industrialised countries in recent years have shown that the percentage of patients

Table 2.2.1. Overview of recent prevalence surveys of nosocomial infections in industrialised countries

	NI Prevalence	Reference	Hospitals (N)	Patients (N)
UK, 1996	9.0 %	8,9	157	37 111
Germany, 1997	3.5 %	10	72	14 996
France, 2001 (1996)	6.6 %	11,12	1 533	162 220
Switzerland, 2002	8.1 %	13,14	60	7 540
Greece, 2000	9.3 %	15	14	3 925
Italy, Lombardy, 2000	4.9 %	16	88	18 667
Slovenia, 2001	4.6 %	17	19	6 695
Canada, 2002	10.5 %	18	25	5 750
Italy, INF-NOS, 2002	7.5 %	19	15	2 165
Portugal, 2003	8.4 %	20	67	16 373
Denmark, 2003	8.7 %	21	38	4 226
Latvia, 2003	3.9 %	22	7	3 150
Finland, 2005	8.5 %	23	30	8 234
Sweden, 2004–2006[a]	9.5 %	24	56	13 999
UK and Ireland, 2006	7.6 %	25	273	75 763
France, 2006[b]	5.0 %	26,27	2 337	358 353
Norway, 2002–2007[a][c]	6.8 %	28,29,30	53	11 359
Scotland, 2007	9.5 %	31	45	11 608
Spain, (1990–) 2004–2007[a]	6.8 %	32,33,34	259	58 892
Lithuania, 2003,2005,2007[a]	3.7 %	35,36	35	8 000
Netherlands, 2007	6.9 %	37	30	8 424
Mean	7.1 %			

(a) Average numbers from repeated point prevalence surveys in several years.

(b) Figure for acute care facilities only.

(c) Corrected for non-included infection types (i.e. those other than UTI, LRTI, SSI and BSI).

with a nosocomial infection on any given day in acute care hospitals is on average 7.1 %, ranging from 3.5 % to 10.5 % (Table 2.2.1).

The main infection sites and the average percentage they represent of the total of nosocomial infections in this series of prevalence studies were urinary tract infections (27 %), lower respiratory tract infections including pneumonia (24 %), surgical site infections (17 %) and bloodstream infections (10.5 %). The remaining infection sites represent on average 19.3 % of the prevalence survey overview and include gastrointestinal infections (mainly *Clostridium difficile* infection (CDI)), skin and soft tissue infections, central nervous system infec-

tions, etc. Globally, the relative frequency figures compare well with figures from the hospital-wide component of the National Nosocomial Infections Surveillance System (NNIS) of the US Centres for Disease Control (1990–1992)[38].

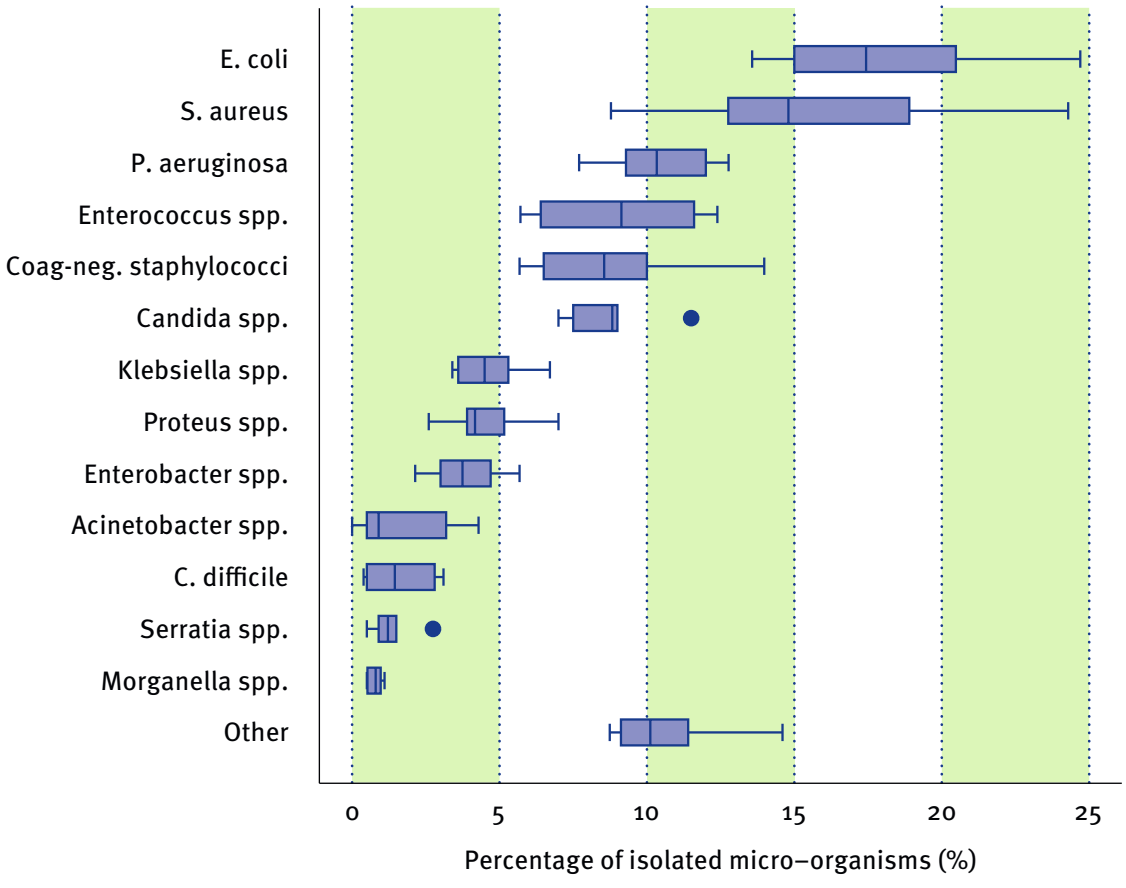
Micro-organisms in healthcare-associated infections

Figure 2.2.1 shows the distribution of the most frequently isolated micro-organisms in all infection sites in those national prevalence surveys that recorded this information.

Overall, *Escherichia coli* and *Staphylococcus aureus* are the most frequently involved, followed by *Pseudomonas aeruginosa*, *Enterococcus spp.*, coagulase-negative staphylococci, *Candida spp.*, other Enterobacteriaceae such as *Klebsiella spp.* and *Enterobacter spp.* *Clostridium difficile* has become more prominent in recent years due to the epidemic of the more virulent NAP I ribotype 027 strain in the US, Canada and some EU countries[39,40,41,42,43,44].

As well as these most commonly occurring pathogens, a small proportion (less

Figure 2.2.1. Relative frequency of micro-organisms isolated in nosocomial infections (all types) in six European national or multicentre prevalence surveys



than 10 %) of nosocomial infections occur in the context of nosocomial outbreaks[45,46]. As documented by recent review studies of nosocomial outbreaks[47,48,49], the most frequently involved micro-organisms in reported outbreaks are those causing endemic infections such as *S. aureus* (14 % of reported outbreaks), *P. aeruginosa* (8 %), *Klebsiella pneumoniae* (7 %), *Acinetobacter spp.* (7 %) and *Serratia spp.* (6 %), but also other micro-organisms such as *Salmonella spp.* (4 %), *Legionella pneumophila* (3 %), *Aspergillus spp.* (2 %), hepatitis virus (10 % of total, of which HBV 48 %, HCV 34 %, HAV 18 %), norovirus (2 %), influenza/parainfluenza (2 %), rotavirus (2 %), adenovirus (1 %) and of course SARS coronavirus (obviously over-represented in scientific literature). Outbreaks that led to significantly more frequent closures of the affected medical departments were caused by norovirus (closure rate 44 %), influenza/parainfluenza virus (39 %), (group A) Streptococci (29 %) and *Acinetobacter spp.* (23 %).

Antimicrobial resistance

Most, although not all, new antibiotic resistance mechanisms were first described in hospital-acquired micro-organisms. Methicillin-resistant *S. aureus*, for example, was a predominantly nosocomial pathogen for a long time until it became increasingly prevalent in other settings such as nursing homes, related to the extensive flow of patients between these two types of institutions and sustained antibiotic selection and cross-transmission in both of them. More recently, other methicillin-resistant *S. aureus* strains have emerged in the community, such as the community-acquired MRSA strain that carries a gene responsible for the Panton-Valentine leukocidin toxin, capable of causing invasive infections in healthy subjects[50]; and more recently the multilocus sequence type 398 strain isolated from animals such as pigs and spread to farmers and their families as well as to veterinarians[51,52,53]. Apart from their resistance to the first line therapy in staphylococcal infections, both of these strains constitute a new challenge to hospital infection control as they represent a new community reservoir that could be imported into the healthcare setting without the risk factors usually recognised in MRSA screening policies. Similarly, extended-spectrum β lactamase (ESBL)-producing *E. coli* is increasingly seen in the community, mostly causing urinary tract infections (but also bloodstream infections and gastro-enteritis) in the community and in nursing homes[54]. ESBL-producing Enterobacteriaceae are resistant to all penicillins and cephalosporins, but are also resistant to other classes of antibiotic, especially fluoroquinolones and co-trimoxazole, leaving only a few other therapeutic options such as carbapenems.

However, resistance to carbapenems has also emerged in nosocomial ESBL-producing Enterobacteriacae such as *Klebsiella pneumoniae* and non-fermenters (*Pseudomonas aeruginosa* and *Acinetobacter baumannii*), leaving very limited (e. g. colistine) or no treatment options for an increasing number of healthcare-associated infections[55,56,57]. The following are some of the pathogens

posing a major threat to healthcare systems, but the list is not exhaustive.

- Vancomycin-resistant *Staphylococcus aureus* (VRSA);
- Vancomycin-resistant enterococci (VRE);
- Carbapenem-resistant Enterobacteriaceae;
- Carbapenem-resistant *Pseudomonas aeruginosa*;
- Carbapenem-resistant *Acinetobacter spp.*;
- ESBL-producing Enterobacteriaceae, including community-onset CTX-M producing *Escherichia coli*.

Surveillance of antimicrobial resistance has been successfully implemented in Europe through the EARSS project (European Antimicrobial Resistance Surveillance System), supported by the European Commission's Directorate-General for Health and Consumer Protection. The project was presented in detail in the *Annual Epidemiological Report on Communicable Diseases in Europe 2005* and results for 2006 are summarised in chapter 3, below. While this network succeeded in following up trends, the early detection of bacteria with unusual resistance patterns remains a challenge for Europe (see section 2.8, below).

2.3 SURVEILLANCE OF NOSOCOMIAL INFECTIONS IN EUROPE

Surveillance of nosocomial infections differs significantly from surveillance of antimicrobial resistance. The latter is largely laboratory-based and uses microbiological case definitions, whereas HCAI surveillance involves active case-finding by infection control teams and clinicians, uses clinical case definitions sometimes without a microbiological component and requires the collection of additional data to determine the infection source and perform inter-hospital comparisons of HCAI rates.

Following the demonstration of the effectiveness of surveillance in the prevention of nosocomial infections in the US[58] and the success of the National Nosocomial Infection Surveillance Scheme of the Centres for Disease Control (CDC)[59], several European countries started to set up national networks for the surveillance of nosocomial infections in the early 1990s.

These surveillance networks are all target-oriented, meaning that they focus on a specific type of healthcare-associated infection and/or on a patient population at higher risk[60]. Their primary goal is to offer a standardised methodology to participating healthcare institutions in order to assess their own infection rates, follow them up in time and compare them with the rates of other institutions as a measure of their own performance.

Because national or regional priorities in terms of infection control may differ, many different surveillance protocols have been developed over the years. The protocols that were most common to Member States in the late nineties, the surveillance of surgical site infections and the surveillance of ICU-acquired infections, have been the target for standardisation at the EU level

within the EU-funded HELICS (Hospitals in Europe Link for Infection Control through Surveillance) project since 2000[61,62]. Table 2.3.1 shows an overview of the different surveillance protocols that have been implemented in EU Member States (status 2007). Hospital-wide surveillance of all types of infections, though interesting from a public health point of view, is rarely implemented because it does not enable meaningful comparisons of rates between institutions at an acceptable workload for the infection control staff, nurses or clinicians that have to collect the data. Instead, increasing numbers of countries are performing national point prevalence surveys. These make nationwide estimates of the burden of HCAI possible but do not usually provide sufficient precision for individual hospitals to make a reliable interpretation of their own figures. In eastern Member States, nosocomial infections are often still part of the list of mandatory reportable diseases. However, these systems are likely to suffer from under-reporting because most surveillance systems are primarily based on confidential treatment and feedback of hospital infection rates. Moreover, case-based reporting of on average approximately 10 000 nosocomial infections per one million inhabitants and per year (see burden estimates below) in the absence of meaningful denominator data does not serve the local surveillance objectives of the hospital.

Although the table also includes hospital-based surveillance networks of antimicrobial resistance, the well-known lab-based EARSS surveillance scheme that collects data from over 800 laboratories serving more than 1300 hospitals in 31 countries (including all but one of the EU Member States)[63], is not listed here. Unlike EARSS, hospital AMR surveillance networks are mostly run by the hospital infection control staff and look at both percentage resistance and incidence rates of (new) hospital-acquired cases as an indicator of cross-transmission. Data collection in EARSS is mostly done by microbiologists and does not look at hospital-acquired cases. For example, the hospital admission date is often not available in the participating laboratories and therefore it is only available for approximately 40 % of known inpatients with invasive isolates reported to EARSS (EARSS, J. Monen, personal communication). On the other hand, EARSS provides more precise and validated data on the percentage resistance in isolates from invasive samples (including imported bloodstream infections from the community or nursing homes), using standardised definitions (breakpoints) for antimicrobial susceptibility data.

The coordination of the surveillance of nosocomial infections is usually performed by the national surveillance institutes or by other institutions (such as universities) that have been designated for that task by the national health authorities or surveillance institutes. In countries with a strong regionalisation of hospital infection control policies, setting up coordinated national initiatives for HCAI surveillance is a difficult process (e. g. Sweden, Italy) and in some cases the initiative for setting up a network

Table 2.3.1. Overview of different surveillance protocols/modules implemented by national or regional networks for the surveillance of healthcare-associated infections in EU countries

	Austria	Belgium	Bulgaria	Croatia	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	UK-England(f)	UK-Northern Ireland	UK-Scotland	UK-Wales
Surveillance of surgical site infections(HELICS)	x	x					[b]		x	x	x	[c]	x		[d]		x			x	x	x	x			[d]	x		x[a]	x[a]	x[a]	x[a]
Surveillance of surgical site infections in one-day surgery											x																					
Surveillance of surgical site infections in cardiac surgery																				x												
Surveillance of surgical site infections in neurosurgery																																
Surveillance of ICU-acquired infections (HELICS)	x	x		x				[d]		x	x		[c]		x		x	x		[b]	[d]	[c]	x	[d]	[d]		x		[d]		[c]	
Surveillance of central line infections in ICU										[i]																						x
Surveillance of nosocomial infections in neonatal ICUs											x																					
Surveillance of central catheter colonisation in neonatal ICUs										[i]																						
Surveillance of central line infections in neonatal ICUs										[i]																						
Surveillance of bacteremia		x							x	x																			x			x
Surveillance of central line infections																				x												
Surveillance of bloodstream infections with S. aureus																x													x[a]			
Surveillance of bloodstream infections with MRSA																x															x[a]	
Surveillance of GRE bloodstream infections																													x[a]			
Surveillance of ventilator-associated pneumonia																				x												
Surveillance of urinary tract infections										[i]																					x	
Surveillance of device-associated infections											x																					
Surveillance of C. difficile infections		x[b]							x		x																		x[b]	x	x	x
Surveillance of MDR bacteria in hospitals										x																						
Surveillance of MRSA in hospitals		x[b]								x	x					x																
Surveillance of MDR gramnegatives in hospitals		x								x																						
(Repeated) prevalence surveys of HCAI in hospitals		x[e]	x[e]				x	[g]	x	x	x	x		x	x	x	x			x	x		x			x	x	x	x	x	x	x
Surveillance of nosocomial infections in Onco/ BMtransplant											x																					
Surveillance of dialysis-related infections										[i]																						
Surveillance of nosocomial infections in obstetric wards										[i]																						
Surveillance of rotavirus infections in paediatric wards										[i]																						
Surveillance of RSV infections in paediatric wards																															x	

Table 2.3.1 *continued*

	Austria	Belgium	Bulgaria	Croatia	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Norway	Poland	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	UK-England(f)	UK-Northern Ireland	UK-Scotland	UK-Wales
Surveillance of HCAI outbreaks									(h)	x						x(h)															x	x
Surveillance of hand hygiene compliance		x									x																					
Surveillance of hand alcohol use		x								x	x																					
Surveillance of accidental blood exposure in healthcare workers		x								x																						
Surveillance of antibiotic consumption in hospitals		x																														
Repeated point prevalence surveys of antibiotic use							x		x							x											x					

(a) Mandatory participation;
(b) Surveillance discontinued;
(c) Data not transferred to HELICS;
(d) Pilot network;
(e) Results not yet available;
(f) Public disclosure of individual (hospital) rates;
(g) Prevalence survey(s) in one or few hospitals;
(h) Food- and waterborne disease outbreaks covered by specific system;
(i) Modules developed by one or some of the five regional sub-networks (C. Clin) in France.

has been led by the national societies for infection control without formal collaboration with the national institute (e.g. Italy, Poland).

Table 2.3.2 shows an overview of coordinating institutes with their respective websites for a selected number of countries.

2.4 COMPARABILITY OF NOSOCOMIAL INFECTION RATES

Since inter-hospital comparisons are an essential component of surveillance of nosocomial infections, risk adjustment is important for the interpretation of the data and to correct for the case-mix variations between institutions. For example, the NNIS and HELICS protocols for the surveillance of surgical site infections include risk factors in order to calculate a risk index as developed by the US CDC[64] which is used to stratify or standardise the surgical site infection rates. This, however, assumes that the surveillance teams in the hospitals collect risk factor data for each patient undergoing one of the surgical procedures in the selected categories. Similarly, adjustment for intrinsic and extrinsic risk factors in the ICU requires data collection at patient level.

Differences between case definitions and surveillance methodologies create further variations in nosocomial infection rates (as for all types of surveillance). This issue is particularly apparent when it comes to

Table 2.3.2. Coordination of national/regional surveillance of HCAI

Country	Network acronym	Website	Coordination
Austria	ANISS	www.meduniwien.ac.at/hygiene/?c=aniss&s=krankenhaushygiene	Austrian Nosocomial Infection Surveillance System, Medical University of Vienna
Belgium	NSIH	www.iph.fgov.be/nsih	National Surveillance of Healthcare-associated infections and antimicrobial resistance, Scientific Institute of Public Health (IPH), Brussels
Croatia			Reference Centre for Hospital Infections, Zagreb
Finland	SIRO	www.ktl.fi/siro	Finnish Hospital Infection Programme (SIRO), National Public Health Institute (KTL), Helsinki
France	RAISIN	www.invs.sante.fr/raisin	Réseau d'Alerte, d'Investigation et de Surveillance des Infections Nosocomiales (RAISIN), under the auspices of the Insititut de Veille Sanitaire (InVS)
FR-East	C.CLIN Est	www.cclin-est.org	
FR-Paris-Nord	C.CLIN Paris-Nord	www.cclinparis-nord.org	
FR-South-east	C.CLIN Sud-Est	cclin-sudest.chu-lyon.fr	
FR-South-west	C.CLIN Sud-Ouest	www.cclin-sudouest.com	
FR-West	C.CLIN Ouest	www.cclinouest.com	
Germany	KISS	www.nrz-hygiene.de/surveillance/surveillance.htm	German Nosocomial Infection Surveillance System (KISS), National Reference Centre for Nosocomial Infection Surveillance, Charité Medical University, Berlin
Hungary		www.oek.hu/oek.web*	Johan Béla National Centre for Epidemiology, Budapest
Italy	SPIN-UTI		Regional Health Authority of Emilia-Romagna, Bologna; ICU network: Gruppo Italiano Studio Igiene Ospedaliera (GISIO)
Lithuania		www.hi.lt => Hospitalinės infekcijos	Institute of Hygiene, Vilnius
Luxembourg	NOSIX	www.crp-sante.lu*	Centre de Recherche Public de la Santé, Luxembourg
Netherlands	PREZIES	www.prezies.nl	Prevention of Nosocomial Infection through Surveillance (PREZIES), National Institute for Public Health and Environment (RIVM) and the Dutch Institute for Healthcare Improvement (CBO)
Norway	NOIS	www.fhi.no => NOIS	Norwegian Institute of Public Health (FHI), Oslo
Poland			Polish Society of Hospital Infections; National Institute of Public Health, Warsaw

Table 2.3.2 *continued*

Country	Network acronym	Website	Coordination
Spain	ENVIN (ICU), EPINE (prevalence)	www.mpsp.org/mpsp/epine; www.iscii.es*	Envin: Hopital Val d'Hebron, Barcelona; SSI surveillance by Carlos III Institute of Health, Madrid
UK-England	SSISS (SSI)	www.hpa.org.uk/infections/topics_az/hai/default.htm	Health Protection Agency (HPA), London
UK-Northern Ireland	HISC	www.hisc.n-i.nhs.uk	Northern Ireland Healthcare-associated Infection Surveillance Centre (HISC), Belfast
UK-Scotland	SSHAIP	www.hps.scot.nhs.uk/haiic/sshaip/index.aspx	The Scottish Surveillance of Healthcare Associated Infection Programme (SSHAIP), Health Protection Scotland, Glasgow
UK-Wales	WHAIP	www.wales.nhs.uk/sites3/home.cfm?orgid=379	Welsh Healthcare Associated Infection Programme (WHAIP), National Public Health Service (NHS) Wales

* websites without specific pages for HCAI surveillance.

inter-country or inter-network (within the same country) comparisons. Examples of issues where crucial differences arise include: whether the same patients are included in the denominator; whether only the first or all infection episodes are counted; whether exposure is counted as up until the first infection or for the entire stay (e.g. in the ICU, mechanical ventilation given after onset of a ventilator-associated pneumonia is likely to be treatment of a worsening respiratory condition)[65,61]. Since case definitions and surveillance methods are mostly agreed on within the national or regional network of hospitals, changing those to EU-agreed definitions and methods as pursued by the HELICS network, was a long-term process. Indeed, some national networks are still using definitions and methods that are not fully compatible with the European definitions. Alongside the HELICS standardisation process, a parallel process has been running at the national level to reach a consensus between regional networks on methods and definitions (mainly in France, but to some extent also in the UK).

Finally, data validity is of course a major issue in the surveillance of HCAI, and field validity studies performed by some surveillance networks have clearly shown that the sensitivity of NI surveillance is far from optimal[66]. Even within the same network with the same case definitions, hospitals' interpretations of those definitions may still differ. There can also be differences between the case finding processes in each hospital and different attitudes towards reporting nosocomial infections to a coordinating centre that is often associated with the health authority; there can be a reluctance to report, even when individual hospital data are treated confidentially and only reported

to the participating institution. Indeed, the easiest way to officially have zero infections is not to report any, and that has essentially been the major argument against public disclosure (or disclosure to health authorities by the surveillance coordinating centre) of nosocomial infection rates that include the identity of the hospital.

In order to further assess and improve the comparability and quality of the data collected in HCAI surveillance networks, a European validation study based on a standardised validation methodology should be carried out. Such a study would enable an assessment of the sensitivity of the different surveillance networks and an exploration of the real differences between case definitions judged against the same golden standard.

2.5 BURDEN OF NOSOCOMIAL INFECTIONS

Hospital-wide incidence figures for all types of nosocomial infections are not available from European countries. The type of surveillance that generates such data was abandoned worldwide in the early nineties because of poor cost-effectiveness in terms of prevention of nosocomial infections[60]. Given this lack of hospital-wide figures, the total annual number of nosocomial infections occurring in the EU has been estimated based on data from recent national or multicentre prevalence surveys (see Section 2.2). It should, however, be stressed that these estimates must be interpreted and used with caution since they are based on the following assumptions.

Firstly, the prevalence surveys underlying the estimates use different methods (inclusion criteria, case definitions, case finding methods, etc.), hence figures for individual countries can not be compared. However, we do assume that the average of these figures also represents an average methodology which would apply to the entire EU.

Secondly, we assume that the average percentage prevalence from data of different recent years would not be significantly different from the average today.

Thirdly, the method of converting prevalence to incidence is itself based on several assumptions such as the average length of hospital stay for infected and non-infected patients.

Fourthly, estimating mortality attributable to HCAI is probably one of the most discussed areas in epidemiology due to the underlying illness of hospitalised patients. Since no gold standard exists, an often cited reference from scientific literature was used[38,67]. Using another reference or methodology such as chart reviews[68] or use of national registries and 28-day mortality[69] would result in different attributable mortality estimates.

Finally, for the calculation of burden estimates we used the average unit cost per patient-day from cardiovascular units available from the only reference to our knowledge

providing EU-wide inpatient day costs[70]. These data may differ from the cost per bed day for patients with healthcare-associated infections in general.

Taking into account these important limitations, the total annual number of HCAI in hospitals can be estimated by converting the mean prevalence of 7.1 % (see Table 2.2.1) to a cumulative incidence figure of approximately 5.1 % according to the method described by Gastmeier et al.[71]. This figure compares relatively well with the best nationwide figure of 5.7 per 100 admissions so far available from the US[72]. According to Eurostat figures for the EU 27 (2005 figures completed by earlier years if missing, ref. http://epp.eurostat.ec.europa.eu/ and Health in Europe 2005 pocketbook edition), the number of hospital admissions in the EU 27 (498 million inhabitants) is approximately 81 million per year (on average 16 247 admissions per 100 000 inhabitants per year). The yearly number of patients with at least one nosocomial infection in the EU 27 can thus be estimated at 4 131 000 patients. Since patients will often get more than one infection during the same hospitalisation (average from the national prevalence surveys review is 1.1 infections per infected patient) the yearly number of nosocomial infections can be estimated at 4 544 100.

The impact of nosocomial infections on the length of stay in the hospital and mortality (attributable morbidity and mortality) depends on the type of infection (highest for pneumonia and bloodstream infections) and estimates vary considerably in scientific literature. Based on overall estimates of attributable mortality of nosocomial infections by the US CDC[38,67], approximately 37 000 deaths (0.9 %) caused directly by nosocomial infections occur every year in the EU 27 and infections contributed to an additional 111 000 deaths. Nosocomial infections also generate approximately 16 million extra days of hospital stay per year (an average of four days per infection[38]), at a considerable cost and creating a significant burden for healthcare systems in Member States.

Assuming an average hospital cost of EUR 435 per day[70], the total annual healthcare cost of nosocomial infections for the EU 27 can be estimated at EUR 7 billion per year, not considering any indirect costs linked to loss of income as the result of illness and death, nor the intangible costs associated with the physical and emotional pain and suffering.

2.6 PREVENTABILITY OF NOSOCOMIAL INFECTIONS

Many nosocomial infections are not avoidable in real-life hospital conditions, because of the underlying illness of the hospitalised patient (e. g. impaired immunity), the invasive procedures to which patients sometimes have to be exposed in order to survive (e. g. mechanical ventilation of a comatose patient over several weeks in the ICU), and the potential pathogens that all humans carry (endogenous flora) and that may cause severe infections if normal host defence mechanisms are breeched. The question is

what represents the irreducible minimum, for endemic nosocomial infections as such, but also for the cross-transmission of resistant or more virulent nosocomial pathogens (potentially causing exogenous nosocomial infections) and for the selection of multi-resistant micro-organisms by antibiotic use. Estimates of the preventable proportion of nosocomial infections have for a long time been based on the results of the landmark SENIC study[58] showing that with intensive infection control and surveillance programmes an overall reduction of 32 % in nosocomial infection rates could be obtained in a five-year period. A more recent review of 30 multi-modal intervention studies and studies assessing exogenous cross-infection, found a minimum reduction effect of 10 % to a maximum effect of 70 %, depending on the setting, study design, baseline infection rates and type of infection[73]. The authors concluded that on average 20–30 % of all nosocomial infections occurring under current healthcare conditions can be prevented. An even larger proportion (>50 %) of device-associated bloodstream infections seems to be avoidable, with studies investigating multi-modal interventions reporting reductions in catheter-related bloodstream infections ranging from 29 % to 95 %[74,75]. As for ventilator-associated pneumonia, studies suggest that average reductions of more than 40 % are possible[76].

2.7 PREVENTION AND CONTROL MEASURES

HCAI prevention and control is essentially based on: prevention of cross-transmission of nosocomial pathogens; prevention of bacteria causing infections when normal barriers are breeched; and prevention of the selection of resistant pathogens by inappropriate antibiotic use.

Healthcare-associated infection control measures are usually subdivided into standard measures, to be applied by the healthcare workers in all circumstances (e. g. hand hygiene), and additional precautions, to be taken when dealing with patients that are colonised or infected with particular micro-organisms. These precautions may vary according to the pathogen involved (essentially isolation measures).

Numerous guidelines on prevention of healthcare-associated infections have been developed, both by the US Centers for Disease Control and Prevention, and by other national or regional bodies in European and other countries (e. g. by specifically designated national expert committees, public health institutes or scientific associations). Table 2.7.1 gives an overview of the most common guidelines developed at the national level.

Hand hygiene has been recognised as the most important standard measure to prevent cross-transmission of nosocomial micro-organisms and has regained considerable attention in recent years. Since any patient or healthcare worker is potentially colonised with important nosocomial pathogens, even after negative screening tests at admission or at some stage during the stay in the institution, hand hygiene has to be applied rigorously before and after contact with any patient.

Table 2.7.1. Frequently developed guidelines and recommendations for the prevention of healthcare-associated infections
General guidelines:
Prevention of healthcare-associated infections
Standard precautions
Hand hygiene
Isolation precautions
Infection site-specific guidelines:
Prevention of intravascular device-related infections
Prevention of surgical site infections
Prevention of catheter-associated urinary tract infections
Prevention of healthcare-associated pneumonia
Pathogen (antimicrobial resistant and other)-specific guidelines:
General guidelines for multidrug-resistant organisms
Prevention and control of MRSA in hospitals and/or nursing homes
Prevention and control of ESBL-producing bacteria
Prevention and control of *C. difficile* infections
Examples of guideline websites (accessed July 2008):
US CDC: http://www.cdc.gov/ncidod/dhqp/guidelines.html
France: http://nosobase.chu-lyon.fr/recommandations/recommandations.htm
United Kingdom: www.hpa.org.uk: Home ⇢ Infectious Diseases ⇢ Infections A–Z ⇢ Healthcare Associated Infections ⇢ Guidelines
Germany: www.rki.de: Startseite ⇢ Infektionsschutz ⇢ Krankenhaushygiene ⇢ Empfehlungen der Kommission für Krankenhaushygiene
The Netherlands: www.wip.nl
Belgium: www.health.fgov.be/CSS_HGR
Ireland: http://www.ndsc.ie/hpsc/Publications
Lithuania: www.ulpkc.lt/ulpkc.metodines.php (nr 1.7-202)

Recommendations for the prevention of specific infection types mainly concern healthcare-associated and ventilator-associated pneumonia, catheter-related bloodstream infections and urinary tract infections. In particular, for the prevention of hospital-acquired pneumonia (HAP), the most common healthcare-associated infection contributing to death, many specific recommendations are still controversial, resulting in important variations between different guidelines. Some authors therefore propose the development of comprehensive pan-European HAP guidelines that could rationalise the conflicting proposals, provide a useful resource and limit guideline pro-

Table 2.7.2. European Task Force (ETF), Centers for Disease Control and Prevention (CDC), Canadian Critical Care Society (CCCS) and American Thoracic Society and Infectious Diseases Society of America (ATS-IDSA) recommendations regarding non-pharmacological and pharmacological measures to prevent ventilator-associated pneumonia. Adapted from Lorente et al.[78]

	ETF[79]	CDC[80]	CCCS[81]	ATS-IDSA[82]
Publication year	2001	2004	2004	2005
Non-pharmacological measures				
Oral intubation better than nasal	*NC*	*IB*	*REC*	*II*
Optimal pressure of endotracheal tube cuff	*NC*	*NR*	*NR*	*II*
Subglottic secretion drainage	SC	II	Cons	I
Early extubation	NR	IB	NR	II
Avoid re-intubation	*NC*	*II*	*NR*	*I*
Non-invasive ventilation	SC	II	NR	I
Tracheostomy: early better than late	NR	NR	Insuf	NR
Respiratory filters	NR	U	NR	NR
Routine change of ventilator circuits	*NO: NC*	*NO: IA in heat and moisture exchanger/ II in heated humidifier*	*NO*	*NO*
Heat and moisture exchanger better than heated humidifier	SC	U	REC	I: is the same
Tracheal suctioning system: closed better than open	SC	U	NR	NR
Routine change of closed tracheal suctioning system	SC	U	NO	NR
Sterilisation or disinfection of respiratory devices	NR	IB	NR	NR
Barrier measures	*NC*	*IA*	*NR*	*I*
Kinetic or standard beds	NR	U	Cons	NR
Semirecumbent position (30–45°)	*NC*	*II*	*REC*	*I*
Feeding: post-pyloric better than gastric	SC	U	NR	NR
Pharmacological measures				
Selective digestive decontamination	NC in some patients	U	Insuf	I
Preventive intravenous antibiotics	SC	U	Insuf	I at time of intubation
Chlorhexidine oral rinse	NR	II in cardiac surgery	NR	I in cardiac surgery
Sucralfate better than ranitidine	SC	U	Insuf	I: is the same
Avoidance of deep sedation and paralytic agents	*NC*	*NR*	*NR*	*II*

Cons: Considered;
I: The evidence is from well-conducted, randomised controlled trials;
IA: The evidence comes from well-designed experimental, clinical or epidemiological studies;
IB: The evidence comes from certain clinical or epidemiological studies;
II: The evidence comes from well-designed, controlled trials without randomisation;
Insuf: Insufficient evidence;
NC: Not controversial;
NO: No, not recommended, the recommendation is of no use;
NR: The guideline did not review this issue;
REC: Recommended;
SC: Still controversial;
U: Unresolved.

liferation[77]. Measures to prevent ventilator-associated pneumonia have recently been reviewed by Lorente et al.[78] and are shown in Table 2.7.2. Non-controversial recommendations are shown in italic.

Recently, several countries also developed specific recommendations for the prevention of *C. difficile* infection (CDI)[83,84,85,86]. In 2006, ECDC created a working group on *C. difficile* in order to estimate the spread and burden of the ribotype 027 epidemic in Europe and coordinate actions for risk assessment. It developed a common background paper including a European case definition for CDI[87] and reviewed CDI control measures as guidance for the elaboration of national CDI guidelines[88].

2.8 CURRENT CHALLENGES

The challenges in the field of HCAI surveillance, prevention and control are important and diverse[89,90]. In the European context, priorities can be identified at different levels, and some of the challenges for the next decade are discussed below.

Surveillance of healthcare-associated infections

A major issue for the near future is the further extension of the European surveillance of healthcare-associated infections to all EU Member States. The existing European protocols for the surveillance of surgical site infections and the surveillance of ICU-acquired infections that were developed by HELICS have already achieved a high degree of methodological harmonisation between countries and have been implemented in a (small) majority of Member States (Table 2.3.1, above). Therefore, although some methodological compatibility issues still remain to be resolved in a limited number of countries, these constitute the most logical choice for further extension of surveillance in Europe integrated in ECDC surveillance activities.

In addition, the question should be raised as to whether traditional surveillance methods form the best basis for a sustainable and cost-effective European surveillance system in the long term. With hospital information systems becoming gradually more sophisticated throughout Europe, an increasing amount of data is made available for electronic data collection on infections and risk factors[91], thus creating many opportunities to improve the efficiency of the work of the hospital infection control staff for surveillance as well as for case management (e. g. follow-up of isolation procedures).

Moreover, in order to respond to the data needs of regional, national and international public health authorities, hospital-wide data on healthcare-associated infections should be collected in a cost-effective way, e. g. by the organisation of an EU-wide prevalence survey based on a commonly agreed protocol. Many countries have now implemented such national one-day point prevalence surveys of nosocomial infections, often on a regular basis (as an alternative method to hospital-wide surveillance) and mostly in acute care settings (Section 2.2).

The methods used, however, differ between countries and need further standardisation at the EU level.

Finally, the extension or establishment of other surveillance components at the EU level should be considered. For instance, prospective surveillance of the incidence and severity of *C. difficile* infection (CDI) would allow for early detection of any increasing incidence in Member States where epidemics with the more virulent strain PCR ribotype 027 (and possibly other ribotypes) have not yet emerged. Similarly, surveillance systems should be capable of capturing clusters of other emerging pathogens or unusual variants of old pathogens such as PVL-positive CA-MRSA or the animal MRSA strain MLST type ST398[92,93]. Such surveillance systems would mostly have to rely on molecular typing data and therefore would require a clear strategy from ECDC in order to facilitate standardisation of molecular typing where possible and promote or support the use of international internet-based typing databases, both for surveillance and for infection control purposes[94,95,96,97,98,99].

Support to national programmes for infection control in healthcare facilities

The creation and coordination of national and regional infection control programmes, including those for surveillance, depend on the priority that national or regional decision makers have given to HCAI prevention and control. This governs the resource allocation and policy setting (legislation, recommendations, etc.) at the level of public health administration, national coordinating bodies for HCAI and/or AMR, surveillance institutes (dedicated epidemiologists) and hospitals (infection control staff, data nurses, etc.). The effects of such decisions can be seen in diverse ways: several EU Member States face a lack of financial or human resources to develop and support such programmes, while in other EU Member States the development of a coherent approach has been hampered by the regionalisation of hospital policy competencies.

Hence, there is a need for European recommendations on HCAI prevention and control in order to ensure that Member States' infection control capacities meet common minimal standards, thus improving patient safety across European health services. The European Commission has worked on a first version of such recommendations and has published them for public consultation[100]. The implementation of these common standards could then be supported by the EU, by, for example, ECDC country visits and the provision of training courses for policymakers and surveillance network coordinators as well as for hospital intensive care staff. Surveillance of a limited list of infection control structure and process indicators at the hospital and national levels should be carried out by ECDC to monitor the implementation of the recommendations.

Increasing patient mobility, the Global Patient Safety Challenge and Hand Hygiene

The extent of mobility in Europe has changed considerably in recent years. Healthcare systems are increasingly chal-

lenged to provide optimal access to and quality of healthcare to citizens of other Member States. Rosenmöller et al. distinguished five categories of mobile patients: citizens on holiday requiring healthcare; citizens who retire to a different country or work abroad and require healthcare; people sharing close cultural or linguistic links with the region where care is provided (e.g. treatment close to home that happens to be cross-border); people seeking healthcare cross-border because of perceived advantages (e.g. shorter waiting lists, cheaper treatments, better quality); and patients sent abroad by their own health system to overcome capacity restrictions at home[101]. These increasingly complex cross-border healthcare contacts present a challenge to EU politicians to ensure access to affordable quality care at least at the same level as that provided in the home country, as illustrated by the recently published proposal for an EU directive on cross-border healthcare (2 July 2008, www.eurofedop.org). They also demand that the European health services, including the infection control community, raise their standards to the highest possible level to ensure patient safety.

This evolving dimension of patient mobility has also contributed to the renewed interest in patient safety worldwide. In October 2004, WHO launched the World Alliance for Patient Safety (www.who.int/patientsafety) in response to a World Health Assembly Resolution (2002) urging WHO and its member states to pay the closest possible attention to the problem of patient safety. The first programme launched by the Global Patient Safety initiative in 2005, Clean Care is Safer Care, focuses on hand hygiene[102], the cornerstone of infection prevention.

Even before bacteria were discovered, Ignace Semmelweis showed the dramatic impact of hand hygiene on post-partum mortality. In the late 1990s, D Pittet et al showed the effect of repetitive hand hygiene campaigns on the reduction of nosocomial infection rates and resistance rates in a modern university hospital[103]. It became clear that compliance of healthcare staff with hand hygiene recommendations is not higher than 50 % on average in baseline conditions[104]. Several EU Member States started implementing national campaigns, with increases in mean compliance rates of approximately 50 % before the campaign to 70 % after the campaign and subsequent decrease in national MRSA incidence rates in Belgium[105].

These experiences show that there is room for dramatic improvement of compliance with the most basic but also the most effective infection control measure, even in countries that have a long history of national and funded infection prevention, control and surveillance programmes and with infection control staff in place. ECDC can support Member States in raising the standard of hand hygiene in healthcare institutions by providing standardised tools and technical assistance for Member States implementing the principles of the WHO Clean Care is Safer Care campaign, thus also pursuing all EU countries' adherence to the First Global Patient Safety Challenge (www.who.int/gpsc).

Early detection of unusual resistant pathogens and outbreaks of HCAI

A second consequence of the increasing mobility of patients is the international transmission of nosocomial pathogens that may potentially spread in other Member States. Examples of this are the transmission of pathogens between French hospitals and Belgian nursing homes of VEB1-producing *Acinetobacter baumannii*[106,107], the likely transmission of *C. difficile* ribotype 027 strains from Belgian nursing homes to French hospitals[108], a cluster of multdrug-resistant *K. pneumoniae* in France with an index case transferred from Greece for a liver transplant[109] or the transatlantic spread of the USA300 clone of CA-MRSA in a Swiss health worker on a clinical fellowship in the US[110]. Timely reporting of information on selected unusual multidrug-resistant bacteria and nosocomial epidemics of public health importance should be promoted at the level of Member States' laboratories and hospitals. Relevant information should be shared at the European level using existing systems such as the Early Warning and Response System, epidemiological bulletins such as *Eurosurveillance*, or specific collaborative information systems on AMR and HCAI integrated in the epidemiological information system of ECDC. In parallel, the capacity to respond to these threats at the institutional, national and European level should be enhanced.

Surveillance and infection control in nursing homes

Healthcare-associated infections and infection control represent major and rapidly increasing challenges for European long-term care facilities (LTCF) and nursing homes. The higher speed with which the burden of this problem is increasing in these settings as compared with acute care hospitals is attributable to a variety of factors. Not least of these is that the European population is ageing rapidly. The over 65s represented 15 % of the population in 1997, 17 % in 2007[111] and are forecast to represent 29.4 % of the general population in 2050[112]. At the same time, healthcare systems are striving for cost optimisation which results, amongst other things, in shorter hospital stays and early discharge. These two factors combined have led to a rapid rise in the demand for nursing homes and other social and healthcare services for the elderly such as long-term care facilities, residential homes for the elderly and home care.

Further, the fact that the frail elderly more frequently require hospital care has led to an extensive exchange of nosocomial pathogens between hospitals and nursing homes, resulting in steadily growing numbers of nursing home residents colonised with formerly typical 'hospital bugs' such as MRSA[113,114] or ESBL-producing Enterobacteriaceae. Unfortunately, most European countries have invested far fewer resources for infection control in nursing homes than in hospitals, which in combination with a frequent lack of rational antibiotic policy, has contributed to the spread of these pathogens within the nursing homes, thereby maintaining a reservoir that threatens infection control in the hospitals. Because of age-related dysfunctions of the

immune system and physiological changes, the elderly are more sensitive to infection and therefore predisposed to the most frequent infections occurring in nursing homes: urinary tract infections, pneumonia, skin and soft tissue and gastro-intestinal infections (in particular those associated with antibiotic use, such as *C. difficile* infection)[115]. Compounding the problem, these infections in colonised nursing home residents are more likely to be caused by multidrug-resistant pathogens that increase morbidity, mortality and costs, as shown by various studies[116,117,118,119,120].

Despite the evidence, national or multicentre data on healthcare-associated infections in nursing homes or long-term care facilities are very scarce and surveillance or repeated prevalence surveys are only carried out in Norway. Therefore, it is also very difficult to estimate the size of the problem of HCAI in nursing homes and to follow up any impact of infection control interventions. Moreover, unlike the US, where 1.6 million certified nursing facility beds (5.5 beds per 1000 population) were registered in 2006 compared to 2.7 hospital beds per 1000 population[121], Europe has no reliable data on the number of nursing home beds, partly because the term 'nursing home' is poorly defined and encompasses different types of structures. For instance, the number of nursing home beds is higher than the number of hospital beds in several EU countries (e.g. approximately twice as high in Belgium and 1.5 times higher in England[122]), but may be much lower in countries where the involvement of the public sector in long-term care is limited[123]. HCAI prevalence data from one region in Italy[6] and nationwide figures from Norway[29,124] where the prevalence of healthcare-associated infections in long-term care facilities was 8.4% and 7.2% (mean from last three prevalence surveys in Norway) respectively, suggest that the size of the problem of HCAI in terms of absolute numbers may be at least as important as in acute care hospitals, with rapidly increasing problems of antimicrobial resistance and limited infection control infrastructure in most countries. The surveillance, prevention and control of healthcare-associated infections and antimicrobial resistance at the institutional, regional or national and European level is therefore one of the main challenges of the next decade. The creation of an EU-wide network for the surveillance of HCAI and infection control process and structure indicators tailored to the nursing home setting should be one of the first steps. Preparatory work toward this has been undertaken in recent years by the IPSE project (www.ecdc.europa.eu/IPSE). Such a network could be developed in collaboration with the nursing home sub-project on antimicrobial use from ESAC (www.esac.ua.ac.be).

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3 EPIDEMIOLOGY OF COMMUNICABLE DISEASES IN EUROPE, 2006

This Chapter is sub-divided into the following main disease groups:

3.1 Respiratory tract infections

Seasonal influenza and human infection with avian influenza virus, legionellosis, tuberculosis.

3.2 STI, including HIV and blood-borne viruses

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

3.3 Food- and waterborne diseases and zoonoses

Anthrax, botulism, brucellosis, campylobacteriosis, cholera, cryptosporidiosis, echinococcosis, infection with VTEC/STEC, giardiasis, hepatitis A, leptospirosis, listeriosis, salmonellosis, shigellosis, toxoplasmosis, trichinellosis, tularaemia, typhoid/paratyphoid, variant Creutzfeldt-Jakob disease and yersiniosis.

3.4 Emerging and vector-borne diseases

Malaria, plague, Q fever, SARS, smallpox, viral haemorrhagic fevers (including Crimean-Congo haemorrhagic fever and chikungunya), West Nile fever and yellow fever.

3.5 Vaccine-preventable diseases

Diphtheria, infection with *Haemophilus influenzae* type b, invasive pneumococcal infections, measles, invasive meningococcal disease, mumps, pertussis, poliomyelitis, rabies, rubella and tetanus.

3.6 Antimicrobial resistant pathogens and healthcare-associated infections

Antimicrobial resistant pathogens and healthcare-associated Infections.

For more general information about each communicable disease please refer to Health Topics A–Z on the ECDC website: (www.ecdc.europa.eu/health_topics.html)

3.1 RESPIRATORY TRACT INFECTIONS

Seasonal influenza and human infection with avian influenza virus, legionellosis, tuberculosis.

INFLUENZA

- The 2006–07 influenza epidemic in Europe was characterised by moderate clinical activity and a south-north spread pattern across Europe. The dominant virus strain was influenza A(H3) and overall there was a good match between the vaccine virus strains and the reported virus strains.
- In most European countries, levels of immunisation in the largest target group, the elderly, are significantly short of the target recommended by the World Health Assembly.
- A review by ECDC found that the threat of a serious influenza pandemic remains real and much remained to be done to prepare Europe.

Enhanced Surveillance – EISS epidemiological and virological data for 2006

Influenza activity was mainly associated with influenza A viruses (97 %; n = 18 278) during the 2006–07 winter (see Table 3.1.1). This contrasted with 2005–06 when B viruses predominated[1], the first time this had happened in over a decade.

Seasonal influenza epidemics started around New Year 2007, with consultation rates for influenza-like illness (ILI) or acute respiratory infection (ARI) above baseline levels first reported in the UK (Scotland) (week 52/2006), Greece (week 01/2007) and Spain (week 02/2007). This was very similar to the late start seen the previous year (winter 2005–06) which also began just at the start of the year[1]. They increased in most other countries in the south and west of Europe around mid-January 2007 and in large parts of central and north-eastern Europe in February. In most countries, influenza activity had returned to levels seen outside the winter period by the end of March (week 13/2007).

During this season, medium intensity (defined as levels of influenza activity usually seen when influenza virus is circulating in the country, based on historical data) was reported for the majority of countries (21/33 countries); however, a high intensity of clinical influenza activity (defined as higher than usual influenza activity compared to historical data) was reported in seven countries (Denmark, Sweden, Norway, Estonia,

Latvia, Lithuania and Luxembourg). The highest consultation rates for ILI and/or ARI were reported in the age groups 0–4 and 5–14 years.

A spatial analysis revealed a significant south-north pattern in the timing of peak influenza activity across Europe during the 2006–07 winter. This analysis is based on a regression analysis of plots of the longitude and latitude of the centre of each country against its week of peak influenza activity ($R2 = 0.287$; $p < 0.05$ for south-north; $R2 = 0.060$; $p = 0.003$ for west-east). This was not unusual, as data for the eight winters since 1999–2000 indicate four seasons when there was a west-east pattern and three seasons when there was a south-north pattern. In 2005–06 there had been no notable pattern of spread[1]. The timing of peak influenza activity in 2006–07 is shown in Figure 3.1.1.

Based on (sub)typing data of all influenza virus detections from sentinel and non-sentinel sources (n = 18 278), 17 759 (97 %) were influenza A and 519 (3 %) were influenza B. Of the total influenza A virus detections (n = 17 759), 8 825 (50 %) were influenza A not-subtyped, 8 271 (47 %) were A(H3) (of which the N-subtype was determined in 4 208 and all were N2) and 663 (3 %) were A(H1) (of which the N-subtype was determined in 501 and all were N1). The distribution of the

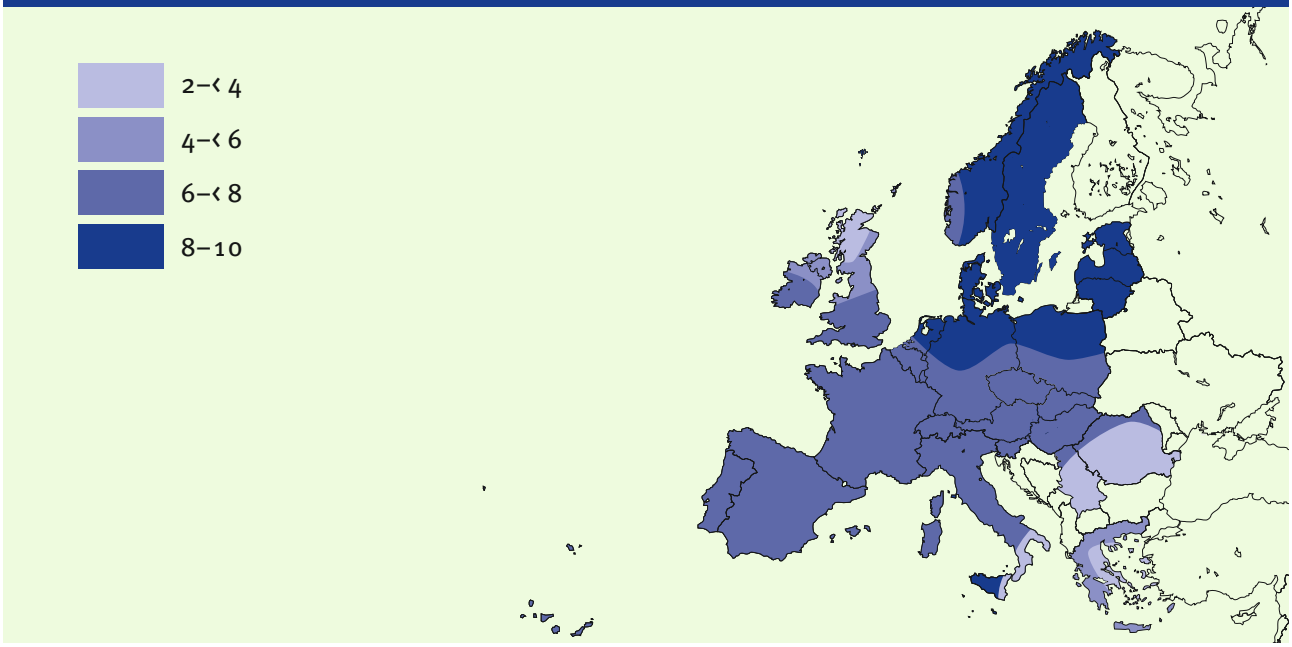
Table 3.1.1. Summary of total sentinel and non-sentinel virological data for Europe: historical data*

Season	Influenza virus detections			N-subtyped viruses			
	Total (n)	% of total positive for influenza A	% of total positive for influenza B	Total (n)	% of total positive for A(H1N1)	% of total positive for A(H1N2)	% of total positive for A(H3N2)
2006–07	18 278	97.2	2.8	4 712	10.7	—	89.3
2005–06	11 303	42.0	58.0	1 108	48.0	0.2	51.8
2004–05	15 295	83.3	16.7	2 569	18.2	0.1	81.8
2003–04	14 025	99.1	0.9	4 284	0.5	0.4	99.1
2002–03	7 616	63.4	36.4	2 987	9.7	1.5	88.8
2001–02	7 296	74.9	25.1	2 718	3.8	8.8	87.3
2000–01	6 352	70.3	29.7	1 357	96.7	0.2	3.1
1999–2000	7 663	98.8	1.2	4 093	1.8	—	98.2
1998–99	6 950	71.9	28.1	2 760	0.4	—	99.6
1997–98	6 008	92.7	7.3	2 155	4.4	—	95.6
1996–97	5 503	79.9	20.1	1 339	1.0	—	99.0

Source: EISS.
* Based on data available in the EISS database on 27 July 2007.

Note: During the 2001–02 season, a novel influenza A/H1N2 virus was reported by a number of countries in Europe; this has led to an improvement in reporting of the influenza A neuraminidase subtyping (N1 or N2), in addition to the hemagglutinin subtyping (H).

Figure 3.1.1. Timing of peak clinical influenza activity across Europe during the 2006–07 season



Source: EISS 2007.

The isobars on the contour maps represent interpolated time of peak activity distributed spatially at 2-week intervals. Countries included in this spatial analysis were Austria, Belgium, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and UK.

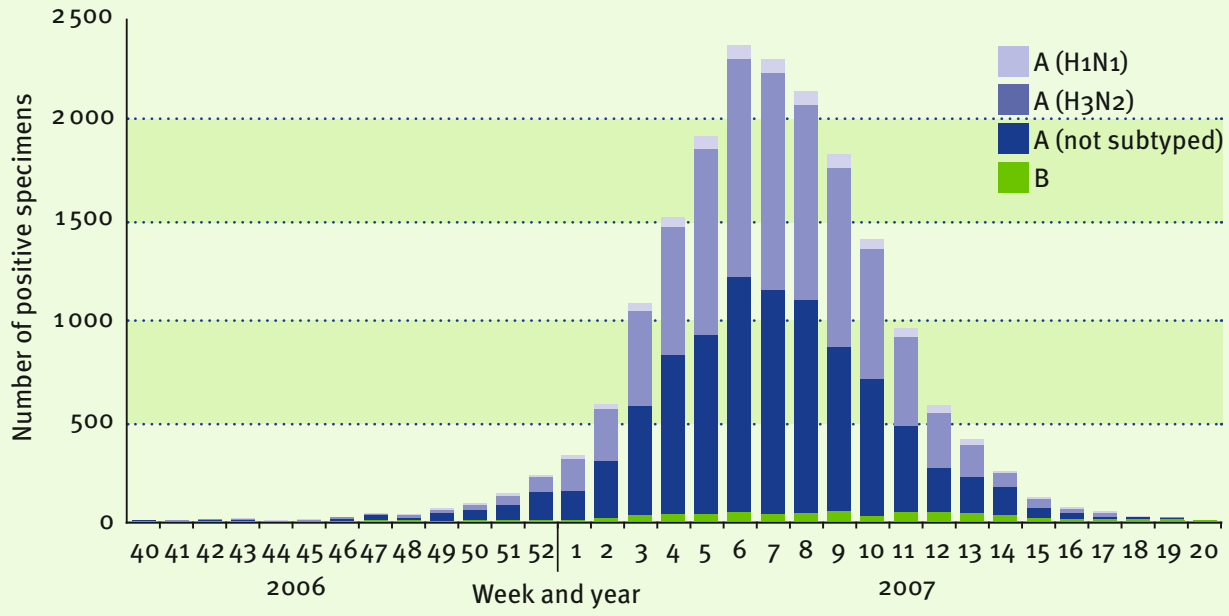
virus detections per week for Europe as a whole is displayed in Figure 3.1.2.

Of all the 18 278 influenza virus isolates, 3 877 were antigenically and/or genetically characterised. Of these, 326 (8 %) were found to be A/New Caledonia/20/99 (H1N1)-like, 55 (1 %) were A/California/7/2004 (H3N2)-like, 3 318 (86 %) were A/Wisconsin/67/2005 (H3N2)-like (a drift variant of A/California/7/2004 included in the vaccine for the 2006–07 winter), 148 (4 %) were B/Malaysia/2506/2004-like (B/Victoria/2/87-lineage) and 30 (1 %) were B/Jiangsu/10/2003-like (B/Jiangsu/10/2003 is a B/Shanghai/361/2002-like virus from the B/Yamagata/16/88-lineage that was included in the vaccine for the 2006–07 winter).

Influenza immunisation

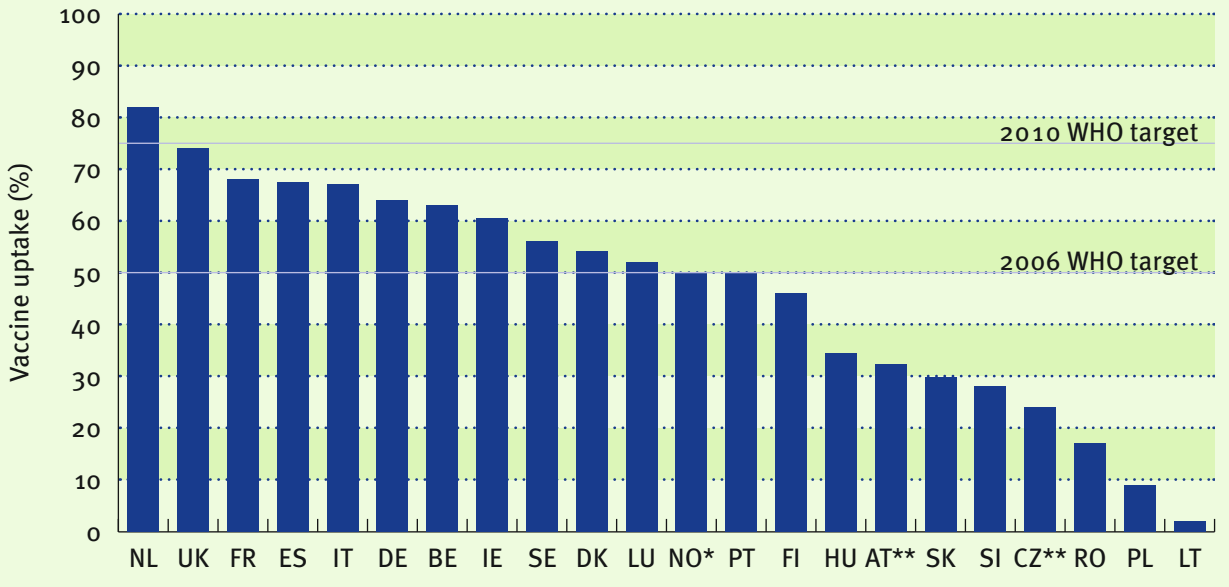
A survey of reported vaccine policies and coverage undertaken for the season 2006–07 by the VENICE project this year found that of the 30 Member States of the EU and EEA, 29 could provide information on policies but only 19 could supply estimates of coverage in the elderly (persons aged 65 years and over), while data were available for another three from other sources. (Figure 3.1.3). This was concerning as the elderly are the key group identified by the World Health Assembly 2003 which included all EU countries and set a target of 50 % uptake in the elderly by 2005–06 and 75 % by 2010–11. Thirteen of the 22 countries for which data were available had exceeded the 2005 target but only two had reached

Figure 3.1.2. Total number of sentinel and non-sentinel specimens positive for influenza viruses by week for Europe as a whole during the 2006–07 season



Source: EISS.

Figure 3.1.3. Estimated elderly population immunised (percentage) n = 15 EU countries



* Vaccination coverage in combined group of those aged ≥ 65 years and those with underlying clinical conditions

** Vaccination coverage estimated through telephone surveys; source: University of Zurich

Note: Data on vaccination coverage in season 2006–7, except for Germany and Poland (season 2005–6) and Belgium (season 2003–4)

or passed the 2010 target. The results show differences in the level of coverage with a range from 1–2 % to 80 %.

A preliminary survey of national immunisation coverage found that a quarter of the 30 EU/EEA Member States in 2006–07 could not provide data and that coverage varied more than forty-fold in the elderly across the countries that could supply data.

Discussion

The 2006–07 influenza epidemic in Europe was characterised by moderate clinical activity and a south-north spread pattern across Europe. The dominant virus strain was influenza A(H3) and overall there was a good match between the vaccine virus strains and the reported virus strains.

Pandemic preparedness continued to dominate the discussion on this disease in 2006. A study by ECDC found that all EU countries were active on pandemic preparedness. All Member States had national health sector preparedness plans and had moved on from the stage of preparing plans to making them operational, and there had been considerable investment in influenza research at both EU and national levels. Still, much work remained to be done, mainly in integrated planning across governments, making plans operational at the local level, interoperability at the national level and stepping up prevention efforts against seasonal influenza. Further, influenza research needs to be extended from basic science to tackle more operational questions on how seasonal influenza spreads and can be prevented, and at the same time develop better seasonal and prototype pandemic vaccines.

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Surveillance systems overview

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-INFLUENZA	V	Se	A	C	Y	Y	N	N	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-ARI/ILI	O	Se	P	A	N	Y	N	Y	Y
Denmark	DK-INFLUENZA	V	Se	A	A	—	Y	N	N	Y
Estonia	EE-INFLUENZA	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-GROG	V	Se	P	A	Y	Y	Y	Y	Y
France	FR-INFLUENZA_MORTALITY	V	Se	A	C	N	N	N	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-SENTINELLES	V	Se	A	C	N	Y	N	N	Y
Germany	DE-SENTINEL	V	Se	A	A	Y	Y	Y	Y	N
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Greece	GR-SENTINEL	V	Se	P	A	N	Y	N	N	Y
Hungary	HU-INFLUENZA SURVEILLANCE	Cp	Se	P	A	Y	Y	N	Y	Y
Iceland	IS-NOTIFIABLE_DISEASES	Cp	Co	P	A	Y	Y	N	—	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-INFLUENZA	V	Se	P	—	Y	Y	N	Y	N
Italy	IT-INFLUNET	V	Se	P	A	N	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-INFLUENZA/RESPIRATORY	Cp	Se	P	A	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Luxembourg	LU-INFLUENZA	V	Se	P	C	N	Y	Y	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Malta	MT-INFLUENZA	V	Se	A	C	Y	Y	N	N	N
Netherlands	NL-INFLUENZA	V	Se	P	C	Y	Y	N	N	N
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_INFLUENZA)	Cp	Se	A	A	N	Y	N	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-INFLUENZA	V	Se	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-ILI AND ARI SURVEILLANCE	V	Se	P	A	N	Y	N	N	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	N
Spain	ES-INFLUENZA	V	Se	P	C	Y	Y	Y	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-INFLUENZA	V	O	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

AVIAN INFLUENZA

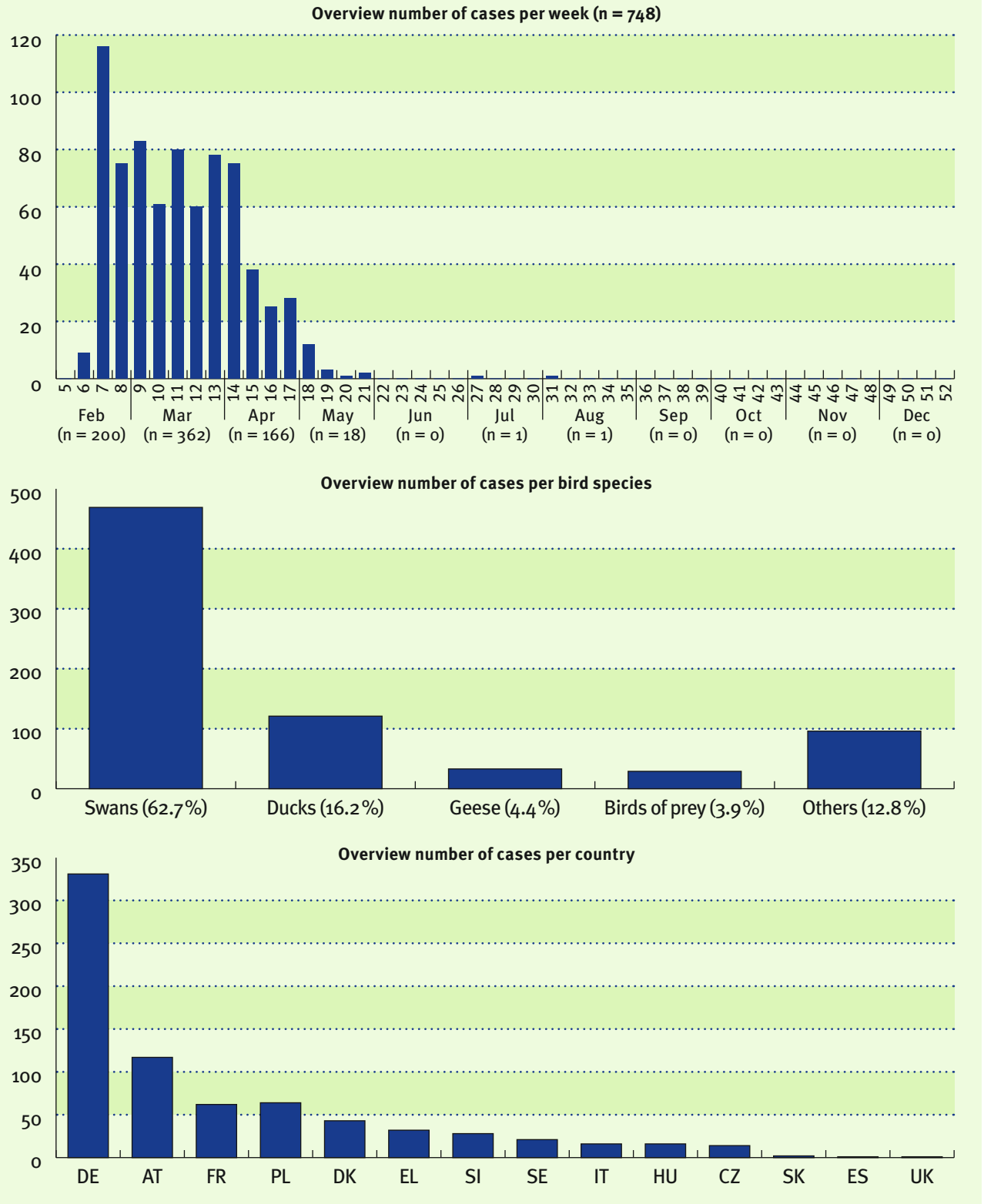
- 2006 saw the first cases of influenza A(H5N1) (a highly pathogenic avian influenza) reported in wild birds and poultry in the European Union. In total, 14 Member States found cases of infection with highly pathogenic avian influenza in wild birds, and five reported outbreaks in backyard or commercial poultry flocks as a wave of infection in wild birds passed across the region in the first part of the year.
- Despite this, no case of infection by A(H5N1) was reported in humans in the EU during 2006, although human infection associated with a low pathogenic H7 strain in a poultry worker in the UK was confirmed indicating again that there was a low but real level of risk to humans in the EU[1].
- Globally, WHO confirmed that a total of 115 people had been infected with A(H5N1) in 2006, of which 79 were fatal cases (fatality ratio = 68.6 %). A considerable proportion of those infected were in Indonesia (55 cases; 45 fatalities), and cases were also confirmed in eight other countries, including Turkey at the border of the EU, which had 12 WHO-confirmed cases, including four fatalities[2].
- No evidence of sustained human-to-human transmission of A(H5N1)infection was recorded globally, and the WHO global pandemic threat therefore remained at phase 3: 'a new influenza virus subtype is causing disease in humans, but is not yet spreading efficiently and sustainably among humans'.

Background and surveillance activities in 2006

A(H5N1) remains primarily an infection in birds, and hence the first line of defence against the virus from a human health perspective is the rapid identification and eradication of infection in birds and especially domestic poultry flocks from which almost all human infections have come[3].

The harmonisation of animal health legislation, including the direct application of EU legislation in the Member States, has ensured that there is a consistent and harmonised approach to surveillance activities for avian influenza across the EU. Animal surveillance activities were stepped up significantly in 2006 through legislation, and as in previous years were also supported by co-financing from the European Commission[4]. This was primarily because of the enhanced risk posed to the EU from the rapid westward spread of the A(H5N1) virus in the final months of 2005 when birds infected with A(H5N1) were seen for the first time on the then borders of the EU, including in Russia, Romania, Turkey and Croatia.

Figure 3.1.4. Summary data on HPAI cases in wild birds in the EU 25 reported to the Animal Disease Notification System (ADNS) in 2006



Source: Animal Disease Notification System (ADNS). Highly pathogenic avian influenza (HPAI) cases in domestic poultry in 2006 notified by Member States to the Animal Disease Notification System. http://ec.europa.eu/food/animal/diseases/adns/table_11/2006.pdf

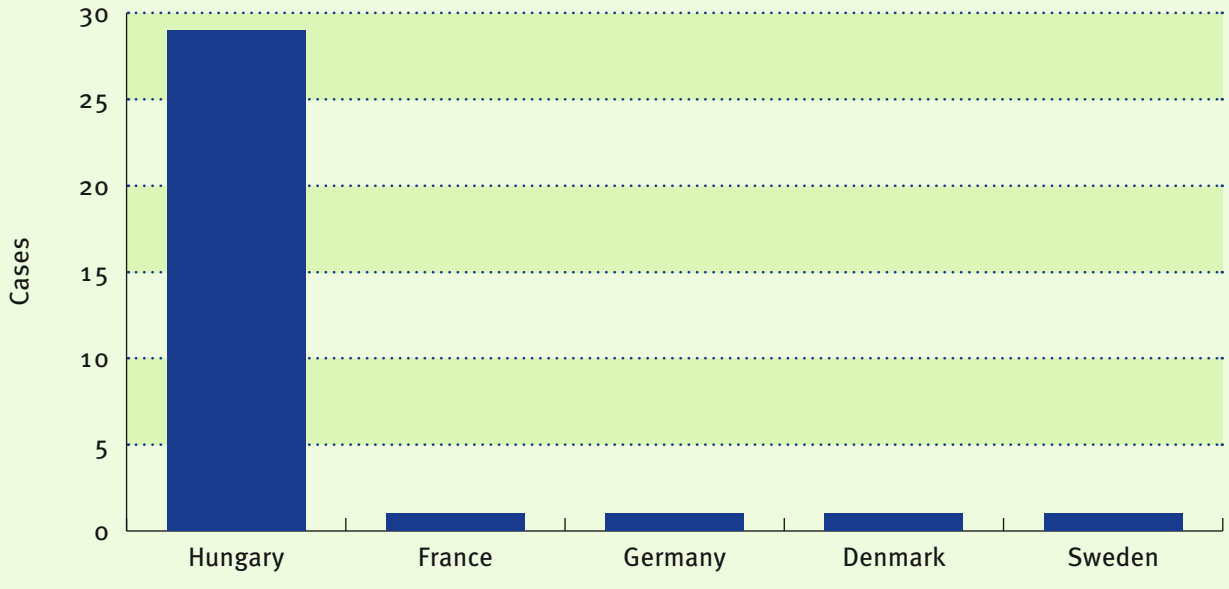
Incidence data of A(H5N1) in the EU and globally

During 2006, the first cases of A(H5N1) in birds were reported in the EU. Fourteen Member States (Austria, Czech Republic, Denmark, France, Greece, Hungary, Italy, Germany, Portugal Slovenia, Slovakia, Sweden, Spain and the UK) reported a total of 748 cases of highly pathogenic avian influenza (A(H5N1)) in wild birds through the Animal Disease Notification System, over the period February to August, indicating a broad distribution of the virus across the EU which arrived in a wave that rose and fell in the first half of the year (see Figure 3.1.4)[5].

In addition, 33 outbreaks of A(H5N1) infection were reported in domestic poultry in five Member States (Hungary (29), Sweden (1), Germany (1), Denmark (1) and France (1)) (Figure 3.1.5)[5]. However, there were major outbreaks of infection in wild birds and domestic poultry in the Danube delta in 2006 which the Romanian authorities successfully contained.

Although wild bird surveillance indicates that A(H5N1) virus was relatively widespread geographically in the EU in 2006, the level of virus and therefore the potential exposure to humans was limited because the virus was prevented from infecting and replicating in substantial numbers of the EU birds, particularly poultry. However, it was still necessary to ensure that when cases of A(H5N1) in birds and poultry were iden-

Figure 3.1.5. Summary data on HPAI cases in domestic poultry in the EU 25 reported to the Animal Disease Notification System (ADNS) in 2006



Source: Animal Disease Notification System (ADNS). Highly pathogenic avian influenza (HPAI) cases in domestic poultry in 2006 notified by Member States to the Animal Disease Notification System. http://ec.europa.eu/food/animal/diseases/adns/table_11/2006.pdf

tified, those individuals who had been in contact with infected birds were effectively monitored by public health authorities, and given preventive health advice and, where necessary, antiviral prophylaxis as a risk reduction measure[6]. These combined actions have served to prevent any reported cases of human infection of A(H5N1) in the EU in 2006.

Globally, A(H5N1) infection persisted in birds, and in certain countries, particularly in south-east Asia, the disease can almost be said to be endemic in bird populations; Thailand, Indonesia and Vietnam reported widespread outbreaks in poultry to the OIE (World Organisation for Animal Health)[7] in 2006, and with the spread of the disease westwards, a significant number of infections were also reported in Egypt and Nigeria for the first time. Following rapid global spread, there was concern that surveillance and response systems may not be sufficient to detect or treat infection in poultry in all countries where the virus was likely to be present. This increased the risk that the infection would become endemic in birds, with the associated increase in risk to human populations in regular contact with potentially infected birds.

In 2006, the levels of circulating virus in many of the most affected countries were high, and given the often close proximity between poultry and humans in many of these environments, it is likely that millions of humans were exposed to A(H5N1) virus. It is therefore unsurprising that in addition to increased numbers of poultry cases, there was also an associated increase in the number of global human cases confirmed by WHO in 2006. However, given the high levels of likely exposure to infection, case numbers remain very low, suggesting that the virus remains extremely inefficient at transmitting from birds to humans. Equally significant is that it also appears that humans acted primarily as dead-end hosts when infected; there was no substantiated record of human-to-human transmission of A(H5N1) during the year.

Cases of non-A(H5N1) infection in animals and humans in the EU

In addition to A(H5N1) cases reported in birds in the EU during 2006, other AIV infections have also been confirmed in EU poultry flocks. Of particular significance was an outbreak of low pathogenic H7N3 in a large poultry flock in Norfolk in the east of England, UK, in April 2006, and an associated case of human conjunctivitis in a single poultry-worker following exposure to infected poultry, who was confirmed to have been infected with H7N3 virus[8]. H7 AIVs, including low pathogenicity A(H7N3) and high pathogenicity A(H7N7) viruses, have occasionally affected humans in the past, including in Europe[9,10], and are commonly associated with mild illness (flu-like symptoms with conjunctivitis), or asymptomatic infection. In one case of highly pathogenic A(H7N7) an affected veterinarian died from his infection[11]. Epidemiological investigation into the case in the UK did not reveal infection in any co-workers or other close contacts, suggesting that as for human in-

fection with other AIVs, the ongoing transmission to others is not highly effective.

Summary and discussion

The epidemiology of AIVs changed significantly in 2006 from the EU perspective: Prior to this, A(H5N1) infection was largely associated with significant, but localised circulation in birds in south-east Asia. However, between autumn 2005 and summer 2006, there was an increase in the number of countries reporting infections in wild birds and outbreaks in poultry[12]. The virus appears to have become established in northern and sub-Saharan Africa in 2006, with significant numbers of poultry cases also being reported in central and western Asian regions, including Iraq, Azerbaijan and Turkey. This westward spread of infection culminated in the introduction of A(H5N1) virus into the EU in February 2006.

Increased AI surveillance activities revealed cases of other AIVs in wild birds and poultry. These other AIV strains can be highly pathogenic to poultry or, in their low pathogenic forms, cause a more mild form of illness but can convert to be highly pathogenic in flocks. The positive identification of a low pathogenicity AIV in a poultry-worker in the UK was a reminder that these strains can be present in the EU and occasionally lead to infection in EU poultry, and less commonly, humans.

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LEGIONNAIRES' DISEASE (LEGIONELLOSIS)

- The notification rate in the EU remains stable at 0.9 per 100 000 population.
- The number of reported cases of travel-associated Legionnaires' disease cases has increased.

Epidemiological situation in 2006

Of the 5727 cases of Legionnaires' disease reported across 28 countries, 5405 cases were confirmed by the national surveillance systems in 2006. Data were not available from two countries (Romania and Liechtenstein). The overall notification rate was 1.1 per 100 000 population. In the 23 countries that provided data in both 2005 and 2006, the total number of reported confirmed cases decreased slightly by 5.7% between 2005 and 2006. The individual country rates varied little between < 0.1 and 2.6 cases per 100 000 population.

Age and gender distribution

Cases of Legionnaires' disease are mainly reported in persons from older age groups: the rates in the age groups of 45–64 years and over 65 years were 2.2 and 2.9 per 100 000 population, respectively. Men (1.9 per 100 000) are more affected than women (0.6 per 100 000) by this disease, with a male to female ratio of reported cases of 2.7 : 1.

Seasonality

A clear trend in the monthly reports can be observed across all countries, with cases increasing in the summer months (from May–June), peaking in September and then decreasing gradually towards the winter months. In 2006, 2383 (44%) cases of Legionnaires' disease were reported in the months of August, September and October compared with about 200 cases per month during January to April.

Enhanced surveillance in 2006

EWGLINET is the EU dedicated surveillance network collecting data on cases of Legionnaires' disease in the EU and data on travel-associated Legionnaires' disease (TALD) cases. In 2006, 18 of 35 countries collaborating in the EWGLINET scheme reported a total of 920 individual TALD cases resulting in 123 TALD clusters being identified. This is a large increase on the number of cases reported to the EWGLINET scheme the previous year, when 746 individual cases were reported, and continues an increasing trend over recent years.

Discussion

The notification rate of reported Legionnaires' disease across the EU and EEA/EFTA remains stable despite the high level of under-reporting known to occur for this disease. Cases of TALD continue to be better reported throughout the EU through

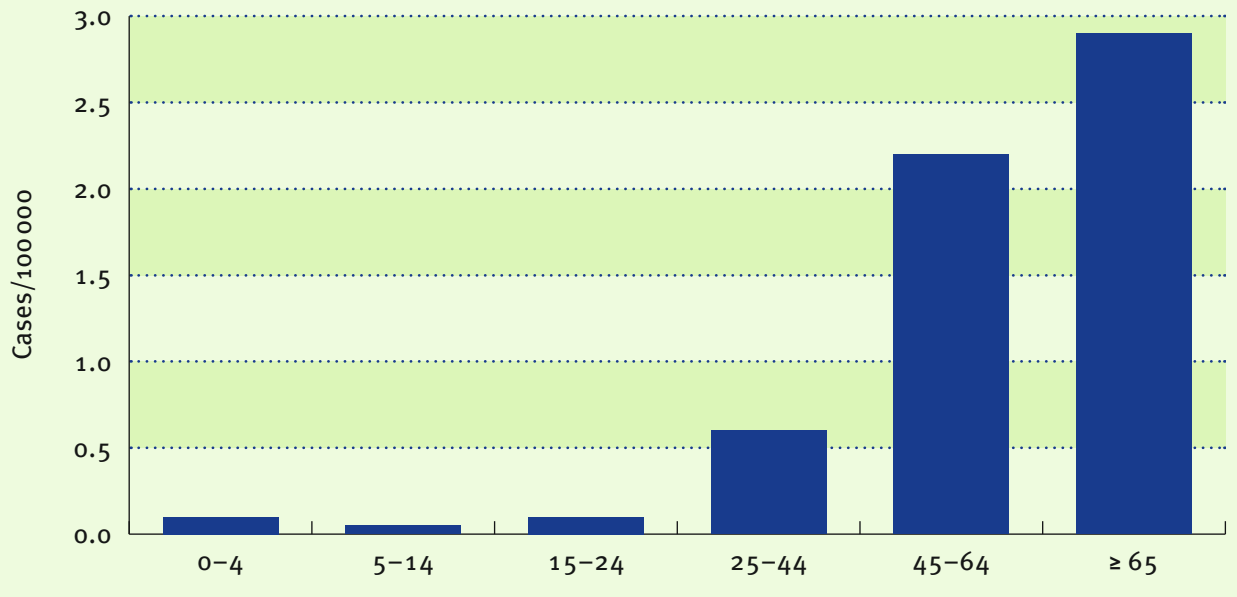
Member States' surveillance systems and EWGLINET. Seasonality and gender distribution of cases are similar to those observed in previous years. However, the UK and the Netherlands recognised an unusually high number of non-travel associated Legionnaires' disease cases during the summer months, being double the number

Table 3.1.2. Number and notification rate of reported cases of Legionnaires' disease in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	69	64	0.77
Belgium	C	220	131	1.3
Bulgaria	C	2	2	< 0.1
Cyprus	C	1	1	0.13
Czech Republic	C	15	12	0.12
Denmark	C	124	90	1.7
Estonia	C	4	4	0.30
Finland	C	20	20	0.38
France	C	1443	1385	2.2
Germany	C	571	571	0.69
Greece	C	33	33	0.30
Hungary	C	12	6	< 0.1
Ireland	C	13	12	0.29
Italy	C	814	814	1.4
Latvia	C	1	1	< 0.1
Lithuania	A	5	5	0.15
Luxembourg	C	10	10	2.1
Malta	C	5	5	1.2
Netherlands	C	445	418	2.6
Poland	A	89	18	< 0.1
Portugal	C	90	89	0.84
Romania	—	—	—	—
Slovakia	C	4	4	< 0.1
Slovenia	C	39	38	2.0
Spain	C	966	955	2.2
Sweden	C	105	105	1.2
United Kingdom	C	599	584	0.97
EU total		5 699	5 377	1.1
Iceland	C	1	1	0.33
Liechtenstein	U	—	—	—
Norway	C	27	27	0.58
Total		5 727	5 405	1.1

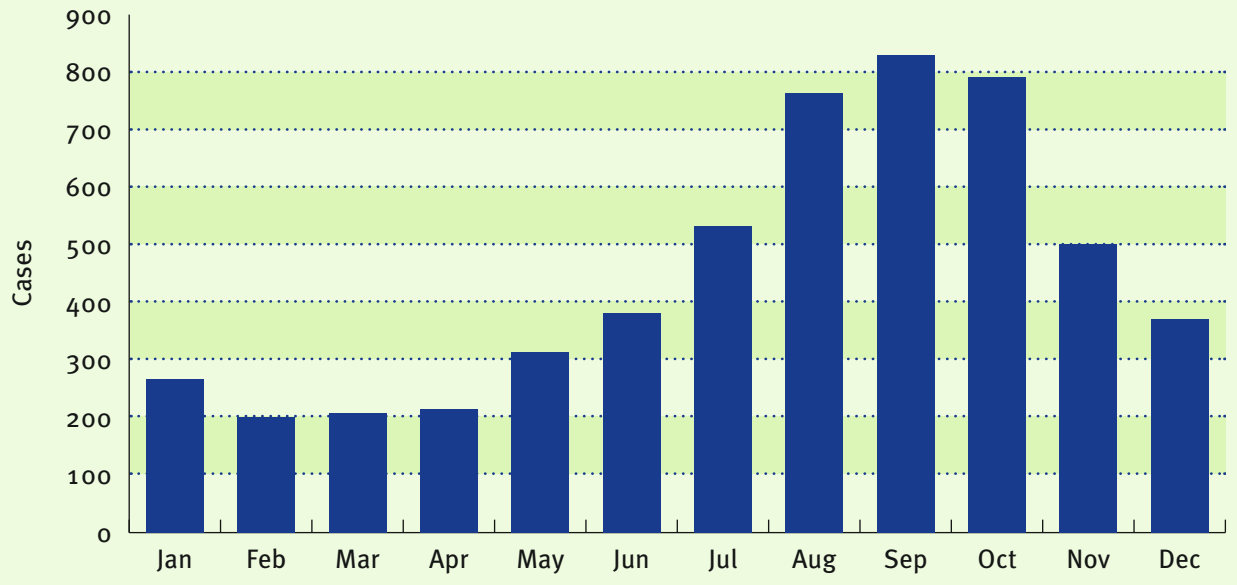
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.1.6. Age-specific notification rates of Legionnaires' disease cases in EU and EEA/EFTA countries, 2006 (n = 5 380)



Source: Country reports: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway.

Figure 3.1.7. Seasonal distribution of Legionnaires' disease cases in EU and EEA/EFTA countries, 2006 (n = 5 372)



Source: Country reports: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, UK and Iceland.

usually observed in these countries[1]. Causes for these seasonal observations in UK and the Netherlands in 2006 are not known though it is speculated that there is a link with certain weather conditions in these countries.

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Surveillance systems overview

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-LEGIONELLOSIS	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	Y	N	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-LEGIONELLA/TB	Cp	Co	P	C	Y	Y	N	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Italy	IT-LEGIONELLOSIS	Cp	Co	P	C	N	Y	Y	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-LEGIONELLOSIS	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-LEGIONELLOSIS	O	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

TUBERCULOSIS (*MYCOBACTERIUM TUBERCULOSIS* COMPLEX)

- In 2006, 29 EU and EEA/EFTA countries reported 87 591 tuberculosis (TB) cases with an overall notification rate of 17.6 per 100 000 (range: 3.0 (Cyprus) to 126.4 cases per 100 000 (Romania)).
- The overall notification rate in the EU and EEA/EFTA countries in 2006 is 4 % lower than it was in 2002, reflecting a downward trend in 19 countries. This is largely accounted for by reductions in the number of cases reported by Member States in central and eastern Europe.
- In 2006, 19.5 % of cases in the EU and EEA/EFTA countries were in persons of foreign origin. The percentage ranged from 0 % to 81 % across the Member States.
- Multidrug-resistant TB remains an issue requiring attention. Multi-drug resistance was present in 15–19 % of cases in the Baltic States, but ranged from 0 to 2 % in other countries.
- Of the 23 EU and EEA/EFTA countries reporting treatment outcome for definite pulmonary TB, only seven achieved or exceeded the World Health Assembly target of 85 % treatment success.

Epidemiological situation in 2006

The main source for this section is the EuroTB data[1] as updated by the national coordinators for tuberculosis surveillance. In 2006, a total of 87 591 cases were reported by all the EU and EEA/EFTA countries except Liechtenstein, with a notification rate of 17.6 cases per 100 000 population in the EU and EEA/EFTA.

Six countries (France, Germany, Poland, Romania, Spain and the United Kingdom) accounted for over two-thirds of the overall burden, with more than 5 000 cases reported by each country. By far the highest rate among these was in Romania with a rate of 126.4 per 100 000, seven times the EU average.

The overall rate in the 12 countries joining the EU since 2004 was over four times higher than in the other 15 Member States (EU-15). Despite this the overall rate of TB was lower than in 2002. The average annual decrease in rates from 2002–06 was calculated at -4 %, much more than the decline recorded from 1998–2002 (-1.3 %). The reduction is largely accounted for by the decrease observed in Member States from central and eastern Europe.

Age and gender distribution

TB is generally more common in males (23.1 per 100 000) than females (12.3 per 100 000) (male to female ratio 1.9). Paediatric cases (< 15 years of age) represented 4 % of noti-

Table 3.1.3. Number and notification rate of reported tuberculosis cases in the EU and EEA/EFTA, 2006[a]

Country	Report type*	Confirmed cases[a]	Notification rate per 100 000	Trend (2002 to 2006)	Percentage foreign origin
Austria	C	873	10.6	-5.2 %	38 %[b]
Belgium	C	1127	10.7	-3.4	51 %[b]
Bulgaria	A	3 232	41.9	-0.1 %	0 %[b]
Cyprus	C	23	3.0	19.6 %	76 %
Czech Republic	C	973	9.5	-5.0 %	13 %
Denmark	C	377	6.9	-2.6 %	57 %
Estonia	C	455	33.8	-10.3 %	15 %
Finland	C	291	5.5	-10.7 %	12 %
France	C	5 336	8.5	-4.7 %	43 %
Germany	C	5 402	6.6	-8.5 %	43 %[c]
Greece	C	437	3.9	4.6 %	32 %
Hungary	C	1 894	18.8	-9.3 %	2 %
Ireland	C	218	5.2	1.1 %	33 %
Italy	C	4 387	7.5	0.9 %	46 %
Latvia	C	1 328	57.9	-7.4 %	5 %
Lithuania	C	2 559	75.2	-2.0 %	3 %
Luxembourg	C	33	7.0	7.7 %	61 %
Malta	C	14	3.5	37.2 %	57 %[b]
Netherlands	C	1 021	6.3	-7.8 %	63 %
Poland	C	8 593	22.5	-4.7 %	1 %[b]
Portugal	C	3 423	32.4	-7.1 %	11 %
Romania	C	27 319	126.4	-4.6 %	0 %
Slovakia	C	730	13.5	-7.8 %	2 %
Slovenia	C	215	10.7	-11.0 %	16 %
Spain	A	8 029	18.3	-0.1	19 %
Sweden	C	497	5.5	5.4 %	72 %
United Kingdom	C	8 498	14.1	3.6 %	64 %
EU total		87 284	17.7	-4.0 %	19 %
Iceland	C	13	4.3	26.8 %	77 %
Liechtenstein	U	—	—	—	—
Norway	C	294	6.3	4.6 %	81 %
Total		87 591	17.6	-4.0 %	19.5 %

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: unspecified.

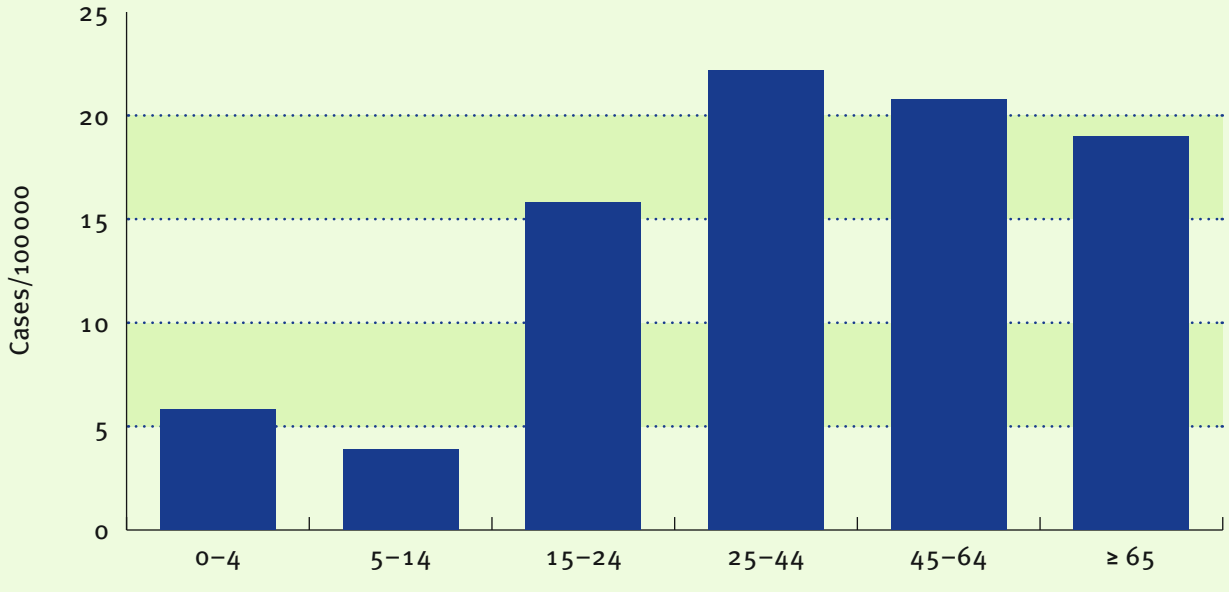
(a) Data from several countries have been updated so figures may differ from the published EuroTB report for 2006.

(b) Countries reporting geographic origin by citizenship.

(c) Percentage of reported cases with information on a known place of birth (41 % of notifications).

fications, but the majority of cases was reported in adults (Figure 3.1.8). Differences in age distribution were observed between cases of foreign origin and nationals, and are commented on in the enhanced surveillance section, below.

Figure 3.1.8. Age-specific notification rates of tuberculosis in EU and EEA/EFTA countries, 2006 (n = 87 413)



Source: Country reports. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Liechtenstein did not report.

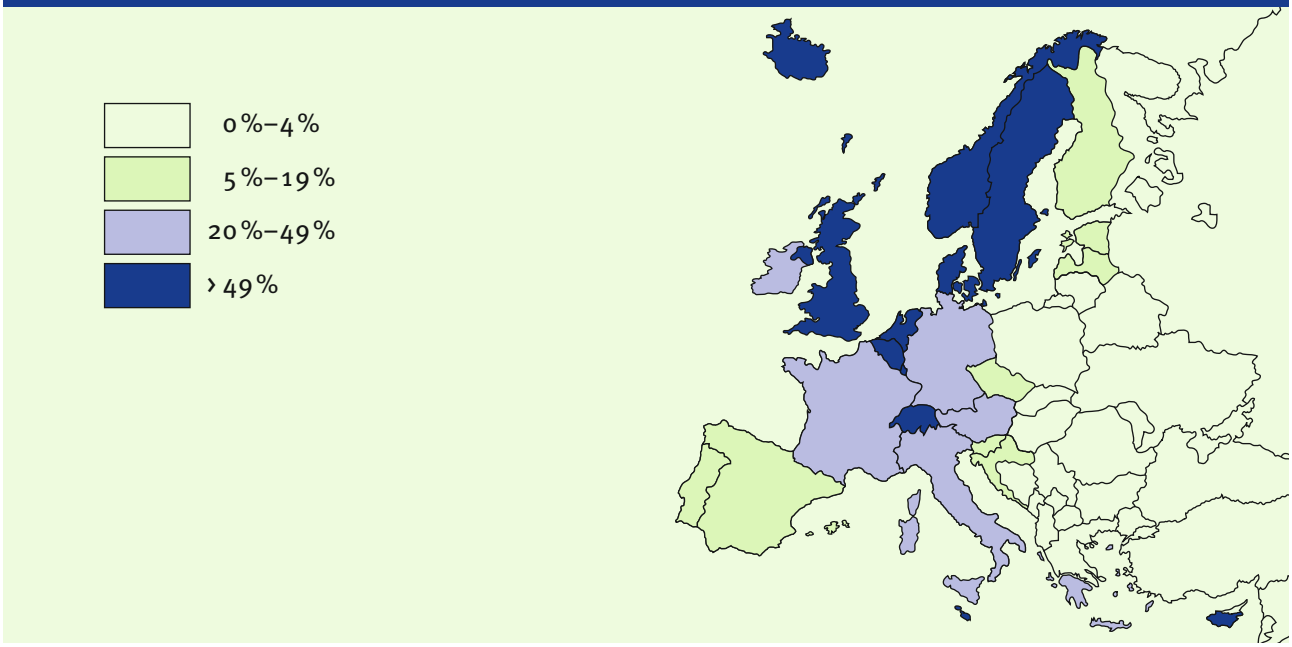
Enhanced surveillance in 2006

The main source for this section is the EuroTB data[1].

Foreign-born cases

In 2006, 19.5 % of TB cases reported in the EU and EEA/EFTA were in patients of foreign origin (five countries make this distinction by citizenship and others by birthplace – so 'foreign origin' means that the citizenship or birthplace of the case is not the reporting country) with the percentage increasing to 31 % when Bulgaria and Romania are excluded. The proportion ranged from 0 % to 81 % with 16 countries reporting a proportion of 20 % or more. The data on migrants are based mainly on birthplace; just five of the countries report geographic origin by citizenship. Despite this, the data are hardly comparable between the 15 pre-2004 Member States and newer members because 'born abroad' might have a different meaning in many central European and Baltic countries.

Figure 3.1.9. Proportion of foreign-born TB patients, 2006



Source: EuroTB and the national coordinators for tuberculosis surveillance on the WHO European Region. Surveillance of tuberculosis in Europe. Report on tuberculosis cases notified in 2006.

Treatment outcome

Twenty-three countries reported treatment outcome monitoring data for new definite pulmonary TB cases in 2005 (2005 data chosen as treatment requires several months). Only seven of those countries achieved or exceeded the World Health Assembly global target (85% treatment success in new TB cases) in 2005. The overall success rate for the 2005 treatment cohort was 79% for EU and EEA/EFTA countries. The likelihood of having a successful treatment outcome decreased with age as the risk of dying increased. Cases of foreign origin were more likely to be lost to follow up.

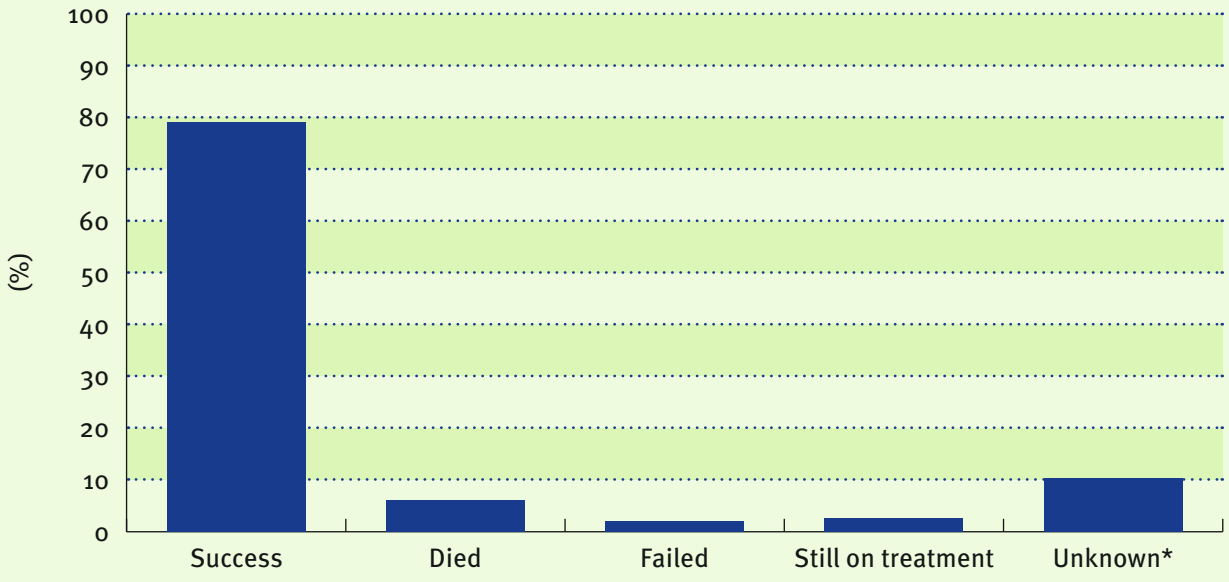
Tuberculosis and HIV infection

Aggregated data on HIV sero-status of TB cases reported in 2003 or later was available for 21 EU and EEA/EFTA countries. The difference in testing policies and practices widely affect the completeness of information across countries. Available data indicate an increase in the proportion of HIV-positive TB patients since 2000 in Estonia (0.1% to 9%) and Latvia (0.7% to 3.4%).

Multidrug-resistant tuberculosis (MDR TB)

As in previous years, MDR TB remained more prevalent in the Baltic States (combined MDR TB: 14.7%–18.6%. 'Combined MDR' means taking into account both previously treated MDR TB cases and previously non-treated MDR TB cases) than in the other countries, where it was generally more common in cases of foreign origin. The proportion of combined MDR cases decreased in the Baltic States, but these trends were not significant for primary MDR cases, sug-

Figure 3.1.10. Treatment outcome 2005 cohort, EU and EEA/EFTA



Source: EuroTB and the national coordinators for tuberculosis surveillance on the WHO European Region. Surveillance of tuberculosis in Europe. Report on tuberculosis cases notified in 2006.

* Could include lost to follow-up.

gesting a more rapid decline in re-treated cases.

However, monitoring for MDR and XDR TB is not systematic across all countries. In 2006, only 20 EU and EEA/EFTA countries had nationwide representative drug susceptibility testing data[1]. Seventeen out of the 30 EU and EEA/EFTA countries have reported cases with additional resistance to second-line drugs fitting the definition of XDR[2].

Discussion

Despite the progress that has been made over the past decade, the elimination target of less than one TB case per 1 000 000 population is still far from being achieved. The overall decline in the EU and EEA/EFTA has been sustained in recent years. However, this should be carefully evaluated against the evidence of increasing rates in certain countries, though this can be partly explained by improved detection and migration influences.

As for previous years, the data have reflected the heterogeneity of the TB situation within the EU and EEA/EFTA, with three distinct epidemiological groups of countries:

- low-incidence countries with cases increasingly aggregating in the foreign-born population;
- countries with relatively high notification rates with a high proportion of MDR TB cases but with declining overall TB rates; and
- countries with relatively moderate to high notification rates on the decline with MDR TB as yet uncommon.

Table 3.1.4. Distribution of MDR TB cases in the EU and EEA/EFTA, 2006

	Cases with drug sensitivity test results	Number of MDR TB cases	MDR % from tested cases
Austria	511	10	2
Belgium	818	18	2.2
Bulgaria	1 329	53(a)	4(a)
Cyprus	23	0	0
Czech Republic	567	9	1.6
Denmark	296	3	1
Estonia	347	52	15
Finland	265	2	0.8
France	1 478	30	2
Germany	3 501	78	2.2
Greece	507	13(a)	2.6(a)
Hungary	555	14(a)	2.5(a)
Iceland	12	0	0
Ireland	151	3(a)	2(a)
Italy	847	28(a)	3.3(a)
Latvia	967	142	14.7
Lithuania	1 786	332	18.6
Luxembourg	33	0	0
Malta	14	2	14.3
Netherlands	594	5	0.8
Norway	225	3	1.3
Portugal	1 212	17(a)	1.4(a)
Slovakia	401	7	1.7
Slovenia	184	1	0.5
Spain	1 319	50(a)	3.8(a)
Sweden	396	3	0.8
United Kingdom	4 932	52	1.1

Source: EuroTB and the national coordinators for tuberculosis surveillance on the WHO European Region. Surveillance of tuberculosis in Europe. Report on tuberculosis cases notified in 2006.

(a) Countries with incomplete data.

The overall treatment outcome monitoring requires further strengthening in view of the sub-optimal number of countries reporting outcome data and the sub-target level of success rate (< 85 %).

Despite some progress shown in the decline of mainly relapsed and re-treated cases of MDR TB, this remains a substantial challenge. The proportion of MDR TB remains high in the Baltic States and trends need

to continue to be carefully monitored to assess the evolution of the epidemic. The MDR TB picture is further complicated by the fact that monitoring for MDR TB (and consequently XDR TB) is not systematic across the rest of the countries.

It is clear that given the heterogeneous situation, TB surveillance should be adapted to the various epidemiological pictures. Enhanced surveillance should pay particular attention to identifying and describing TB-vulnerable populations, including settings and groups such as prisons, migrants from high burden countries, the urban poor and the elderly.

References

1. EuroTB and the national coordinators for tuberculosis surveillance in the WHO European Region. Surveillance of tuberculosis in Europe. Report on tuberculosis cases notified in 2006. Saint-Maurice (France): Institut de Veille Sanitaire; March 2008. Available from: http://www.eurotb.org/rapports/2006/full_report.pdf
2. World Health Organization. Anti-tuberculosis drug resistance in the World. Report No. 4. Geneva: WHO; 2008. WHO/HTM/TB/2008.394.

Surveillance systems overview

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (C)/Aggregated (A)	Data reported by				
						Laboratories	Physicians	Hospitals	Others	National coverage
Austria	AT-TUBERKULOSEGESETZ	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Belgium	BE-TUBERCULOSIS	Cp	Co	A	C	Y	Y	N	N	Y
Bulgaria	BG-MoH-GEN	—	—	—	—	—	—	—	—	—
Cyprus	CY_NOT	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-TUBERCULOSIS	Cp	Co	P	C	Y	Y	Y	Y	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-TBC	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-TUBERCULOSIS	Cp	Se	P	C	Y	Y	N	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-LEGIONELLA/TB	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-ICoL-GEN	—	—	—	—	—	—	—	—	—
Latvia	LV-TB	Cp	Co	P	C	Y	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Lithuania	LT-LAIDSc-GEN	—	—	—	—	—	—	—	—	—
Lithuania	LT-TB_REGISTER	—	—	—	—	—	—	—	—	—
Luxembourg	LU-LdR-GEN	—	—	—	—	—	—	—	—	—
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-NTR	—	Co	P	C	N	Y	N	N	Y
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS-TUBE	Cp	Co	P	C	Y	Y	Y	Y	Y
Poland	PL_CR	Cp	Co	P	C	Y	Y	Y	N	Y
Portugal	PT-DdE-GEN	—	—	—	—	—	—	—	—	—
Portugal	PT-TUBERCULOSIS	Cp	Co	P	C	Y	Y	Y	Y	Y
Romania	RO-NCfFaA-GEN	—	—	—	—	—	—	—	—	—
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-TUBERCULOSIS	Cp	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

3.2 STI, INCLUDING HIV AND BLOOD-BORNE VIRUSES

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

CHLAMYDIA INFECTION

- Chlamydia continues to be the most frequently reported STI and reportable disease in Europe, accounting for the majority of all STI reports.
- In 2006, 225 996 cases of *Chlamydia trachomatis* infection were confirmed by 22 EU and EEA/EFTA Member States, giving a rate of 92 per 100 000 (down from 99.4 per 100 000 in 2005). The true incidence of *Chlamydia* infections is likely to be even higher than that reported.
- Chlamydia mainly affects young people between 15 and 24 years of age; the notification rate is 486.3 per 100 000 population in this age group, and young women are affected slightly more often than young men.
- Surveillance systems for Chlamydia differ more across countries than for other STI (e.g. gonorrhoea and syphilis)[1]. Some countries have not yet established surveillance systems for Chlamydia, but enhanced surveillance is essential to provide the necessary information with which to monitor the trends and the differences in epidemiology, and to evaluate prevention and control programmes.
- In 2006, a new variant of *Chlamydia trachomatis* was reported in and by Sweden. This mutant strain was restricted to Sweden or to Swedes' sexual partners from other countries.

Epidemiological situation in 2006

In 2006, 226 402 cases of *Chlamydia* infection were reported by 22 of the EU and EEA/EFTA Member States, with 225 996 cases confirmed, giving an overall rate of 91.9 per 100 000 (excluding the Austrian data which is not nationally representative). More than 90 % of the *Chlamydia* infections are reported by (in descending order) United Kingdom, Sweden, Denmark, Norway and Finland. The highest notification rate was reported by Iceland (576.5 per 100 000), followed by Denmark (458.5 per 100 000) and Norway (458.1 per 100 000) (Table 3.2.1).

Many of the systems providing data for the STIs (chlamydia, gonococcal infections, and syphilis) are a mixture of voluntary, sentinel or selected laboratory systems, and frequently do not represent true national coverage. Comparison between countries is further hampered by other differences in reporting systems, the diagnostic methods used, the amount of testing and screening

Table 3.2.1. Number and notification rate of reported cases of *Chlamydia* infection in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria[a]	C	537	131	—
Belgium	C	2 060	2 060	19.6
Bulgaria	U	—	—	—
Cyprus	C	6	6	0.78
Czech Republic	U	—	—	—
Denmark	A	24 886	24 886	458.5
Estonia	A	2 528	2 528	188.0
Finland	C	13 854	13 854	263.6
France	U	—	—	—
Germany	U	—	—	—
Greece	U	—	—	—
Hungary	C	598	598	5.9
Ireland	A	3 144	3 144	74.7
Italy	U	—	—	—
Latvia	C	820	820	35.7
Lithuania	A	556	556	16.3
Luxembourg	C	1	1	0.21
Malta	C	45	45	11.1
Netherlands	C	7 085	7 085	43.4
Poland	A	612	612	1.6
Portugal	U	—	—	—
Romania	C	238	238	1.1
Slovakia	C	61	61	1.1
Slovenia	C	141	141	7.0
Spain	C	139	139	0.32
Sweden	C	32 518	32 518	359.4
United Kingdom	A	113 585	113 585	188.1
EU total		202 877	202 877	84.2[b]
Iceland	A	1 729	1 729	576.5
Liechtenstein	U	—	—	—
Norway	C	21 259	21 259	458.1
Total		225 865	225 865	91.9[b]

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

(a) Data not representative for the whole of Austria.

(b) Rate excludes Austrian figures.

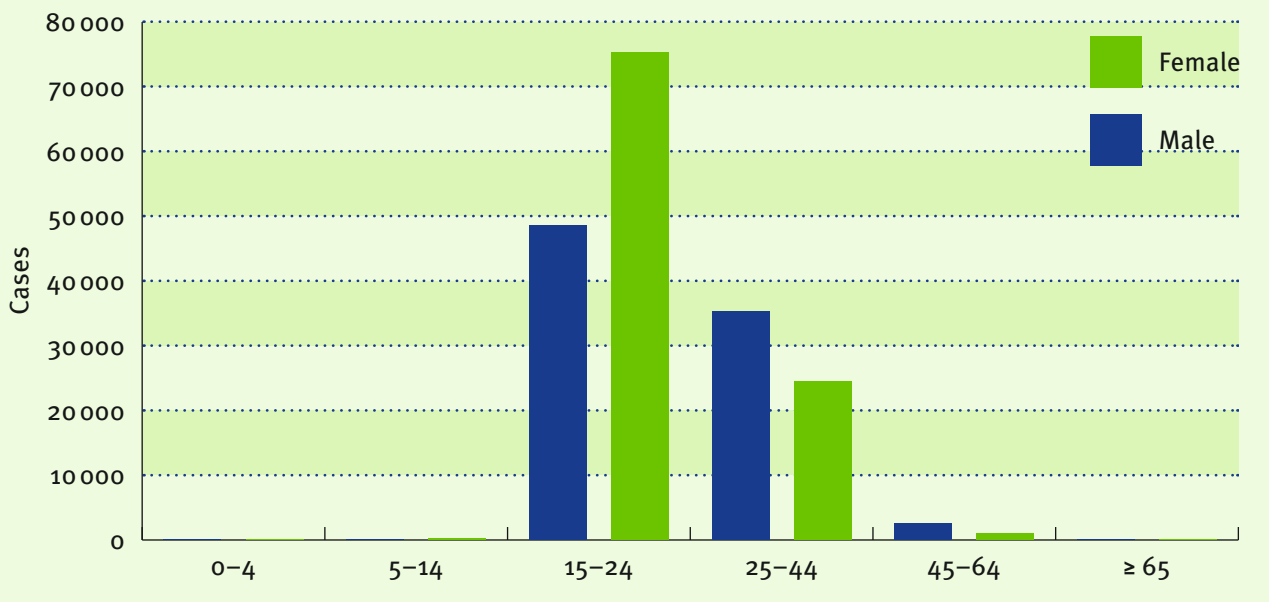
for *Chlamydia* infections and the proportion of underreporting. The availability of a screening programme in dedicated STI services or targeted at (sub)groups of the population may largely affect the reported number of *Chlamydia* infections. This means that the true incidence and prevalence is likely to be higher than the ones here reported.

Age and gender distribution

The highest rate was reported in the age group 15–24 years (486.3 per 100 000), accounting for two-thirds of all cases for which data on age are available (n = 219 144). The highest age-specific rates were reported in the 15–24 year olds by Finland, Denmark, Norway, Sweden and Iceland with rates of between 1 400 and 2 900 cases per 100 000. In this age category, a higher proportion of *Chlamydia* infections was in females (74 %) than in males (56 %). *Chlamydia* infection in the age group 25–44 years accounted for 32 % of the cases (Figure 3.2.1), with an notification rate of 105.7 per 100 000.

Information on gender was available for 225 158 cases (there were only 802 'gender unknown' cases); 101 459 chlamydia cases were reported in males and 123 699 in females, with rates of 82.8 and 96.5 per 100 000, respectively (male to female ratio of 1:1.2). There is a known ascertainment bias here due to the higher index of suspicion, more screening possibilities and more symptomatic cases occurring in women.

Figure 3.2.1 Distribution of chlamydia cases by age and gender in EU and EEA/EFTA countries, 2006 (n = 187 804)



Source: Country reports: Austria, Belgium, Cyprus, Estonia, Finland, Hungary, Latvia, Lithuania, Luxembourg, Malta, Poland, Slovakia, Spain, Sweden, UK, Iceland and Norway.

Seasonality

No seasonal trends were observed in the reported *Chlamydia* infections during 2006, although—similar to the 2005 data—there were slightly higher numbers reported in September and October.

Enhanced surveillance in 2006

In 2006, a new variant of *Chlamydia trachomatis* was reported in and by Sweden[2]. It was detected following an unexpected 25 % decrease in the number of infections observed in Halland county, in south-west Sweden. This nvCT variant spread easily in the counties that primarily used the nucleic acid amplification tests unable to detect the nvCT variant. *Chlamydia* infection rates have increased considerably since the diagnostic methods were changed, even if the diagnostics may not have been the only factor that contributed to the recently observed increase[3]. An EU-wide survey revealed that the spread of this mutant strain was restricted to Sweden or to Swedes' sexual partners from other countries. A number of countries have reported single cases with the new variant[4,5].

Discussion

In many European countries, the notification rates of *Chlamydia* infection have increased over the past 10 years[1]. However, in most European countries it is not a notifiable disease. Opportunistic screening for asymptomatic *Chlamydia* infection, contact tracing and mandatory notification by law, as in Sweden, still explain the high notification rates in Scandinavian countries compared to other European States. Notification rates are more likely to reflect screening practices and testing volume rather than true incidence.

Chlamydia infections mainly affect young people between 15 and 24 years of age. Infections are widely diffused in the general population and appear not to be restricted to a particular risk group, but affect young people, especially young women. In order to control the *Chlamydia* infection disease burden in Europe, screening programmes targeting young people are crucial for early detection and treatment of all infected individuals and their partners.

References

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5. Savage EJ, Ison C, Van de Laar MJ. European Surveillance of Sexually Transmitted Infections (ESSTI). Results of a Europe-wide investigation to assess the presence of a new variant of Chlamydia trachomatis. Euro Surveill. 2007;12(10):pii=736.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-CHLAMYDIA	V	Se	P	C	Y	Y	Y	N	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-STD	V	Se	A	C	N	Y	—	—	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Cyprus	CY-STD	V	Se	A	C	N	Y	Y	N	N
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y
Estonia	EE-HCV/CHLAMYDIA	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
Finland	FI-STD	V	Se	P	C	N	Y	N	N	N
France	FR-NATIONAL_REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-RENACHLA	V	Se	A	C	Y	N	N	N	Y
Hungary	HU-STD SURVEILLANCE	Cp	Se	P	A	N	Y	N	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-STI	Cp	Co	P	A	Y	—	Y	N	Y
Latvia	LV-STI/SKIN_INFECTIONS	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-AIDS CENTRE	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-CHLAMYDIA	V	Se	P	C	Y	N	Y	-	N
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-STI	V	Se	P	C	N	Y	N	N	N
Netherlands	NL-WEEKLY_SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_CHLAMYDIA)	Cp	Co	A	A	Y	N	N	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SPOSUR	Cp	Co	P	C	N	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-GUM	Cp	O	P	A	N	N	N	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

GONORRHOEA

- In 2006, a total of 30 534 cases of gonorrhoea were confirmed in 27 EU and EEA/EFTA countries giving an overall rate of 8.9 per 100 000 population.
- The number of reported gonorrhoea cases has increased in many countries over the last few years.
- Gonorrhoea is more commonly reported in men, who account for 74 % of all cases reported in 2006. Over half of the cases were reported in people older than 25 years. Infected women tended to be younger; 67 % of the women were under 25 years old compared with 36 % of the men.
- The proportion of reported gonorrhoea cases among men who have sex with men has increased steadily over the last ten years.

Epidemiological situation in 2006

In 2006, a total of 30 539 cases of gonorrhoea were reported in 27 EU and EEA/EFTA countries (Germany, Greece and Liechtenstein did not report) and 30 534 of these cases were confirmed, giving an overall rate of 8.9 per 100 000 population (excluding the Austrian and French data which are not nationally representative) (Table 3.2.2). The United Kingdom alone accounted for 19 007 (62 %) of all reported cases. There is wide variation in the notification rates, ranging from less than one case per 100 000 population in Italy, Luxembourg, Portugal, and Spain, to over 30 cases per 100 000 in Latvia and the United Kingdom. However, there are also major variations in surveillance systems across countries in terms of coverage, completeness and representativeness, and therefore comparing numbers and reporting rates between countries may be misleading. Similarly, it may not be appropriate to directly infer gonorrhoea incidence from reported rates.

Age and gender distribution

As gonorrhoea affects sexually active people, it is no surprise that the main age groups affected are the age groups 15–24 and 25–44 years, of both sexes (Figure 3.2.2). Two-thirds (66 %) of females were reported in the age category 15–24 years and 55 % of the reported men were aged 25–44 years.

Table 3.2.2. Number and notification rate of reported gonorrhoea cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria[a]	C	171	171	—
Belgium	C	535	535	5.1
Bulgaria	A	165	165	2.1
Cyprus	C	8	8	1.0
Czech Republic	C	1 082	1 082	10.6
Denmark	C	414	414	7.6
Estonia	A	280	280	20.8
Finland	C	236	236	4.5
France[b]	C	718	718	—
Germany	U	—	—	—
Greece	U	—	—	—
Hungary	C	916	916	9.1
Ireland	A	431	431	10.2
Italy	C	392	392	0.67
Latvia	C	746	746	32.5
Lithuania	A	437	437	12.8
Luxembourg	C	4	4	0.85
Malta	C	32	32	7.9
Netherlands	C	1 757	1 757	10.8
Poland	A	395	395	1.0
Portugal	C	55	50	0.47
Romania	C	1 348	1 348	6.2
Slovakia	C	66	66	1.2
Slovenia	C	35	35	1.7
Spain	C	365	365	0.83
Sweden	C	677	677	7.5
United Kingdom	A	19 007	19 007	31.5
EU total		30 272	30 267	9.0[c]
Iceland	C	31	31	10.3
Liechtenstein	U	—	—	—
Norway	C	236	236	5.1
Total		30 539	30 534	8.9[c]

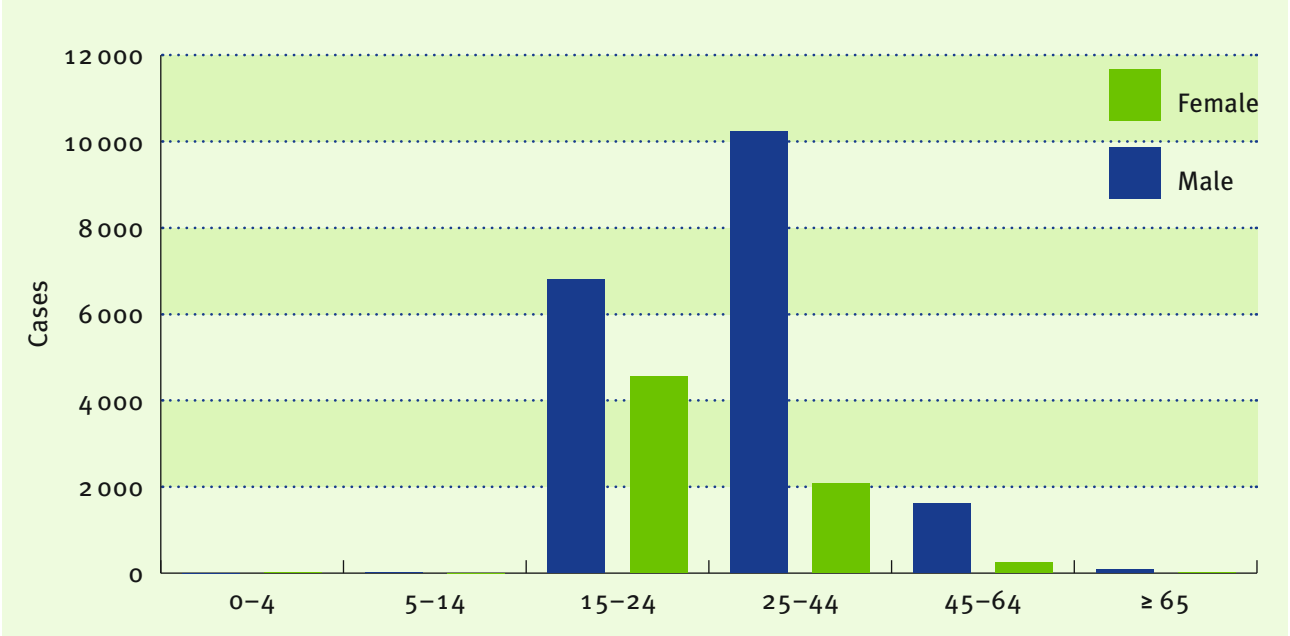
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

(a) Data not representative for the whole of Austria.

(b) Sentinel surveillance system based on a limited number of selected lab; notification rate per 100 000 population cannot be calculated.

(c) Rate excludes Austrian and French figures.

Figure 3.2.2. Distribution of gonorrhoea cases by age and gender in EU and EEA/EFTA countries, 2006 (n = 25 652)



Source: Country reports: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Slovakia, Spain, Sweden, UK, Iceland and Norway.

Men account for 74 % of all reported gonorrhoea cases with an overall rate of 11.5 per 100 000, compared with 3.8 per 100 000 in women (Figure 3.2.3). A high male to female sex ratio is observed in all countries except in Austria where 75 % of the cases were reported in women.

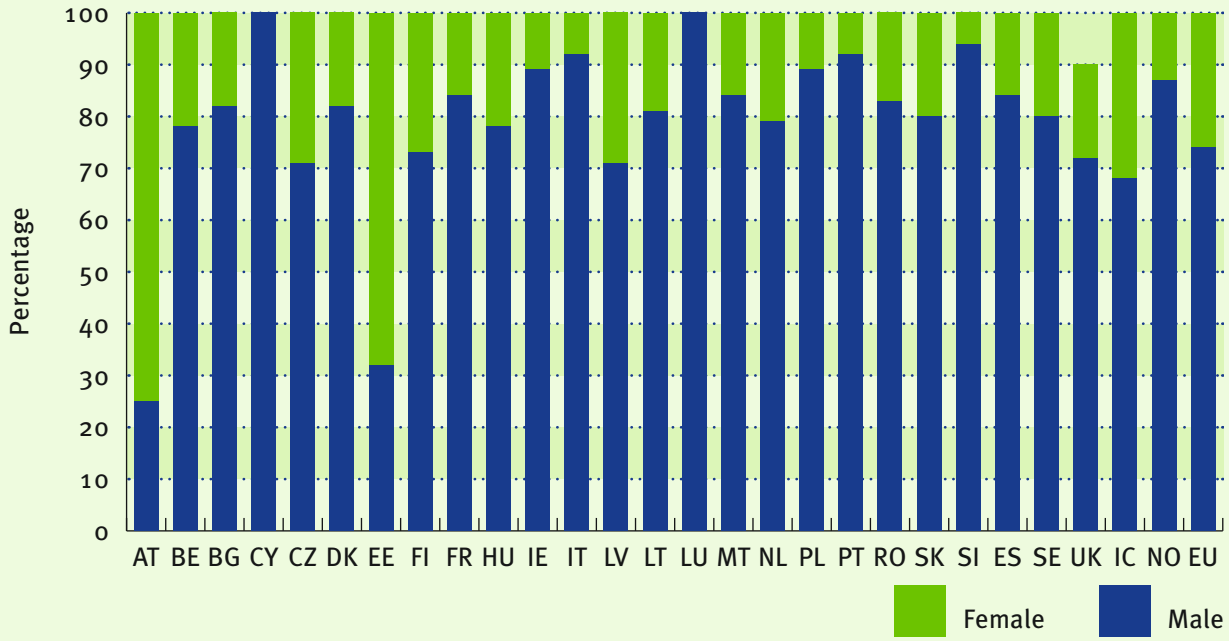
Enhanced surveillance in 2006

In their 2006 report, the ESSTI project noted that the proportion of cases among men having sex with men (MSM) has increased over the last 10 years[1]. ESSTI reports that data on route of transmission was available for Belgium, Cyprus, Czech Republic, Denmark, Greece, the Netherlands, Norway, Slovenia, Sweden and the United Kingdom. In 2005 the proportion of gonorrhoea cases acquired among MSM ranged from 24 % in the Czech Republic to 80 % in Belgium.

Discussion

The number of reported gonorrhoea cases has increased in many European countries. Comparison between countries is hampered due to differences in surveillance systems as well as in the organisation of health services including diagnostic methods, level of testing and screening, and access to care. Data presented here must be interpreted with extreme caution because the proportion of gonorrhoea cases that is actually diagnosed and reported is likely to differ greatly across countries. Therefore neither

Figure 3.2.3. Gender distribution of gonorrhoea cases by country in the EU and EEA/EFTA, 2006 (n = 30 084)



Source: Country reports.

direct comparisons of numbers of reported cases or rates between countries nor inference about incidence should be made.

References

1. ESSTI (European Surveillance of Sexually Transmitted Infections). Sexually transmitted infections surveillance in Europe: annual report no. 2; 2007. London: Health Protection Agency; 2008.

Surveillance systems overview

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (CB)/Aggregated(A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-GESCHLECHTSKRANKHEITEN-GESETZ	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-STD	V	Se	A	C	N	Y	—	—	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Cyprus	CY-STD	V	Se	A	C	N	Y	Y	N	N
Czech Republic	CZ-STD	Cp	Co	P	C	Y	Y	Y	N	Y
Denmark	DK-CLINCIAL_STI_SYSTEM	Cp	Co	P	C	N	Y	N	—	Y
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y
Denmark	DK-STI_CLINICAL	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-GONOCOCC	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
Finland	FI-STD	V	Se	P	C	N	Y	N	N	N
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-RENAGO	V	Se	P	C	Y	N	Y	Y	Y
France	FR-STI	V	Se	A	C	Y	Y	Y	Y	—
Hungary	HU-STD SURVEILLANCE	Cp	Se	P	A	N	Y	N	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-STI	Cp	Co	P	A	Y	—	Y	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-STI/SKIN_INFECTIONS	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-AIDS CENTRE	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-STI	V	Se	P	C	N	Y	N	N	N

Surveillance systems overview *continued*

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (CB)/Aggregated(A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Norway	NO-MSIS_B	Cp	Co	P	C	Y	Y	Y	—	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-GONOCOCCAL	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SPOSUR	Cp	Co	P	C	N	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-GUM	Cp	O	P	A	N	N	N	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

HEPATITIS B

- In 2006, 7494 cases of hepatitis B were confirmed by 28 EU and EEA/EFTA Member States, a rate of 1.7 per 100 000 inhabitants.
- The most affected age groups are those between 25 and 44 years old with 48.4 % of cases (2.4 cases per 100 000), and the 15–24 year-olds (2.3 cases per 100 000).
- The overall number seems to be lower than for 2005, but trends are difficult to conclude because of the huge differences in the sensitivity of each country's surveillance system for this disease. Also, there have been recent changes in reporting systems and testing practices.
- The development and implementation of enhanced surveillance of hepatitis B is essential to provide the necessary information with which to monitor the trends, the differences in epidemiology and to evaluate the prevention programmes in the EU.

Epidemiological situation in 2006

In 2006, 7944 cases of hepatitis B virus infection were reported by 28 EU and EEA/EFTA Member States (United Kingdom and Liechtenstein did not report) and 7494 of these were confirmed. The overall rate was 1.71 per 100 000 population (Table 3.2.3).

The highest notification rates were observed in Bulgaria (10 cases per 100 000), Latvia (7.3 per 100 000) and Romania (5.9 per 100 000). Compared with 2005, the number of hepatitis B cases decreased by 23 % in 2006 (excluding Bulgaria and Romania).

Age and gender distribution

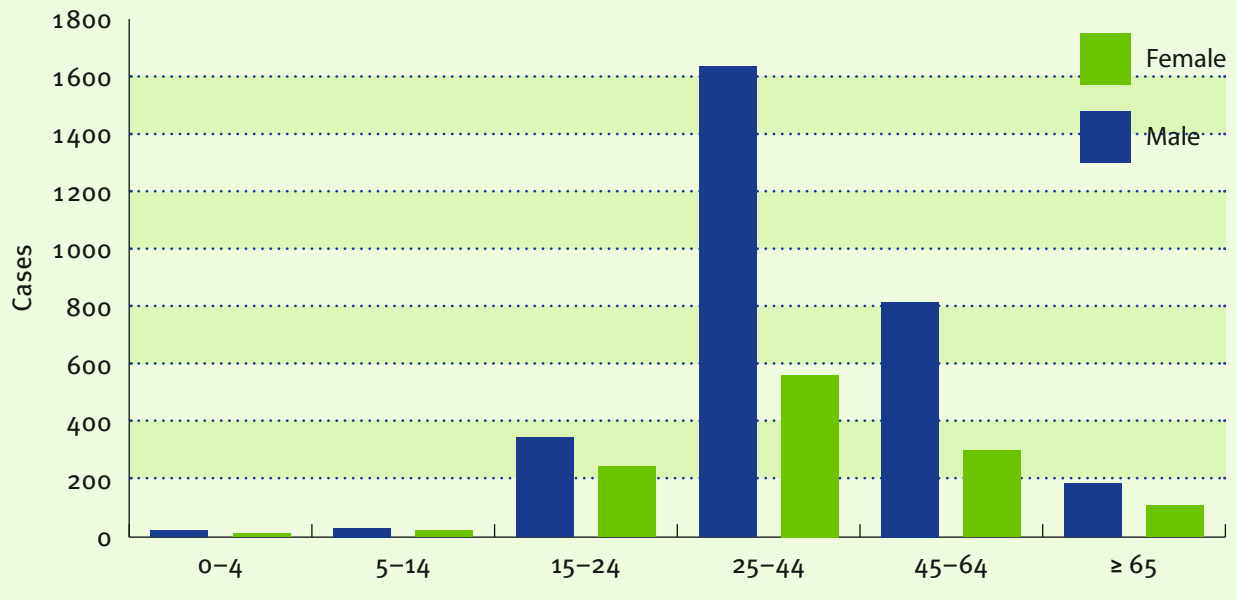
In 2006, 3051 cases of hepatitis B were reported in males (1.9 per 100 000) and 1270 in females (0.74 per 100 000), with a male to female ratio of 2.4:1. The majority of the hepatitis B cases were reported in the age group 25–44 years (48.4 % of the total) that also had the highest rate at 2.4 per 100 000 (Figure 3.2.4) followed by the 15–24 year-olds (2.3 per 100 000). The information on age was not available for 2420 cases (33 %). The highest rate in young people aged 15–24 years was reported in Bulgaria (32.7 per 100 000) followed by Latvia (15.3 per 100 000).

Table 3.2.3. Number and notification rate of reported cases of hepatitis B virus infection in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	59	59	0.71
Belgium	A	401	401	3.8
Bulgaria	A	773	773	10.0
Cyprus	C	7	7	0.91
Czech Republic	C	307	306	3.0
Denmark	C	20	20	0.37
Estonia	A	45	45	3.4
Finland	C	37	37	0.70
France	C	182	182	0.29
Germany	C	1179	1179	1.4
Greece	C	86	67	0.60
Hungary	C	83	83	0.82
Ireland	C	94	94	2.2
Italy	C	1068	1068	1.8
Latvia	A	167	167	7.3
Lithuania	A	107	107	3.1
Luxembourg	C	9	9	1.9
Malta	C	2	2	0.49
Netherlands	C	240	240	1.5
Poland	A	508	362	0.95
Portugal	C	42	40	0.38
Romania	C	1279	1279	5.9
Slovakia	C	123	123	2.3
Slovenia	C	26	26	1.3
Spain	C	778	496	1.1
Sweden	C	162	162	1.8
United Kingdom	U	—	—	—
EU total		7784	7334	1.70
Iceland	C	11	11	3.7
Liechtenstein	U	—	—	—
Norway	C	149	149	3.2
Total		7944	7494	1.71

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: unspecified.

Figure 3.2.4. Distribution of hepatitis B cases by age and gender in EU and EEA/EFTA countries, 2006 (n = 4 296)



Source: Country reports: Austria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, Spain, Iceland and Norway.

Seasonality

Data on seasonality were available from 21 countries, with 4 500 cases reported, but no seasonal trends were apparent.

Discussion

Hepatitis B is increasingly being considered as a sexually transmitted disease. However, the distribution patterns and risk groups may differ widely across the EU. Interpretation of the trends is hampered by differences between surveillance systems, recent changes in reporting, low numbers in some countries, undiagnosed cases and incomplete reporting in some countries. Also, many countries are still struggling with the problem of distinguishing between reports of acute and chronic cases of hepatitis B, leading to a mix of reports and data that cannot be compared to show trends.

The enhanced surveillance of hepatitis B is essential to provide the necessary information with which to monitor the trends, to account for differences in epidemiology and to evaluate the prevention programmes. Furthermore the harmonisation of HBV and HCV surveillance at the European level is needed to improve the understanding of the epidemiology of these blood-borne viruses.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-HBV/GIARDIASIS	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-BLOOD_DONORS	O	Co	A	C	N	N	N	Y	Y
France	FR-HIV/HCV/HBV_ANONYMOUS	Cp	Co	P	A	N	N	N	Y	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-SENTINELLES	V	Se	A	C	N	Y	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-HEPATITISB	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SEIEVA	V	Co	A	C	N	Y	Y	Y	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Netherlands	NL-STI	V	Se	P	C	N	Y	N	N	N
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-HEPATITISB	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-HEPATITISB	O	Co	P	C	Y	N	Y	N	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

HEPATITIS C

- In 2006, 29 073 confirmed cases of hepatitis C were reported by 28 EU and EEA/EFTA Member States, with an overall rate of 6.7 per 100 000 inhabitants.
- There are limitations to the HCV reporting, related to the difficulties with the interpretation of test results in distinguishing between acute and chronic infections. However, available data suggest that hepatitis C is the most common form of viral hepatitis reported in the EU.
- The most affected age group is the 25–44 year-olds (12.5 cases per 100 000).
- The development and implementation of enhanced surveillance of hepatitis C is essential to provide the necessary information with which to monitor the trends, the differences in epidemiology and to evaluate the prevention programmes in the EU.

Epidemiological situation in 2006

In 2006, 29 088 cases of hepatitis C virus infection were reported by 28 EU and EEA/EFTA Member States (France and Liechtenstein did not report), and 29 073 of these were confirmed, giving an overall notification rate of 6.7 per 100 000 inhabitants (Table 3.2.4).

The highest notification rates were observed in Ireland (29.1 per 100 000), Finland (22.5 per 100 000), Sweden (21.8 per 100 000) and the United Kingdom (17.2 per 100 000). However, such comparisons are of little value as reporting rules vary widely: Finland, for example, includes in its reports all cases newly recognised, regardless of the clinical presentation (screening, chronic, acute, etc.), while many other countries simply report only those cases confirmed to have acute infection.

Age and gender distribution

In 2006, 17 878 cases of hepatitis C were reported in males (64.4 %) and 9 894 in females (35.6 %), with a rate of 9.4 and 5.0 per 100 000, respectively (male to female ratio 1.9:1). Gender was unknown in 1 301 cases (4.7 %).

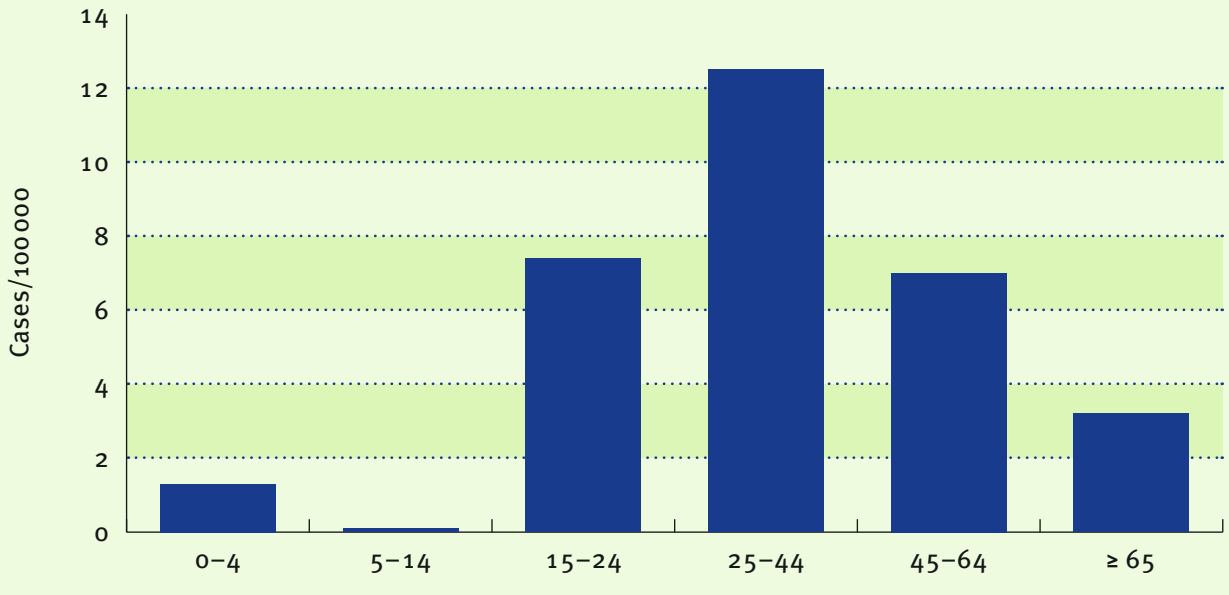
More than half of the hepatitis C cases were reported in the age group 25–44 years (53 % of the total). The highest rates in that age group were observed in Ireland (65.9 per 100 000), Finland (39.6 per 100 000), the United Kingdom (38.8 per 100 000) and Sweden (35.9 per 100 000). The highest rate in young adults aged 15–24 years was reported in Finland (446 cases; rate 68.1 per 100 000) followed by Sweden (349 cases; rate 31.0 per 100 000). The information on age was missing for 1 207 cases (4 %). (Figure 3.2.5).

Table 3.2.4. Number and notification rate of reported cases of hepatitis C virus infection in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	227	227	2.7
Belgium	A	739	739	7.0
Bulgaria	A	121	121	1.6
Cyprus	C	5	5	0.7
Czech Republic	C	1022	1022	10.0
Denmark	C	348	348	6.4
Estonia	A	57	57	4.2
Finland	C	1181	1181	22.5
France	U	—	—	—
Germany	C	7509	7509	9.1
Greece	C	16	10	< 0.1
Hungary	C	29	29	0.29
Ireland	C	1226	1226	29.1
Italy	C	322	322	0.55
Latvia	C	105	105	4.6
Lithuania	A	62	62	1.8
Luxembourg	C	12	12	2.6
Malta	C	11	11	2.7
Netherlands	C	30	30	0.18
Poland	A	2949	2949	7.7
Portugal	C	88	82	0.78
Romania	C	84	84	0.39
Slovakia	C	31	31	0.58
Slovenia	C	6	3	0.3
Spain	C	422	422	1.0
Sweden	C	1976	1976	21.8
United Kingdom	C	10 417	10 417	17.2
EU total		28 995	28 980	6.74
Iceland	C	45	45	15.0
Liechtenstein	U	—	—	—
Norway	C	48	48	1.0
Total		29 088	29 073	6.68

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.2.5. Age-specific notification rates of hepatitis C cases in EU and EEA/EFTA countries, 2006 (n = 27 866)



Source: Country reports: Austria, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, UK, Iceland and Norway.

Seasonality

There are no seasonal trends to comment on for hepatitis C.

Discussion

Most European countries have implemented surveillance systems for hepatitis C, but due to their differences, for instance in system structures, reporting practices, data collection methods and case definitions used, the surveillance data are difficult to compare across countries. Similarly, interpretation of the trends is hampered by differences in surveillance systems (in terms of completeness and representativeness), recent changes in reporting, low numbers in some countries, undiagnosed cases and incomplete reporting in some countries. Also, there is difficulty in interpreting test results and with the way countries distinguish between reports on acute and chronic cases of hepatitis C. Hence, surveillance data cannot as yet be used to describe the true incidence or trend in disease.

The enhanced surveillance of hepatitis C is essential to provide the necessary information with which to monitor the trends and differences in epidemiology. The harmonisation of HBV and HCV surveillance at the European level is needed to obtain a robust picture of the epidemiology of hepatitis C.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-HCV/CHLAMYDIA	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-BLOOD_DONORS	O	Co	A	C	N	N	N	Y	Y
France	FR-HEPATITISC_HEPATOLOGY_ REFERENCE_CENTRES	V	Se	A	C	N	N	Y	N	Y
France	FR-HIV/HCV/HBV_ANONYMOUS	Cp	Co	P	A	N	N	N	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-RENAVHC	V	Se	P	C	Y	N	N	N	—
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SEIEVA	V	Co	A	C	N	Y	Y	Y	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-HEPATITISC	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-HEPATITISC	O	Co	A	C	Y	N	Y	N	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

HIV/AIDS

- HIV infection remains of major public health importance in Europe; increasing numbers of HIV cases are being reported in several European countries.
- In 2006, 26 275 newly diagnosed cases of HIV infection were reported by 29 countries giving an overall rate of 6 per 100 000. Reported AIDS cases in the EU and EEA/EFTA countries numbered 7 035 giving a rate of 1.4 per 100 000. Since 1999, the AIDS incidence has declined by more than a third.
- Data from the former EuroHIV surveillance network showed that heterosexual contact (53 %) was the predominant mode of transmission for HIV infection, however around 40% of these were diagnosed in persons originating from countries with a generalised epidemic. If these cases are excluded, the predominant mode of transmission is homo- and bisexual contact (37 %). Injecting drug users (IDU) account for 9% of the HIV infections[1].

Epidemiological situation in 2006 for HIV infection

In 2006, 26 275 newly diagnosed cases of HIV infection were confirmed by 29 EU and EEA/EFTA Member States (excluding Liechtenstein; for Italy and Spain the data are known not to be nationally representative), giving an overall rate of 6 per 100 000 inhabitants (Table 3.2.5). The highest notification rate was observed in Estonia (49.7 per 100 000), while HIV infection rates higher than 10 per 100 000 were also observed in Latvia (13.0 per 100 000), the UK (12.1 per 100000) and Luxembourg (11.9 per 100 000). The lowest rate of newly diagnosed cases of HIV was reported in Slovakia (0.24 per 100 000).

Comparison of trends in individual countries is difficult because of differences in reporting systems, recent changes in reporting, low numbers in some countries and incomplete reporting in other countries.

Age and gender distribution

In 2006, 17 289 newly diagnosed cases of HIV were reported in males (67 %) and 8 484 in females (33 %), with rates of 7.2 and 3.4 per 100 000 respectively (male to female ratio 2:1).

The majority of the newly diagnosed cases of HIV infection were reported in the age group 25–44 years (66 %) with a rate of 9.2 per 100 000 (Figure 3.2.6); 19 % were observed in the 45–64 year-olds and 11.9 % in the group 15–24 years. The highest rate in the young age group was reported in Estonia with a rate 140.3 per 100 000 for the 15–24 year-olds.

Table 3.2.5. Number and notification rate of newly-diagnosed cases of HIV infection in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	435	435	5.3
Belgium	C	995	995	9.5
Bulgaria	A	91	91	1.2
Cyprus	C	34	34	4.4
Czech Republic	C	93	93	0.91
Denmark	C	244	244	4.5
Estonia	C	668	668	49.7
Finland	C	195	195	3.7
France	C	5750	5750	9.1
Germany	C	2718	2718	3.3
Greece	C	569	569	5.1
Hungary	C	81	81	0.80
Ireland	C	337	337	8.0
Italy(a)	U	1542	1542	—
Latvia	C	299	299	13.0
Lithuania	C	100	100	2.9
Luxembourg	C	56	56	11.9
Malta	C	22	22	5.4
Netherlands	C	1070	1070	6.6
Poland	C	750	750	2.0
Portugal(b)	C	1006	1006	9.5
Romania	C	206	206	1.0
Slovakia	C	13	13	0.24
Slovenia	C	34	34	1.7
Spain(a)	U	969	969	—
Sweden	C	377	377	4.2
United Kingdom(b)	C	7334	7334	12.1
EU total		25988	25988	6.01(c)
Iceland	C	11	11	3.7
Liechtenstein	U	—	—	—
Norway	C	276	276	5.9
Total		26275	26275	6.01(c)

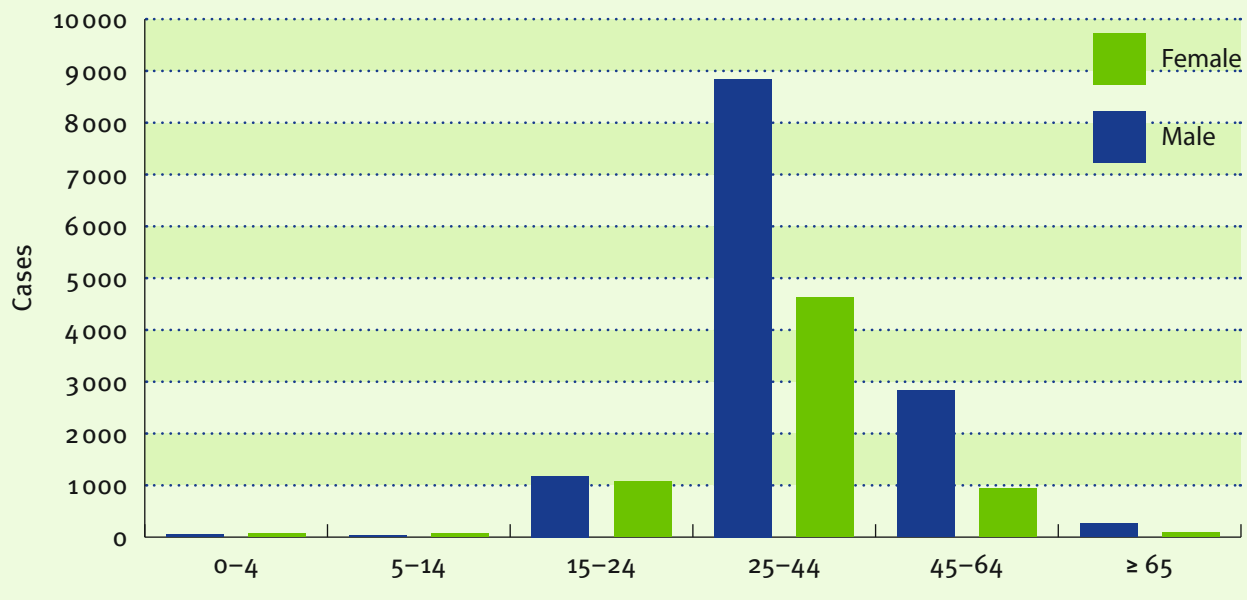
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

(a) Regional data are reported from Italy and Spain that do not represent the whole country.

(b) Data on HIV for 2006 are provided using the date of diagnosis; the number here will differ from the number previously reported to EuroHIV where that data was based on the date of notification.

(c) Rate calculated excluding data for Italy and Spain.

Figure 3.2.6. Distribution of HIV infection by age and gender in EU and EEA/EFTA countries, 2006. (n = 20 061)



Source: Country reports: Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, Iceland and Norway.

AIDS trends

In EU and EEA/EFTA Members States, the number of AIDS cases diagnosed continued to decrease from 8 269 in 2005 to 7 035 in 2006. Similar trends are observed in most EU countries except the Baltic States where the HIV epidemic is more recent. In 2006, the highest rates of AIDS diagnoses were reported in Portugal (592 cases; 5.6 per 100 000) and Spain (1 519 cases; 3.5 per 100 000) followed by Estonia (34, 2.5 per 100 000), Italy (1 452, 2.5 per 100 000) and Latvia (53, 2.3 per 100 000). However, the majority of countries (18 of the 30 EU and EEA/EFTA Member States) report rates that are equal or below 1 per 100 000 population (see Table 3.2.6).

The age distribution in AIDS cases shows a peak in the age group 25–44 years (3.2 per 100 000) compared with the 15–24 and 45–64 age groups (0.5 and 1.5 per 100 000, respectively) (see Figure 3.2.7).

72 % of AIDS cases were in males (2.1 per 100 000), and this is more than twice the rate in females (0.8 per 100 000).

Enhanced surveillance in 2006

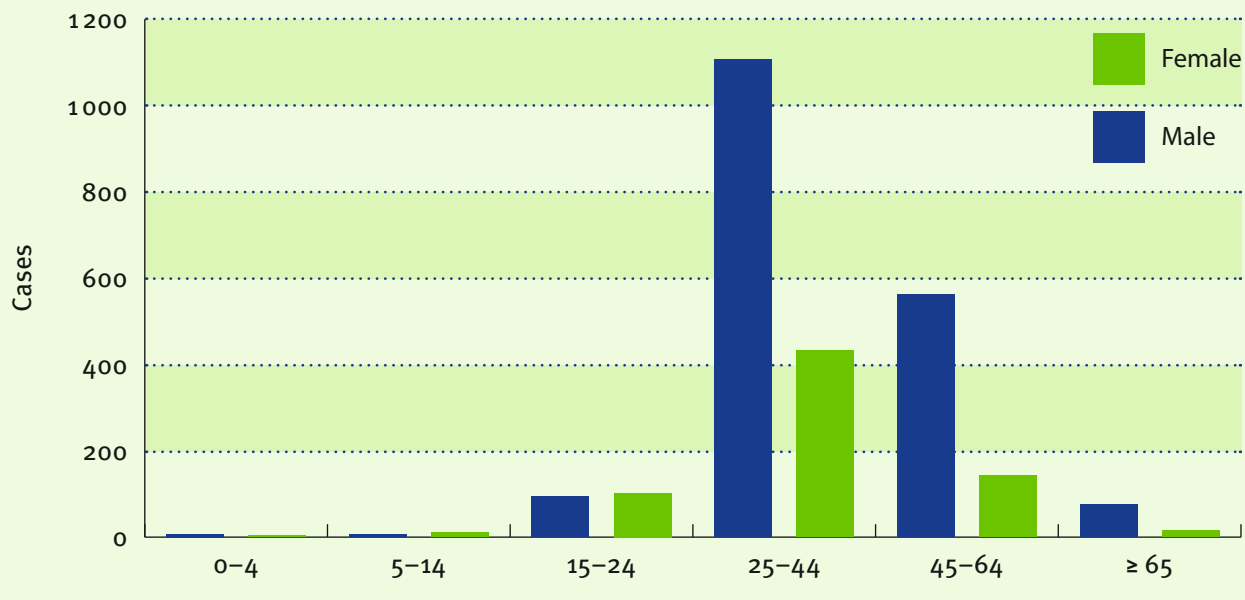
The EuroHIV network concludes in their 2006 report No.75[1] on HIV/AIDS surveillance in Europe that in 25 EU Member States (Italy and Spain excluded), 26 486 newly diagnosed cases of HIV infection were reported in 2006, a rate of 6.7 per 100 000 inhabit-

Table 3.2.6. Number and notification rates of new AIDS cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	59	59	0.67
Belgium	C	99	99	0.94
Bulgaria	A	16	16	0.21
Cyprus	C	7	7	0.39
Czech Republic	C	14	14	0.14
Denmark	C	50	50	0.92
Estonia	C	34	34	2.5
Finland	C	26	26	0.49
France	C	1 020	1 020	1.6
Germany	C	367	367	0.45
Greece	C	92	92	0.83
Hungary	C	22	22	0.22
Ireland	C	35	35	0.83
Italy	C	1 452	1 452	2.5
Latvia	A	53	53	2.3
Lithuania	A	27	27	0.79
Luxembourg	C	9	9	1.9
Malta	C	7	7	1.7
Netherlands	C	189	189	1.2
Poland	C	114	114	0.30
Portugal	C	592	592	5.6
Romania	C	263	263	1.2
Slovakia	C	14	14	0.26
Slovenia	C	5	5	0.25
Spain	C	1 519	1 519	3.5
Sweden	C	58	58	0.64
United Kingdom	C	857	857	1.4
EU total		7 000	7 000	1.42
Iceland	C	3	3	1.0
Liechtenstein	U	—	—	—
Norway	C	32	32	0.69
Total		7 035	7 035	1.41

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.2.7. Distribution of AIDS cases by age and gender in EU and EEA/EFTA countries, 2006 (n = 2 558)



Source: Country reports: Austria, Denmark, Estonia, Hungary, Ireland, Italy, Luxembourg, Malta, Portugal, Romania and Slovakia.

ants. Compared with 2005, this represents a very slight decrease. Countries with among the highest rates of HIV reported in 2006 in the whole of the WHO European Region are Estonia (50.4 per 100 000), Russian Federation (27.5 per 100 000), Ukraine (28.8 per 100 000), followed by Portugal (20.5 per 100 000) showing that it is not only eastern European countries that are still badly affected by the epidemic. Furthermore, rates of more than 10 newly reported cases of HIV infection per 100 000 inhabitants reported in 2006 were observed in a further three countries: the United Kingdom (14.9 per 100 000), Latvia (13.0 per 100 000), and Luxembourg (11.9 per 100 000).

The rate of newly diagnosed cases of HIV infection has nearly doubled between 1999 and 2006. In 2006, the majority of cases were found in men (66 %), with 11 % of cases found in young people aged 15–24.

The predominant route of transmission appears to be heterosexual contact (53 %), however, around 40% of these were diagnosed in persons originating from countries with a generalised epidemic (e. g. countries in sub-Saharan Africa). Over a third of the cases were diagnosed among men who have sex with men (MSM). However, because of the relative size of this population, MSM remain at greater risk than most heterosexuals. Less than 10 % of the cases were reported among injecting drug users.

The number of AIDS cases in persons infected through heterosexual contact accounted for the majority of AIDS cases (2 977 of

the total 6720, EuroHIV 2006 report). The number of AIDS cases in injecting drug users has slightly decreased from 1958 in 2005 to 1514 in 2006, with the highest numbers reported by Spain (662), Italy (313) and Portugal (237). The number of AIDS cases in MSM has continuously decreased and 1397 were reported in 2006. With 61 AIDS cases diagnosed in 2006, mother-to-child transmission accounts for less than 1% of all AIDS cases.

Among the 20 EU countries that have consistently reported HIV data since 1999, the rate of newly diagnosed cases of HIV infection reported has nearly doubled, from 2.9 per 100000 in 1999 (8295 cases) to 5.6 (16640 cases) in 2006. Rates of HIV infection have more than doubled in four countries (Bulgaria, Slovakia, Slovenia and the United Kingdom). Eighteen EU countries have consistently reported HIV transmission group data since 1999 and trends from 12 of these (Figure 3.2.8) have shown that:

- the number of cases for whom infection was acquired by heterosexual contact has more than doubled, from 1745 cases in 1996 to 4039 cases in 2006. Among countries reporting more than 50 cases of heterosexually acquired infection in 2006, more than a twofold increase in the number of cases was observed in five countries: Finland, Ireland, Latvia, Poland and the United Kingdom;
- the number of HIV reports among MSM has nearly doubled, from 2480 in 1999 to 4829 in 2006;

Figure 3.2.8. Newly diagnosed HIV infections by transmission group, 1996–2006 in selected countries (Belgium, Denmark, Finland, Germany, Iceland, Ireland, Israel, Luxembourg, San Marino, Sweden, Switzerland, United Kingdom)

Source: Adapted from EuroHIV report.

*Cases originating from countries with generalised epidemic excluded.

- the number of newly diagnosed cases of HIV among IDU has declined (1 063 in 1999 and 807 in 2006). However, this does hide an increase observed between 2000 and 2002 due to the epidemic among IDU reported in the Baltic States of Latvia and Lithuania. Furthermore, data were not available for this period for Estonia, Italy, Spain and Portugal, where major epidemics among IDU have been reported in the past.

Discussion

The overall number of newly diagnosed cases of HIV reported in 2006 in the EU countries remains lower than the peak of 2001, but there are several countries reporting increasing numbers of cases, especially those from sexual transmission. However, the predominant transmission group varies by country and geographic region and these data illustrate the wide diversity in the epidemiology of HIV in Europe; several diverse epidemics are occurring in parallel. Direct comparison of the data from different countries remains problematic due to great variations in the notification systems.

The main trends remain that:

- heterosexual contact appears to account for half of the HIV infections being reported but if we acknowledge that to a large extent these infections were diagnosed in persons originating from, and infected in, countries outside the EU, primarily in sub-Saharan Africa, it means that heterosexual contact accounts for 40% of the HIV infections; and that
- MSM remains the group at highest risk in most countries;
- in the Baltic States, the HIV epidemic continues to be driven by IDU although a recent decline in the number of cases among IDU probably reflects a saturation of this population;
- access to treatment has resulted in a reduction in the number of AIDS cases reported.

References

1. EuroHIV. HIV/AIDS surveillance in Europe. End-year report 2006. Saint-Maurice (France): Institut de Veille Sanitaire; 2007. No. 75. Available from: http://www.eurohiv.org/reports/report_75/pdf/report_eurohiv_75.pdf

Surveillance systems overview (AIDS)

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-AIDS	Cp	Co	P	C	Y	Y	Y	N	Y
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-HIV/AIDS	V	Co	A	C	Y	Y	Y	-	Y
Bulgaria	BG-AIDS	Cp	Co	A	C	N	N	Y	N	Y
Bulgaria	BG-MoH-GEN	—	—	—	—	—	—	—	—	—
Cyprus	CY-HIV/AIDS	Cp	Co	A	C	N	N	Y	N	Y
Czech Republic	CZ-HIV/AIDS	Cp	Co	A	C	Y	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	Y	Y	N	N	Y
Estonia	EE-AIDS	Cp	Co	A	C	Y	N	Y	N	Y
Finland	FI-NIDR	Cp	Co	P	C	N	Y	N	N	Y
Finland	FI-STD	V	Se	P	C	N	Y	N	N	N
France	FR-AIDS	Cp	Co	P	C	N	Y	N	N	Y
Germany	DE-AIDS	V	Co	P	C	N	Y	Y	N	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-HIV/AIDS	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-HIV/AIDS	V	Co	P	C	Y	Y	Y	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-AIDS	V	Co	P	C	N	Y	Y	N	Y
Latvia	LV-ICoL-GEN	—	—	—	—	—	—	—	—	—
Lithuania	LT-AIDS_CENTRE	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-AIDS	V	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-LdR-GEN	—	—	—	—	—	—	—	—	—
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	N	Y
Netherlands	NL-HIV/AIDS	V	Co	P	C	N	Y	Y	N	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y

Table continues overleaf

Surveillance systems overview (AIDS) *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Poland	PL-AIDS	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-DdE-GEN	—	—	—	—	—	—	—	—	—
Portugal	PT-HIV/AIDS	Cp	Co	P	C	N	Y	N	N	Y
Romania	RO-NCfFaA-GEN	—	—	—	—	—	—	—	—	—
Romania	RO-RSS	Cp	Se	A	C	N	Y	Y	N	Y
Slovakia	SK-HIV/AIDS	Cp	Co	A	C	Y	Y	Y	N	Y
Slovenia	SI-HIVSUR	Cp	Co	P	C	N	Y	N	N	Y
Spain	ES-AIDS	Cp	Co	P	C	N	Y	N	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-AIDS	V	Co	A	C	Y	N	Y	Y	N

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

Surveillance systems overview (HIV)

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-HIV	V	Co	P	C	Y	Y	Y	N	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-HIV/AIDS	V	Co	A	C	Y	Y	Y	N	Y
Bulgaria	BG-HIV	Cp	Co	P	C	Y	N	N	N	Y
Bulgaria	BG-MoH-GEN	—	—	—	—	—	—	—	—	—
Cyprus	CY-HIV/AIDS	Cp	Co	A	C	N	N	N	Y	Y
Czech Republic	CZ-HIV/AIDS	Cp	Co	A	C	Y	Y	Y	N	Y
Denmark	DK-HIV	Cp	Co	P	C	Y	Y	N	N	Y
Estonia	EE-HIV	Cp	Co	P	A	Y	Y	Y	N	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
Finland	FI-STD	V	Se	P	C	N	Y	N	N	N
France	FR-BLOOD_DONORS	O	Co	A	C	N	N	N	Y	Y
France	FR-HIV/HCV/HBV_ANONYMOUS	Cp	Co	P	A	N	N	N	Y	Y
France	FR-HIV_VIR	O	Co	P	C	Y	Y	Y	N	Y
France	FR-LAB_HIV	V	Co	A	A	Y	N	N	N	Y
France	FR-MNOID-HIV	Cp	Co	P	C	N	Y	Y	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI7.3-HIV	Cp	Co	P	C	Y	Y	N	N	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-HIV/AIDS	Cp	Co	P	C	Y	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-HIV/AIDS	V	Co	P	C	Y	Y	Y	N	Y
Italy	IT-SIMI	V	Co	P	A	Y	Y	Y	N	Y
Latvia	LV-HIV/AIDS	V	Co	P	C	N	Y	Y	N	Y
Latvia	LV-ICoL-GEN	—	—	—	—	—	—	—	—	—

Table continues overleaf

Surveillance systems overview (HIV) *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Lithuania	LT-AIDS_CENTRE	Cp	Co	P	C	Y	Y	N	N	Y
Lithuania	LT-LAIDSc-GEN	—	—	—	—	—	—	—	—	—
Luxembourg	LU-HIV	V	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-LdR-GEN	—	—	—	—	—	—	—	—	—
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	N	Y
Netherlands	NL-HIV/AIDS	Cp	Co	P	C	N	Y	Y	N	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-STI	V	Se	P	C	N	Y	N	N	N
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_B	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-HIV	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-DdE-GEN	—	—	—	—	—	—	—	—	—
Portugal	PT-HIV/AIDS	Cp	Co	P	C	Y	Y	N	N	Y
Romania	RO-NCfFaA-GEN	—	—	—	—	—	—	—	—	—
Romania	RO-RSS	Cp	Se	A	C	N	Y	Y	N	Y
Slovakia	SK-HIV/AIDS	Cp	Co	A	C	Y	Y	Y	N	Y
Slovenia	SI-HIVSUR-HIV	Cp	Co	P	C	Y	Y	N	N	Y
Slovenia	SI-HIVUASS	V	Se	A	A	Y	N	N	Y	Y
Spain	ES-HIV	Cp	Co	P	C	Y	Y	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-HIV	V	Co	A	C	Y	Y	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

SYPHILIS

- In 2006, 18 462 cases of syphilis were reported by 28 EU and EEA/EFTA Member States, an overall rate of 3.9 per 100 000 inhabitants.
- Nearly three-quarters of the cases are diagnosed in men and reflect the ongoing outbreaks in large cities in Europe among men who have sex with men (MSM).
- The most affected age group is the 25–44 year-olds (7.9 cases per 100 000), but the notification rate is also high in the age group 15–24 years.
- The overall figures are higher than those for 2005.

Epidemiological situation in 2006

For 2006, 19 000 cases of syphilis were reported by 28 EU and EEA/EFTA Member States (Greece and Liechtenstein did not report) and 18 462 of these were confirmed. This corresponds to an overall notification rate of 3.9 per 100 000 inhabitants (Table 3.2.7). The highest notification rate was observed in Romania (26.2 per 100 000) followed by Latvia (21.0 per 100 000) and Estonia (9.3 per 100 000).

The total number of reported cases of syphilis infection has decreased by 13 % as compared with the figures in the Annual Epidemiological Report for 2005 for the 25 countries with data available for both years. A direct comparison of the overall figures with the data from the previous year is not possible. One reason for this is that additional data are included for 2006 from countries that report a substantial number of cases (e. g. Bulgaria and Romania). Furthermore, there are large decreases in the numbers of reported cases from some countries and these might be due to changes in the reporting system or incomplete or delayed reporting.

Previous trends in Member States reporting over the whole period indicate that the overall incidence decreased after 1996, but has been rising steadily since 2000, partly due to outbreaks in large cities among men who have sex with men (MSM).

Comparison of trends in individual countries does not contribute to the overall comparison because of major differences in reporting systems, changes in reporting, low numbers in some countries and probably incomplete reporting in other countries.

Age and gender distribution

In 2006, 12 804 cases of syphilis were reported in males (72 %) and 5 065 in females, with rates of 5.5 and 2.1 per 100 000, respectively.

Table 3.2.7. Number and notification rate of reported syphilis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria[a]	C	26	25	0.30
Belgium	C	288	288	2.7
Bulgaria	A	509	509	6.6
Cyprus	C	13	11	1.4
Czech Republic	C	502	36	0.35
Denmark	C	76	76	1.4
Estonia	A	125	125	9.3
Finland	C	131	131	2.5
France	C	455	455	0.72
Germany	C	3 147	3 147	3.8
Greece	U	—	—	—
Hungary	C	561	561	11.1
Ireland	C	103	49	1.2
Italy	C	945	945	1.6
Latvia	C	483	483	21.0
Lithuania	A	336	336	9.9
Luxembourg	C	11	11	2.3
Malta	C	12	12	3.0
Netherlands	C	642	642	3.9
Poland	A	933	933	2.4
Portugal	C	127	114	1.1
Romania	C	5 661	5 661	26.2
Slovakia	C	89	87	1.6
Slovenia	C	15	15	0.75
Spain	C	802	802	1.8
Sweden	C	172	172	1.9
United Kingdom	A	2 766	2 766	4.6
EU total		18 930	18 392	3.9[b]
Iceland	C	4	4	1.3
Liechtenstein	U	—	—	—
Norway	C	66	66	1.4
Total		19 000	18 462	3.9[b]

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

(a) Data not representative for the whole of Austria.

(b) Rate excludes Austrian data.

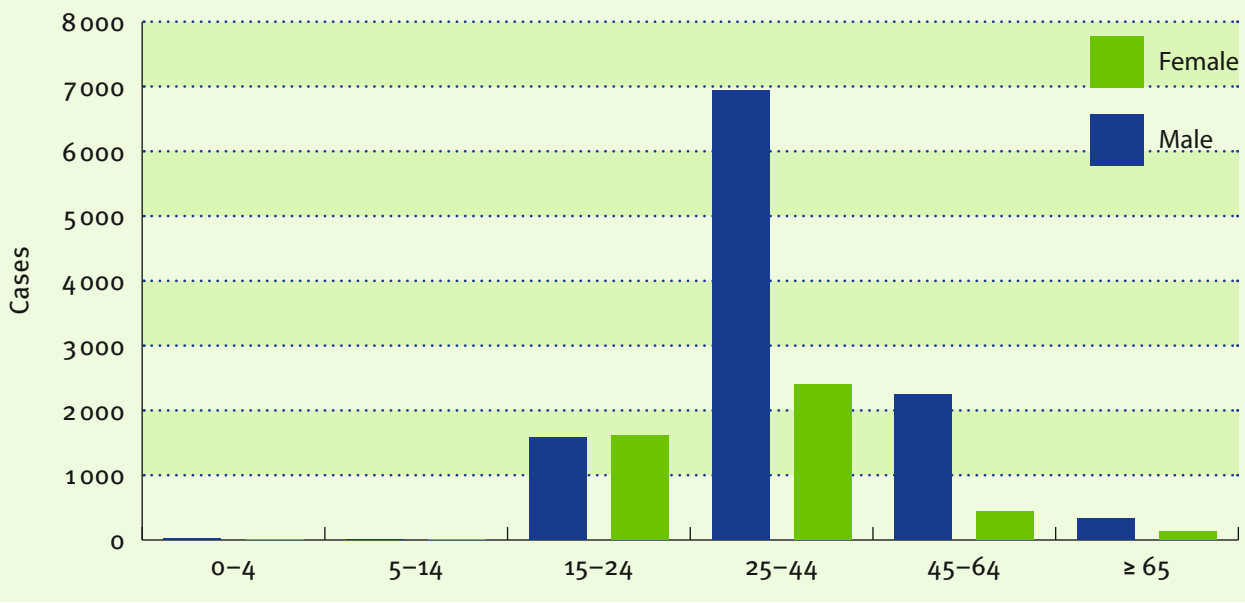
The majority (60 %) of the syphilis cases were reported in the age group 25–44 years (9 762 cases; rate of 7.9 per 100 000); 3 248 cases (20 %) were observed in the age group 15–24 years (rate 6.2 per 100 000); and 2 690 cases (17 %) in the older age group of 45–64 years (rate 2.6 per 100 000). The highest age-specific notification rates were reported in Romania in the age group 15–24 years (53.7 per 100 000; 1 771 cases) and in the age group 25–44 years (47.9 per 100 000; 3 110 cases) (Data not shown).

Enhanced surveillance in 2006

The project European Surveillance of Sexually Transmitted Infections (ESSTI) is a network of national experts of STI surveillance and STI reference microbiologists in 22 EU Member States, Iceland, Norway and Turkey. Bulgaria, Hungary, Lithuania, Luxembourg and Romania do not participate in this network. The 2006 data are available from 23 countries (excluding Greece and Poland). Regarding syphilis, it was highlighted that a number of Western European countries have experienced a rise in the rate of syphilis cases with many cities reporting outbreaks among MSM over the past ten years.

Twelve countries were able to provide data on whether the syphilis was acquired through homosexual contact (Belgium, Cyprus, Czech Republic, Denmark, France, Germany, Ireland, the Netherlands, Norway, Slovenia, Sweden and the United Kingdom). In 2006 over half of all cases in men were reported among MSM in eight of these coun-

Figure 3.2.9. Distribution of syphilis cases by age and gender in EU and EEA/EFTA countries, 2006 (n = 15 736)



Source: Country reports: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Spain, Sweden, UK, Iceland and Norway.

tries, ranging from 51 % in Sweden to 88 % in France, the Netherlands and Norway[1].

Discussion

Until the mid-1990s, syphilis notification rate rates were very low in Western European countries. Over the past ten years a number of countries have experienced a rise in the rate of syphilis cases with many cities reporting outbreaks among their MSM populations. Successive outbreaks have occurred in most Western European countries. Initially occurring predominantly among MSM, subsequent outbreaks have been recorded among sub-groups including commercial sex workers and their clients, migrant communities and among heterosexual adults. This may reflect a resurgence of syphilis in Western European countries.

In Central European countries, high rates of syphilis were observed in the early 1990s. The increases were related to the behaviour and socioeconomic changes in this region. A decrease in incidence was observed in the following years[1]. This could have reflected a genuine decrease but could also be linked to under-reporting. Surveillance data on congenital syphilis are helpful in interpreting syphilis incidence trends, and these data are important for the evaluation of strategies for prevention of mother-to-child transmission, which are very similar to those in relation to HIV: timely testing, diagnosis and timely treatment.

The data presented here do not allow overall conclusions on trends in syphilis incidence. Some countries report lower figures than in the previous year, but a coherent trend over a longer period cannot yet be confirmed. Changes in reporting behaviour, reporting systems, case definitions and underreporting have to be taken into account. The sustainability of the surveillance of syphilis across countries in Europe is needed to ensure that surveillance data is of a high quality. Furthermore, harmonisation at the European level is needed to improve comparability of trends.

References

1. ESSTI (European Surveillance of Sexually Transmitted Infections). Sexually transmitted infections surveillance in Europe: annual report no. 2; 2007. London: Health Protection Agency; 2008.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-GESCHLECHTSKRANK-HEITEN-GESETZ	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-STD	V	Se	A	C	N	Y	—	—	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Cyprus	CY-STD	V	Se	A	C	N	Y	Y	N	N
Czech Republic	CZ-STD	Cp	Co	P	C	Y	Y	Y	N	Y
Denmark	DK-CLINCIAL_STI_SYSTEM	Cp	Co	P	C	N	Y	N	—	Y
Denmark	DK-STI_CLINICAL	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-PERTUSSIS/ SHIGELLOSIS/ SYPHILIS	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
Finland	FI-STD	V	Se	P	C	N	Y	N	N	N
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-STI	V	Se	A	C	Y	Y	Y	Y	—
Germany	SurvNet@rki.de	Cp	Co	P	C	Y	Y	N	N	Y
Hungary	HU-STD SURVEILLANCE	Cp	Se	P	A	N	Y	N	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-STI/SKIN_INFECTIONS	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-AIDS CENTRE	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-STI	V	Se	P	C	N	Y	N	N	N
Norway	NO-MSIS_B	Cp	Co	P	C	Y	Y	Y	—	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-SYPHILIS	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SPOSUR	Cp	Co	P	C	N	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-GUM	Cp	O	P	A	N	N	N	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

3.3 FOOD- AND WATERBORNE DISEASES AND ZOONOSES

Anthrax, botulism, brucellosis, campylobacteriosis, cholera, cryptosporidiosis, echinococcosis infection with STEC/VTEC, giardiasis, hepatitis A, leptospirosis, listeriosis, salmonellosis, shigellosis, toxoplasmosis, trichinellosis, tularaemia, typhoid/paratyphoid fever, variant Creutzfeldt-Jakob disease and yersiniosis.

ANTHRAX

- Anthrax is a very rare zoonotic disease in the EU and EEA countries.

Epidemiological situation in 2006

In 2006, 29 EU and EEA/EFTA countries provided data (Liechtenstein did not report) with a total of 16 cases reported and six confirmed. Most of the cases (12) were reported in Spain but only two were confirmed, and four countries (Bulgaria, Greece, Romania and the UK) reported one case each.

Age and gender distribution

There was no gender difference (male to female ratio 1:1), with all of the cases being reported in adults, mainly in the 45–64 year age group.

Seasonality

The majority of cases were reported during the summer months of July (two), August and September (one each) with the other case occurring in January (only country reports from Bulgaria, Greece, Spain and UK provided seasonal data).

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-ANTH/CHOL/DIPH/MALA/ SPOX/TRIC/TULA/TYPH	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-ANTRAX	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-ANTHRAX	Cp	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

BOTULISM

- There is an increase in the number of reporting countries, 28 in 2006, compared with only 22 in 2005. All reporting countries provided data on age, gender and month for 2006.
- Young adults are the most affected group.

Epidemiological situation in 2006

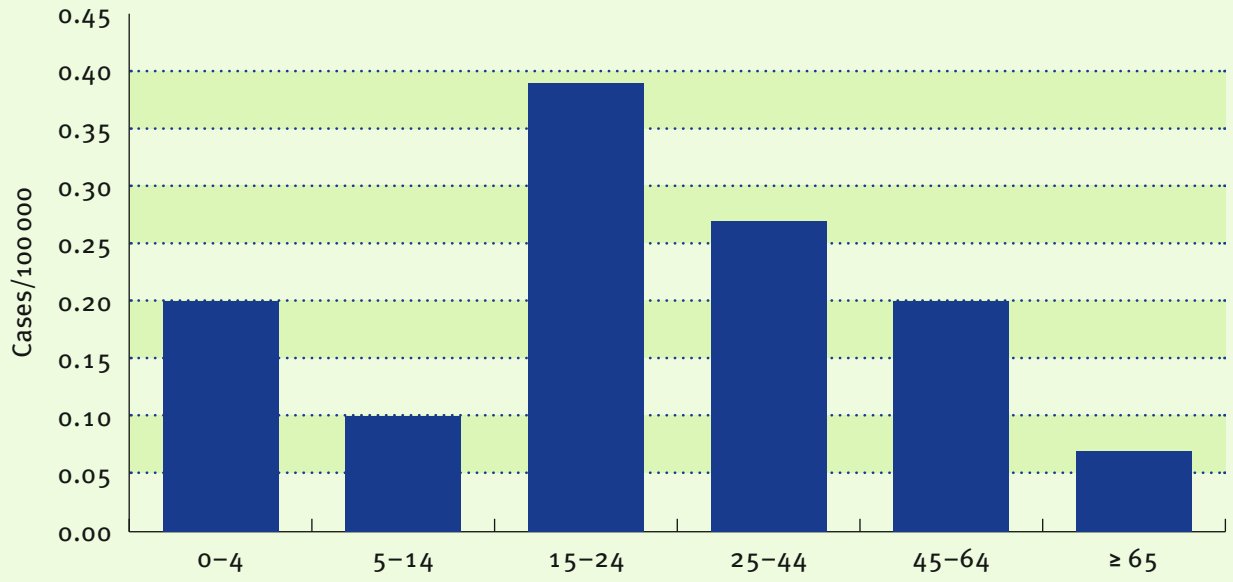
In 2006, a total of 157 cases (109 confirmed) were reported by 26 EU Member States, Iceland and Norway (Finland and Liechtenstein did not report), only slightly less than the 152 cases reported by 22 countries in 2005.

Only four countries reported 10 or more cases: Poland, 22; Romania, 13; Italy, 12; and the United Kingdom, 10. Bulgaria reported the highest notification rate (0.10 per 100 000), while the overall reported notification rate was 0.024 per 100 000.

Age and gender distribution

Data on age and gender were provided by 26 countries. Of the 104 cases with age data available, 39 cases were reported in the age group 25–44 years; 25 cases among the 45–64 year-olds, and 24 among the 15–24 year-olds. The highest notification rate (0.04 per 100 000) was seen in the 15–24 years age group (Figure 3.3.1).

Figure 3.3.1. Age-specific notification rates of botulism cases in EU and EEA/EFTA countries, 2006 (n = 104)



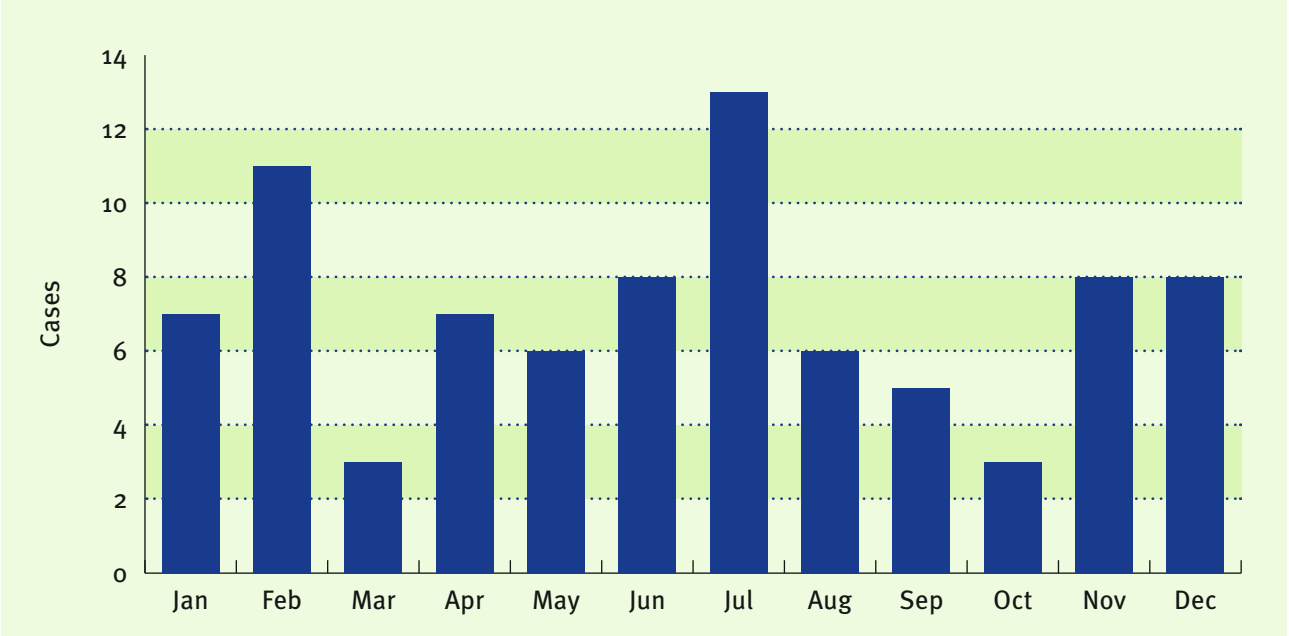
Source: Country reports: Austria, Bulgaria, Germany, Greece, Hungary, Italy, Netherlands, Poland, Portugal, Romania, Spain, Sweden, UK and Norway. Belgium, Cyprus, Czech Republic, Denmark, Estonia, Latvia, Luxembourg, Malta, Slovakia, Slovenia and Iceland reported zero cases.

Table 3.3.1. Number and notification rate of reported botulism cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	5	5	< 0.1
Belgium	U	0	0	0.0
Bulgaria	A	8	8	0.10
Cyprus	U	0	0	0.0
Czech Republic	U	0	0	0.0
Denmark	U	0	0	0.0
Estonia	U	0	0	0.0
Finland	U	—	—	—
France	U	9	4	< 0.1
Germany	C	7	7	< 0.1
Greece	C	2	2	< 0.1
Hungary	C	6	6	< 0.1
Ireland	C	1	1	< 0.1
Italy	C	12	12	< 0.1
Latvia	C	0	0	0.0
Lithuania	A	3	2	< 0.1
Luxembourg	U	0	0	—
Malta	U	0	0	0.0
Netherlands	C	1	1	< 0.1
Poland	C	50	22	< 0.1
Portugal	C	9	9	< 0.1
Romania	C	14	14	< 0.1
Slovakia	C	0	0	0.0
Slovenia	U	0	0	0.0
Spain	C	4	2	< 0.1
Sweden	C	2	2	< 0.1
United Kingdom	C	22	10	< 0.1
EU total		155	107	0.02
Iceland	U	0	0	0.0
Liechtenstein	U			—
Norway	C	2	2	< 0.1
Total		157	109	0.024

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.2. Seasonal distribution of human botulism cases, in EU and EEA/EFTA countries, 2006 (n = 85)



Source: Country reports: Austria, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Spain, Sweden, UK and Norway. Belgium, Cyprus, Czech Republic, Denmark, Estonia, Latvia, Luxembourg, Malta, Slovakia, Slovenia and Iceland reported zero cases.

Data on gender were available for 98 cases. A higher number of males (n = 63) than females (n = 35) were reported with a gender ratio of male to female ratio of 1.8:1.

Seasonality

In 2006, data on the month of notification was available for 85 cases reported by 14 EU Member States, Iceland and Norway. Botulism does not show any seasonality (Fig 3.3.2) though if there were any seasonal differences, the numbers are probably too small to show them.

Discussion

Botulism remains a relatively uncommon communicable disease in the EU.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	-	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-BOTULISM	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	—	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-BOTULISM	Cp	Co	P	C	N	Y	N	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-BOTULISM	Cp	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

BRUCELLOSIS

- The reported number of human brucellosis cases was slightly lower (8 % less) in 2006 than in 2005.
- An increase in the number of reported cases is seen in the summer.
- The notification rate is twice as high among men as among women.

Epidemiological situation in 2006

In 2006, a total of 1313 cases, of which 955 were confirmed, were reported by 28 EU and EEA/EFTA countries (Denmark and Liechtenstein did not report), representing a notification rate of 0.20 per 100 000. Twelve countries reported zero cases. The highest notification rates were reported by Greece, Italy, Portugal and Spain but these were still very low, ranging from 0.3 to 1.1 per 100 000.

Compared with data from 2005 when 1429 cases were reported with an overall notification rate of 0.31 per 100 000, there is a slight decrease in both cases and rates despite there being two additional countries reporting in 2006.

Table 3.3.2. Number and notification rate of reported cases of human brucellosis in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	1	1	0.0
Belgium	C	2	2	0.0
Bulgaria	C	11	3	< 0.1
Cyprus	U	0	0	0.0
Czech Republic	U	0	0	0.0
Denmark	U	—	—	—
Estonia	U	0	0	0.0
Finland	C	0	0	0.0
France	C	30	24	<0.1
Germany	C	37	37	0.0
Greece	C	288	121	1.1
Hungary	C	0	0	0.0
Ireland	C	29	4	0.10
Italy	C	456	456	0.78
Latvia	C	1	1	< 0.1
Lithuania	U	0	0	0.0
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	C	7	6	<0.1
Poland	U	0	0	0.0
Portugal	C	95	76	0.72
Romania	C	1	1	< 0.1
Slovakia	C	0	0	0.0
Slovenia	U	0	0	0.0
Spain	C	328	196	0.30
Sweden	C	4	4	<0.1
United Kingdom	C	20	20	<0.1
EU total		1 310	952	0.20
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	C	3	3	0.10
Total		1 313	955	0.20

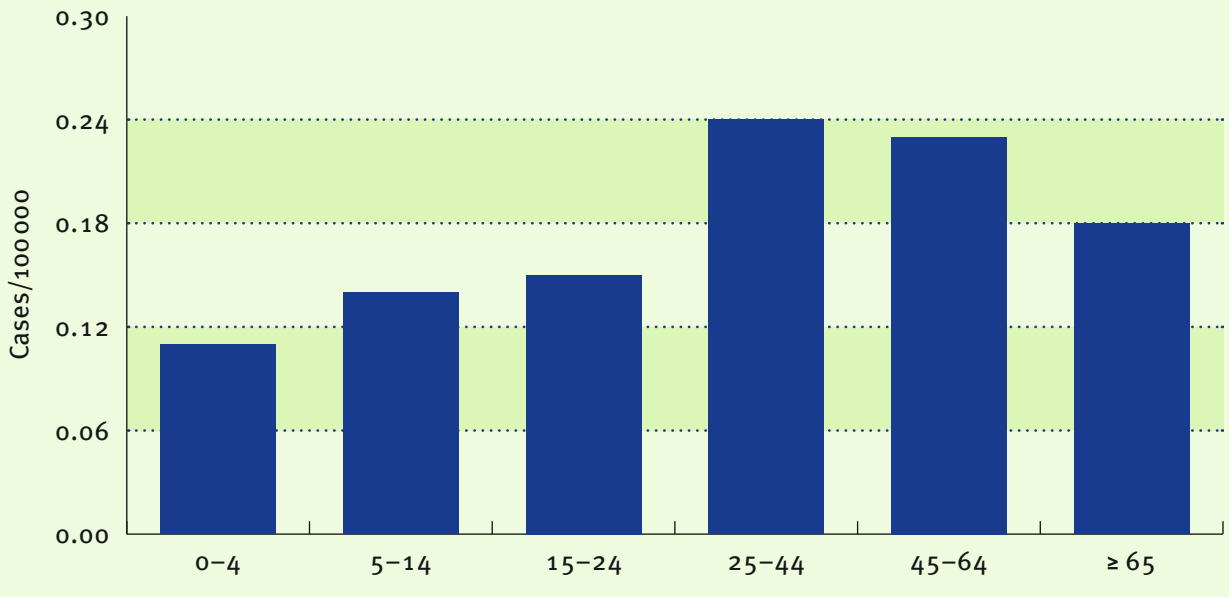
Source: Country reports. *A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Age and gender distribution

Data on age and gender were available from 15 of the reporting countries. Of the 948 cases for which age data were available, 332 (35.0 %) cases were reported in the age group 25–44 years; 278 (29.3 %) among the 45–64 year-olds, and 144 (15.2 %) in the age group of 65 or more years. These age groups also showed the highest notification rates (ranging from 0.18 to 0.24 per 100 000) (Figure 3.3.3).

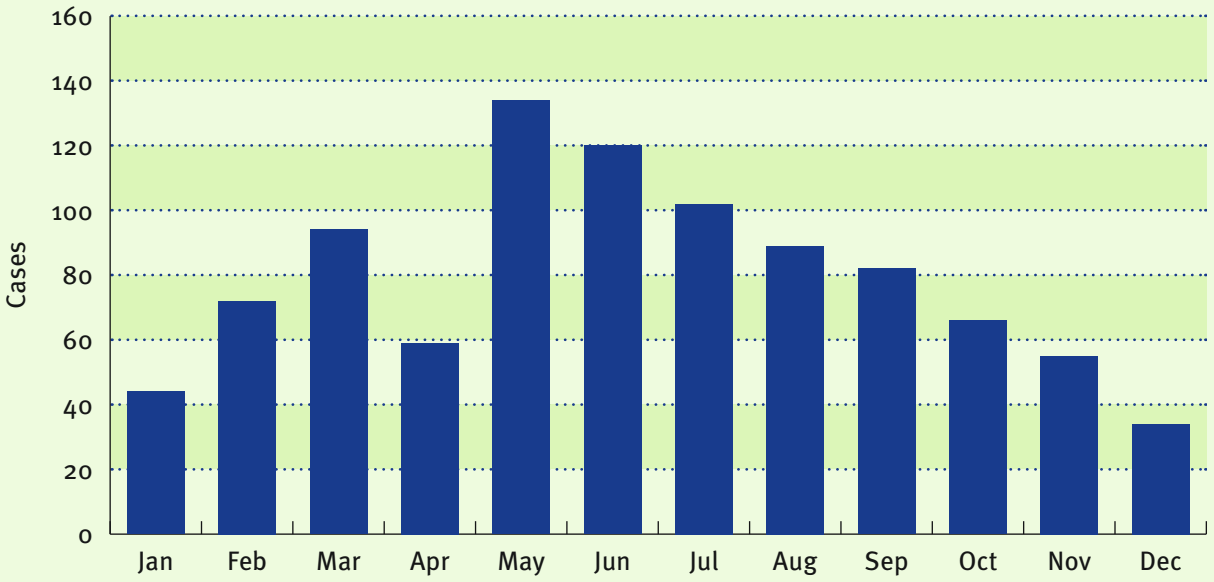
The notification rate among men (0.27 per 100 000) was twice as high as among women (0.13 per 100 000) (n = 949).

Figure 3.3.3. Age-specific notification rates of brucellosis cases in EU and EEA/EFTA countries, 2006 (n = 947)



Source: Country reports: Belgium, Bulgaria, France, Germany, Greece, Ireland, Italy, Latvia, Netherlands, Portugal, Romania, Spain, Sweden, United Kingdom and Norway. Austria, Cyprus, Czech Republic, Estonia, Finland, Lithuania, Luxembourg, Malta, Poland, Slovakia, Slovenia and Iceland all reported zero cases.

Figure 3.3.4. Seasonal distribution of human brucellosis cases in EU and EEA/EFTA countries, 2006 (n = 954)



Source: Country reports: Belgium, Bulgaria, France, Germany, Greece, Ireland, Italy, Latvia, Netherlands, Portugal, Romania, Spain, Sweden, United Kingdom and Norway. Cyprus, Czech Republic, Estonia, Finland, Hungary, Lithuania, Luxembourg, Malta, Poland, Slovakia, Slovenia and Iceland all reported zero cases.

Seasonality

In 2006, data on the month of report was available for 954 cases, with 38% of them reported in May, June and July.

Discussion

Brucellosis persists as a low-incidence zoonosis particularly affecting the southern countries of the EU.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Bulgaria	BG-MOH	—	—	—	—	—	—	—	—	—
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-BRUCELLOSIS	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-NRS	—	—	—	—	—	—	—	—	—
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Portugal	PT-BRUCELLOSIS	Cp	Co	P	C	N	Y	N	N	Y
Romania	RO-RSS	—	—	—	—	—	—	—	—	—
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-BRUCELLOSIS	O	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

CAMPYLOBACTERIOSIS

- The notification rate for campylobacteriosis has remained high and it is still the most commonly reported cause of gastrointestinal disease in the EU.
- The age group with the most reported cases in the EU and EEA/EFTA is 25–44 years (29 %).
- The highest notification rate in the EU and EEA/EFTA is in the age group < 4 years (105.3 per 100 000).
- Campylobacteriosis shows a characteristic seasonality, with the highest numbers reported in the summer, from June to September.
- Between 44 and 56 % of *Campylobacter jejuni* and *Campylobacter coli* strains are resistant to ciprofloxacin but are still sensitive to amoxicillin/clavulanic acid and gentamicin.

Epidemiological situation in 2006

In 2006, 180 009 cases (179 510 confirmed) were reported by 24 EU Member States, Iceland, and Norway (Greece, Portugal, Romania and Liechtenstein did not report). The number of campylobacteriosis cases reported in the 23 countries with available data for both 2005 and 2006, was slightly less (12 %) in 2006 compared with the previous year. The overall notification rate was 39.5 per 100 000, with the highest notification rate reported by the Czech Republic (220.2 per 100 000). Only Latvia reported zero cases.

Table 3.3.3. Number and notification rate of reported campylobacteriosis cases in the EU and EEA/EFTA, 2006

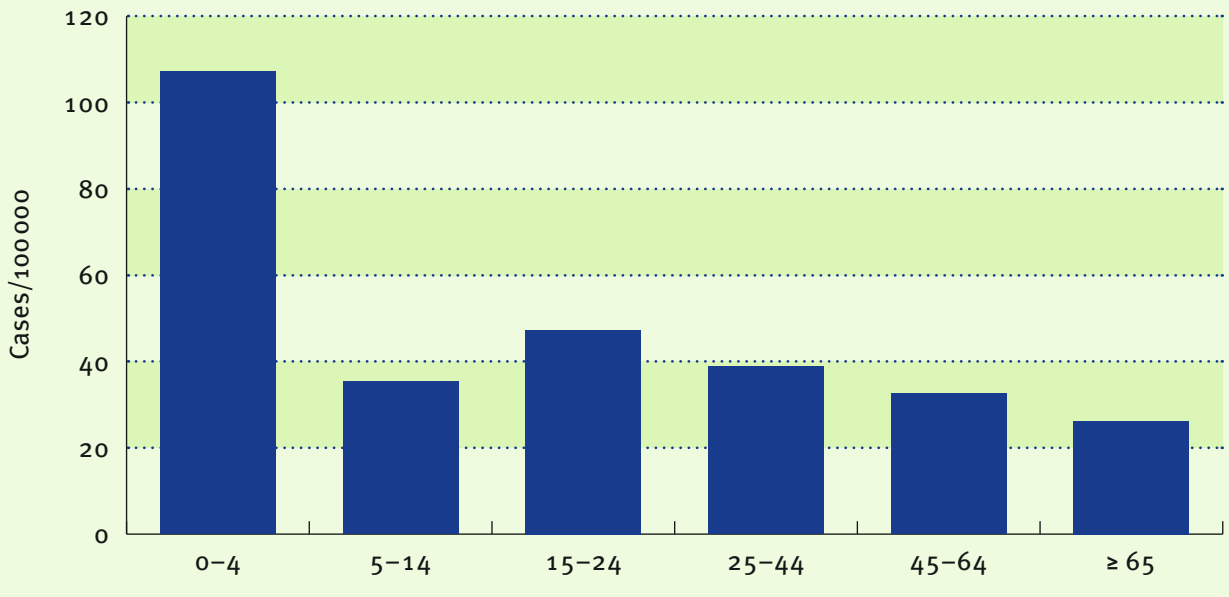
Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	5 020	5 020	60.7
Belgium	C	5 771	5 771	54.9
Bulgaria	A	75	75	1.0
Cyprus	C	2	2	0.26
Czech Republic	C	22 713	22 571	220.2
Denmark	C	3 239	3 239	59.7
Estonia	C	124	124	9.2
Finland	C	3 439	3 439	65.4
France	C	2 675	2 675	4.2
Germany	C	52 035	52 035	63.1
Greece	U	—	—	—
Hungary	C	6 829	6 807	67.6
Ireland	C	1 815	1 812	43.1
Italy(a)	C	801	801	1.4
Latvia	C	0	0	0.0
Lithuania	A	624	624	18.3
Luxembourg	C	285	285	60.8
Malta	C	54	54	13.3
Netherlands(b)	C	3 401	3 186	19.5
Poland	C	157	156	0.4
Portugal	U	—	—	—
Romania	U	—	—	—
Slovakia	C	2 797	2 728	50.6
Slovenia	C	944	897	47.1
Spain	C	5 883	5 883	13.4
Sweden	C	6 078	6 078	67.2
United Kingdom	C	52 543	52 543	87.0
EU total		177 304	176 805	39.3
Iceland	C	117	117	39.0
Liechtenstein	U	—	—	—
Norway	C	2 588	2 588	55.8
Total		180 009	179 510	39.5

Source: Country reports, except for Czech Republic (Zoonoses Report 20061). * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

(a) Data based on a sentinel system; coverage unknown.

(b) Data based on a sentinel system; coverage estimated to be 52 %.

Figure 3.3.5. Age-specific notification rates of campylobacteriosis cases in EU and EEA/EFTA countries, 2006 (n = 177 469)



Source: Country reports. Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Poland, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Latvia reported zero cases.

Age and gender distribution

Data on age groups were available from 23 European countries (177 479 cases). The highest overall burden of campylobacteriosis cases is in the age group 25–44 years with 51 155 cases (28.8 %). However, in ten countries the number of reported cases was highest among children under five years of age. This age group also showed the highest overall notification rate of 107.1 per 100 000 of all age groups (Figure 3.3.5).

Data on gender were available from 23 countries. The male to female ratio was 1.1:1 with a notification rate of 43.6 per 100 000 in men compared with a rate of 36.8 per 100 000 in women.

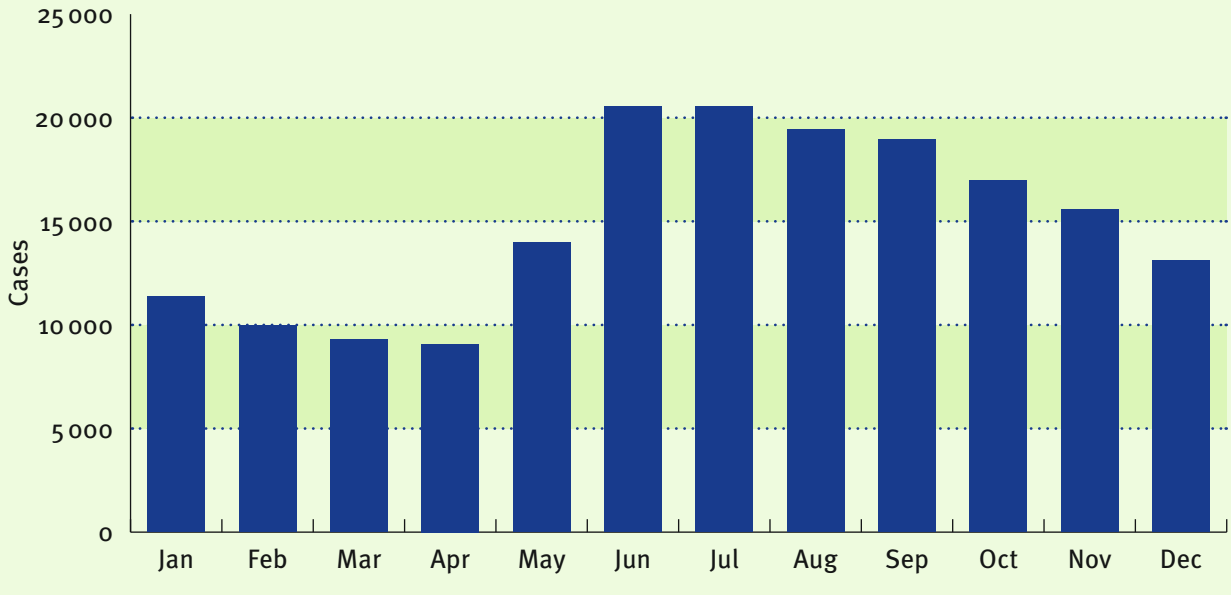
Seasonality

Data on month of occurrence were available from 23 countries, with only Latvia reporting zero cases. Cases were mostly reported in the summer months between June and September (Figure 3.3.6).

Imported cases

Data on the importation status of reported cases were available from 19 EU Member States, Iceland and Norway. Nearly 10 % of reported campylobacteriosis cases were reported as imported, and approximately half the cases were classified as domestic. In Cyprus, Czech Republic, Hungary, Lithuania, Malta, Poland, Slovakia and Spain, over 99 % of reported cases were domestic,

Figure 3.3.6. Seasonal distribution of campylobacteriosis cases in EU and EEA/EFTA countries, 2006 (n = 178 838)



Source: Country reports. Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Poland, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Latvia reported zero cases.

whereas in Sweden and Finland, 63 % and 59 % of reported cases, respectively, were imported[1].

Campylobacter species and antimicrobial resistance

Enter-net data showed that *C. jejuni* and *C. coli* comprised 43.0 % and 2.3 % respectively, of all *Campylobacter* infections in the EU 25 in 2006. A high proportion (53.6 %) of confirmed cases had no information on species given[1].

Between 2 200 and 4 801, *C. jejuni* and 430 and 630 *C. coli* strains were tested for antimicrobial resistance. The proportion of strains resistant to ciprofloxacin, nalidixic acid and tetracycline was higher among *C. coli* (57.6 %, 51.0 % and 45.9 %, respectively) than among *C. jejuni*. Almost all *C. jejuni* and *C. coli* strains tested were sensitive to amoxicillin/clavulanic acid (99.9 % and 100 %, respectively) and gentamicin (98.8 % and 98.2 %, respectively).

Discussion

In 2006, as for the year before, *Campylobacter* was the most frequently reported cause of human gastrointestinal disease in the EU causing a number of national and international outbreaks. There is wide variability between countries' reporting systems and this, combined with the high degree of under-reporting known to occur in many countries, makes direct comparisons very difficult. Alternative sources of infor-

mation, such as using returning travellers as sentinels, suggests a very high degree of under-reporting of cases in some European countries[2].

Data from the EU Zoonoses Report 2006[1] show that an important source of human exposure to food-borne *Campylobacter* is through broiler meat. Most countries have reported high to very high levels of these bacteria in fresh broiler meat. Several countries reported a high proportion of resistant *Campylobacter* isolates, and of particular interest is the appearance of resistance to ciprofloxacin as this antimicrobial is frequently used to treat severe gastrointestinal infections in humans[1].

References

1. European Food Safety Authority (EFSA). The Community summary report on trends and sources of zoonoses, zoonotic agents, antimicrobial resistance and foodborne outbreaks in the European Union in 2006. The EFSA Journal. 2007(130). Available from: http://www.efsa.europa.eu/EFSA/DocumentSet/Zoon_report_2006_en,0.pdf
2. Ekdahl K, Giesecke J. Travellers returning to Sweden as sentinels for true disease incidence in other European countries — campylobacter and giardia infection as examples. Euro Surveill. 2004; 9:3-4.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	–	–	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y
Estonia	EE-CAMPYLO	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-ENTERNET	V	Se	P	C	Y	N	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Liechten-stein	LI-SWISS	–	–	–	–	–	–	–	–	–
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-LSI	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-CAMPYLOBACTERIOSIS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

CHOLERA

- Cholera remains an imported disease in the European Union.
- There were twice as many cases reported in males as in females in 2006.
- Most reported cases were in adults aged 25–64 years old. This is most likely associated with a higher proportion of people in this age group travelling to countries where there is a high risk of cholera.

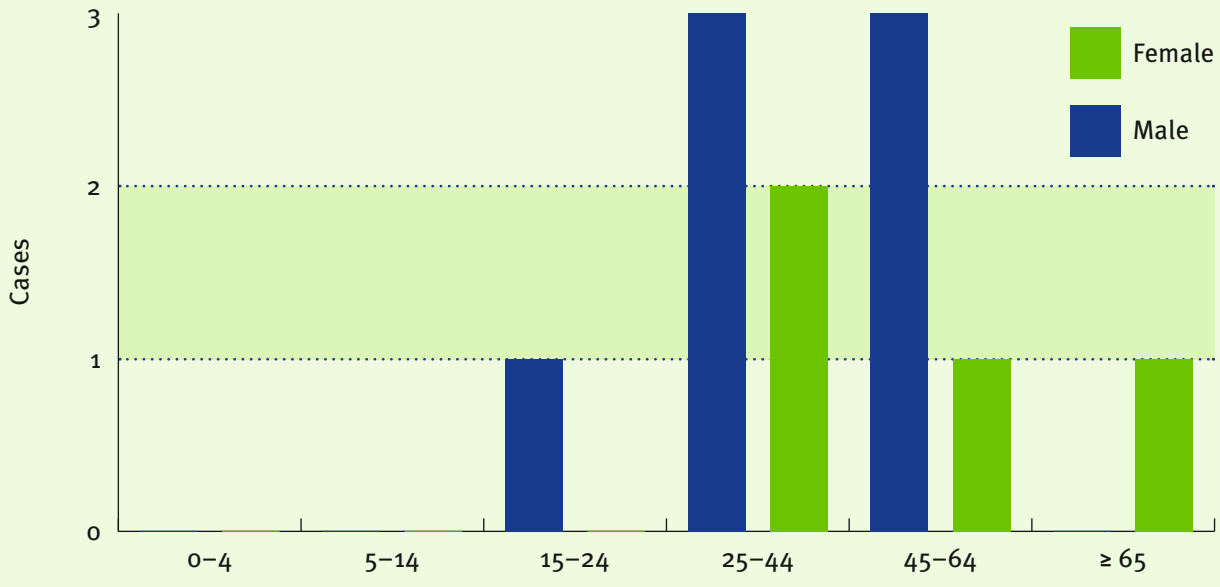
Epidemiological situation in 2006

In 2006, 11 cholera cases were reported by 28 EU and EEA/EFTA countries (Denmark and Liechtenstein did not report); all of them were confirmed and imported cases. Cases were reported by seven countries. Namely, three cases by the Netherlands, two cases each by Finland and France, and one case each by Sweden, Germany, the United Kingdom and Norway.

Age and gender distribution

Cases reported among adults between 25 and 64 years old accounted for 83 % of the total reported cases and twice as many were reported in males (7/11) as in females (4/11) (Figure 3.3.7).

Figure 3.3.7. Age- and gender-specific distribution of cholera cases in the EU and EEA/EFTA, 2006 (n = 11)

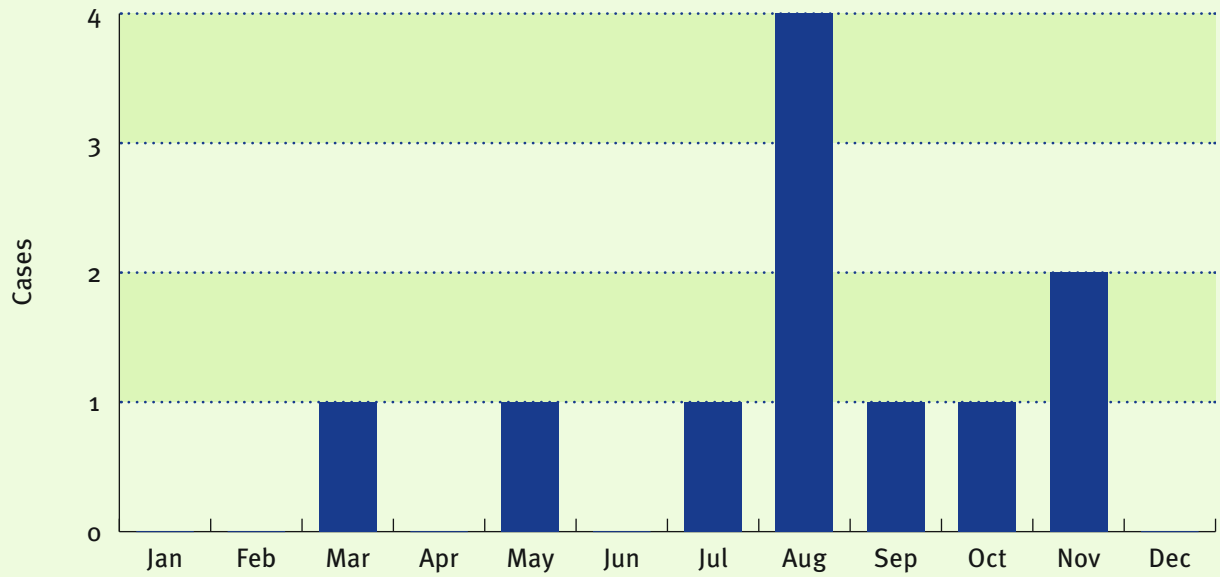


Source: Country reports. Netherlands, Finland, France, Germany, Sweden, UK and Norway. All other countries reported zero cases.

Seasonality

There was no real seasonal trend observed in the 2006 data, probably due to the low number of cases reported in EU and EEA/EFTA countries. The month with the most number of cases reported was August (Figure 3.3.8), corresponding to the holiday season.

Fig 3.3.8. Seasonal distribution of cholera cases in EU and EEA/EFTA countries, 2006 (n = 11)



Source: Country reports. Netherlands, Finland, France, Germany, Sweden, UK and Norway. All other countries reported zero cases.

Discussion

Cholera is an imported disease in the EU and EEA/EFTA countries. That most of the cases occur in the intermediate age groups could be associated with the large number of people of that age who travel to other countries where cholera is endemic, compared with other age groups. Four out of eight cases had travelled to India. Other probable countries of infection were Indonesia, Tunisia, Kenya and Pakistan with one traveller each.

References

1. WHO. Cholera annual report 2006. Weekly Epidemiological Record. 2007;82(31):273-84.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-ANTH/CHOL/DIPH/MALA/ SPOX/TRIC/TULA/TYPH	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-ENTERNET	V	Se	P	C	Y	N	N	N	—
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-CHOLERA	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-CHOLERA	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

CRYPTOSPORIDIOSIS

- The seasonal trend suggests a peak in late summer to early autumn, indicating recurrent exposure of the general public to *Cryptosporidium* with opportunities for communicable disease control.

Epidemiological situation in 2006

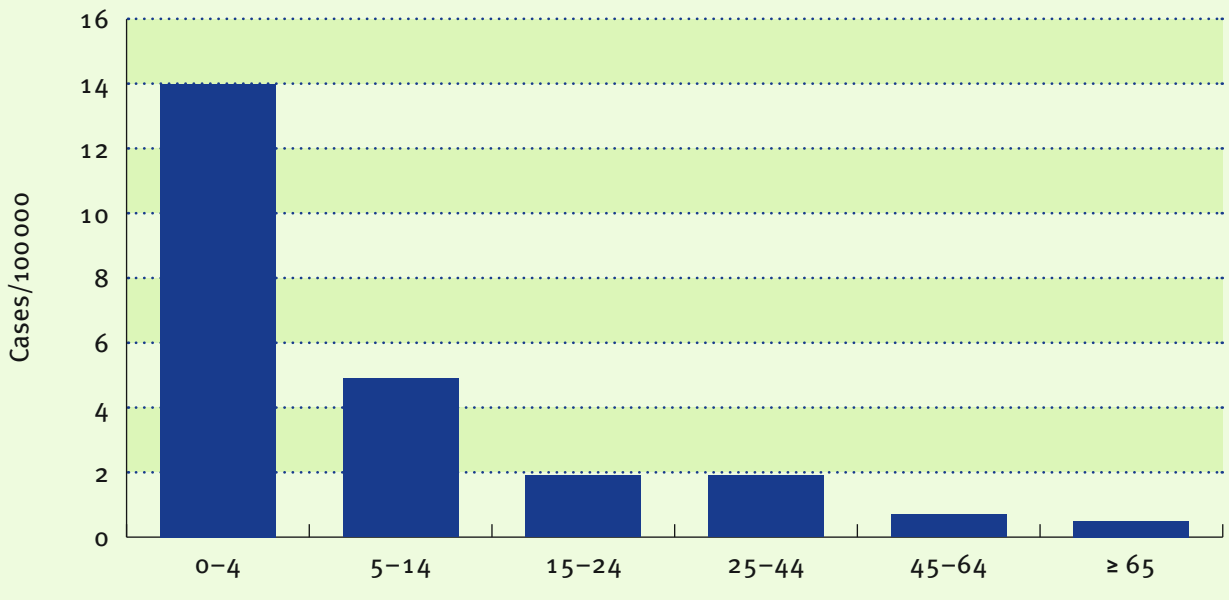
In 2006, 6 801 confirmed cases were reported by 12 out of the 20 countries providing data (eight countries reported zero cases). Ireland reported the highest notification rate (8.7 per 100 000) followed by the UK (7.3 per 100 000). The latter was also responsible for almost two thirds of all the reported cases. The overall notification rate was 2.2 per 100 000.

Table 3.3.4. Number and notification rate of reported cryptosporidiosis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	14	14	0.17
Belgium	C	402	402	3.8
Bulgaria	A	4	4	< 0.1
Cyprus	U	0	0	0.0
Czech Republic	U	0	0	0.0
Denmark	U	—	—	—
Estonia	U	0	0	0
Finland	C	6	6	0.11
France	U	—	—	—
Germany	C	1204	1204	1.5
Greece	U	—	—	—
Hungary	U	0	0	0.0
Ireland	C	367	366	8.7
Italy	U	—	—	—
Latvia	C	0	0	0.0
Lithuania	U	0	0	0.0
Luxembourg	C	2	2	0.43
Malta	C	1	1	0.25
Netherlands	U	—	—	—
Poland	U	0	0	0.0
Portugal	U	—	—	—
Romania	U	—	—	—
Slovakia	C	0	0	0.0
Slovenia	C	9	9	0.45
Spain	C	262	262	0.60
Sweden	C	103	103	1.1
United Kingdom	C	4428	4428	7.3
EU total		6802	6801	2.2
Iceland	U	—	—	—
Liechtenstein	U	—	—	—
Norway	U	—	—	—
Total		6802	6801	2.2

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.9. Age-specific notification rates of cryptosporidiosis cases in EU and EEA/EFTA countries, 2006 (n = 6 702)



Source: Country reports. Belgium, Finland, Germany, Ireland, Luxembourg, Malta, Slovenia, Spain, Sweden and UK. Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Slovakia all reported zero cases.

Age and gender distribution

The majority of cases of cryptosporidiosis were reported in the very young, 30 % in 0–4 year-olds and 23 % in the 5–14 year-olds. Of the 6 702 confirmed cases with age data available, the highest notification rates were in the 0–4 year-olds (14.0 per 100 000) followed by the 5–14 year-olds (4.9 per 100 000) (Figure 3.3.9).

Of the 6 731 cases for which gender data were available, the notification rate was similar between males (2.3 per 100 000) and females (2.2 per 100 000).

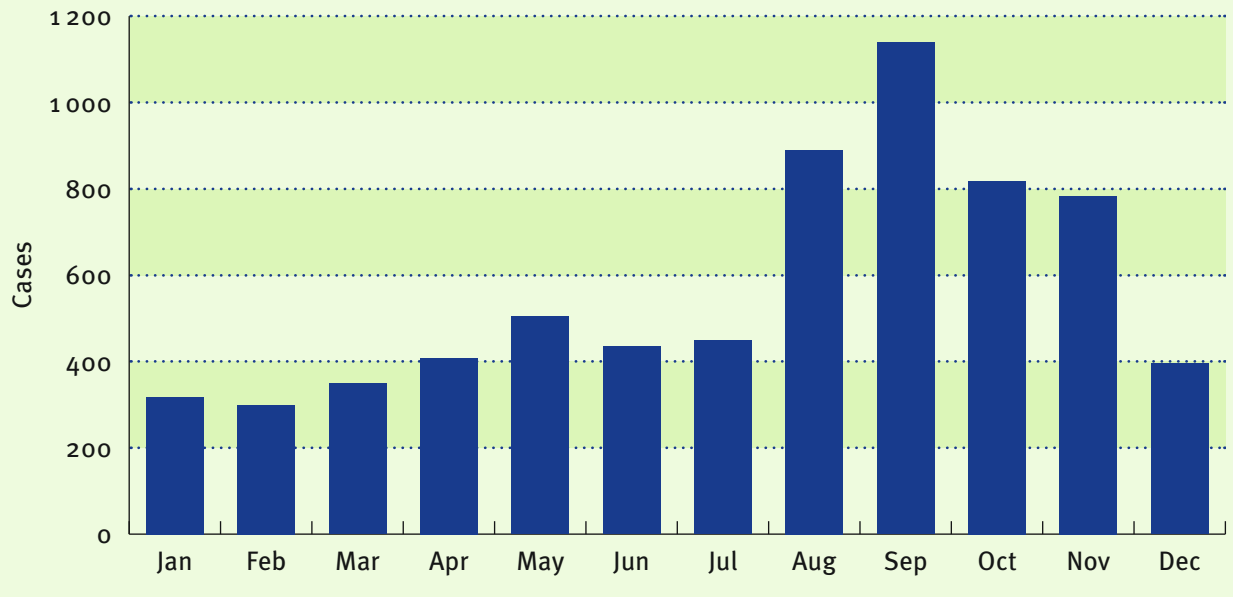
Seasonality

The overall monthly case distribution suggests a peak in late summer and early autumn. This trend was observed in most countries. However, Ireland reported an increase in spring, and the number of cases in Spain peaked in the summer.

Discussion

Comparisons between countries are particularly difficult due to differences in detection, investigation, application of case definitions, recording practices and the procedural/legal basis of reporting. Furthermore, the country notification rates are likely to underestimate the actual burden of cryptosporidiosis due to the insensitivity of passive surveillance[1]. Evidence from the UK suggests that cases of cryptosporidiosis in the spring are mainly caused by *Cryptosporidium parvum*, while cases in the autumn are frequently due to *Cryptosporidium hominis*[2,3]. The seasonality of cryptosporidiosis has

Figure 3.3.10. Seasonal distribution of cryptosporidiosis cases in EU and EEA/EFTA countries, 2006 (n = 6 787)



Source: Country reports. Belgium, Bulgaria, Finland, Germany, Ireland, Luxembourg, Malta, Slovenia, Spain, Sweden and UK. Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Slovakia reported zero cases.

changed in the UK and the spring peak has disappeared in recent years, probably as a result of improved drinking water quality. The reasons for the autumn increase may be due to holiday travel and swimming pool use, but the evidence for this is poor[1]. No significant threats due to *Cryptosporidium* were recorded in 2006.

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2. Nichols G, Chalmers R, Lake I, Sopwith W, Regan M, Hunter P, et al. Cryptosporidiosis: A report on the surveillance and epidemiology of Cryptosporidium infection in England and Wales. Drinking Water Directorate Contract Number DWI 70/2/201;2006.
3. Sopwith W, Osborn K, Chalmers R, and Regan M. The changing epidemiology of cryptosporidiosis in North West England. Epidemiol Infect 2005;133:785-93.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-CRYPTOSPORIDIOSIS	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
United Kingdom	UK-CRYPTOSPORIDIOSIS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

ECHINOCOCCOSIS

- Echinococcosis is still a rare disease in most EU and EEA countries.
- The number of reporting countries increased from 22 in 2005 to 26.

Epidemiological situation in 2006

In 2006, 26 EU and EEA countries reported a total of 969 echinococcosis cases of which 966 were confirmed, which is three times more than in the previous year. This increase is partly due to the increase in the number of reporting countries. Seven countries reported zero cases and Denmark, Italy, Romania and Liechtenstein did not report. The overall notification rate in the EU and EEA countries was 0.23 per 100 000. The highest notification rate was reported in Bulgaria (6.3 per 100 000, also responsible for more than half of all reported cases) while all other countries reported rates of 1 per 100 000 or less.

Age and gender distribution

Data on age groups and gender were available from 16 countries representing only 47 % (n = 458) of confirmed cases. The notification rate increases with age in the EU (Figure 3.3.11). This is most likely related to the long incubation period, which can vary from 12 months to many years before developing a symptomatic disease.

There was no difference in the notification rate of reported cases (both 0.1 per 100 000) between men and women (48 % and 52 % of cases, respectively) in the 508 reports with this information.

Seasonality

Data by month were available from 15 countries. Echinococcosis does not show a seasonal trend, which is to be expected because of the long incubation period.

Discussion

Echinococcosis remains a rare disease in most of the EU countries. Data from the Zoonoses Report[1] from 2006 shows that in humans, *Echinococcus granulosus* (n = 158) was three times more common than *Echinococcus multilocularis* (n = 57) although species identification was available for only about half of the reported cases.

References

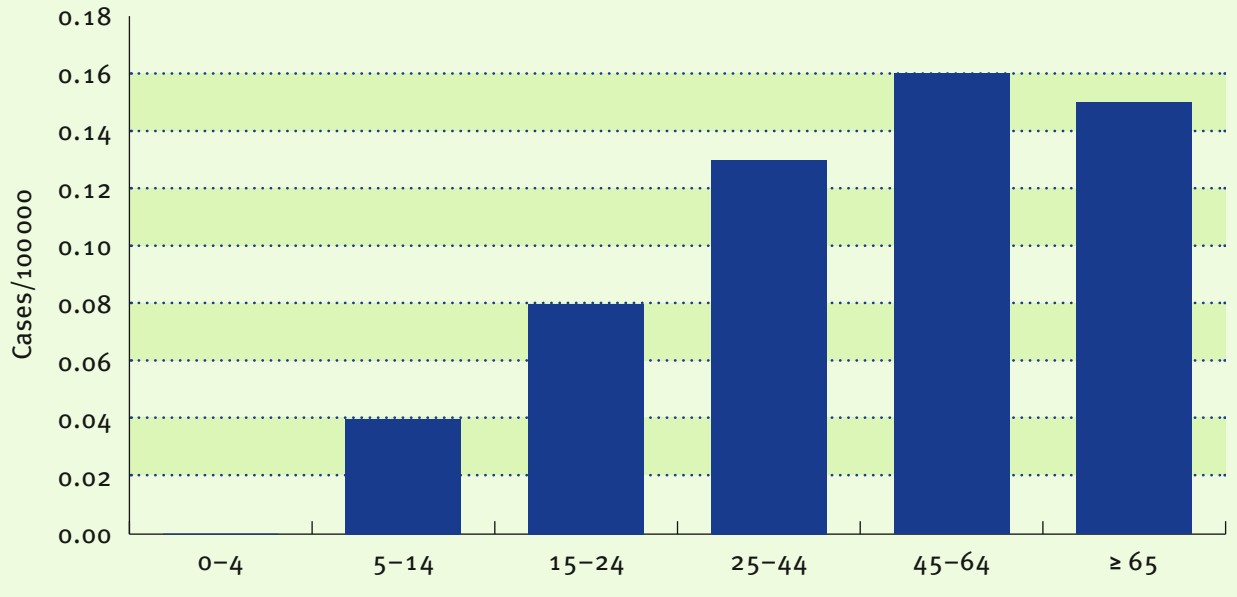
1. European Food Safety Authority (EFSA). The Community summary report on trends and sources of zoonoses, zoonotic agents, antimicrobial resistance and foodborne outbreaks in the European Union in 2006. The EFSA Journal. 2007(130). Available from: http://www.efsa.europa.eu/EFSA/DocumentSet/Zoon_report_2006_en,0.pdf

Table 3.3.5. Number and notification rate of reported echinococcosis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	26	26	0.31
Belgium	C	6	6	< 0.1
Bulgaria	A	485	485	6.3
Cyprus	C	6	6	0.78
Czech Republic	C	2	2	< 0.1
Denmark	U	—	—	—
Estonia	U	0	0	0.0
Finland	U	0	0	0.0
France	C	11	11	< 0.1
Germany	C	124	124	0.15
Greece	C	6	5	< 0.1
Hungary	C	7	6	< 0.1
Ireland	U	0	0	0.0
Italy	U	—	—	—
Latvia	C	22	22	1.0
Lithuania	A	15	15	0.44
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	C	31	31	0.19
Poland	C	65	65	0.17
Portugal	C	10	9	0.09
Romania	U	—	—	—
Slovakia	C	6	6	0.11
Slovenia	C	3	3	0.15
Spain	C	123	123	0.28
Sweden	C	7	7	0.08
United Kingdom	C	14	14	< 0.1
EU total		969	966	0.24
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	U	0	0	0.0
Total		969	966	0.23

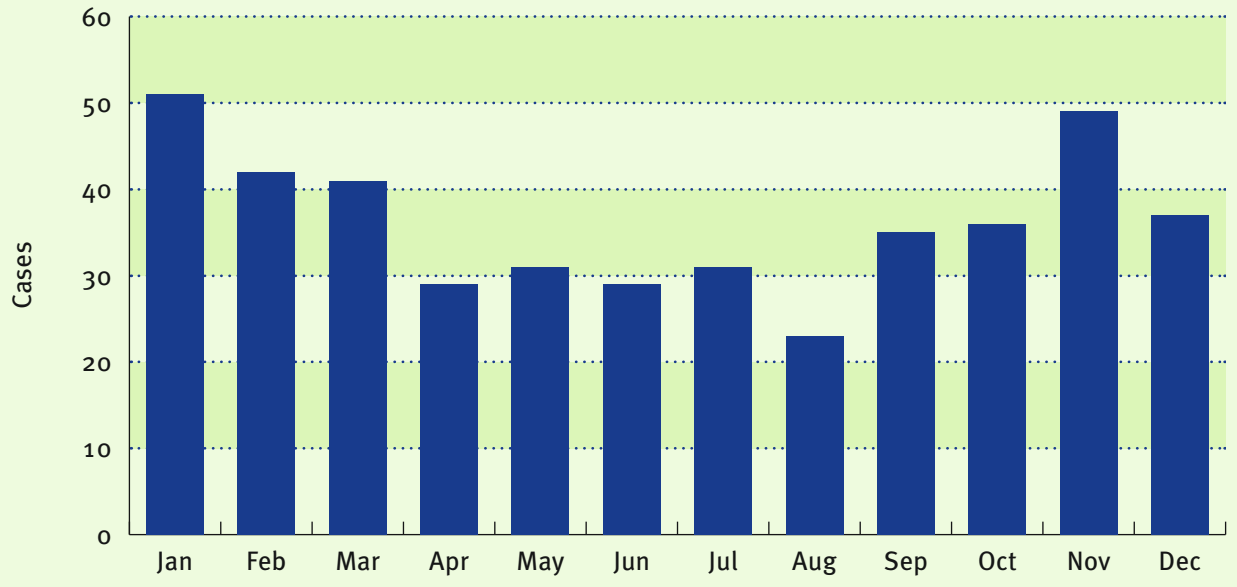
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.11. Age-specific notification rates of echinococcosis cases in EU and EEA/EFTA countries, 2006 (n = 458)



Source: Country reports: Austria, Cyprus, Czech Republic, France, Germany, Greece, Hungary, Latvia, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and UK. Estonia, Finland, Ireland, Luxembourg, Malta, Iceland and Norway reported zero cases.

Figure 3.3.12. Seasonal distribution of echinococcosis cases in EU and EEA/EFTA countries, 2006 (n = 434)



Source: Country reports: Cyprus, Czech Republic, France, Germany, Greece, Hungary, Latvia, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and UK. Estonia, Finland, Ireland, Luxembourg, Malta, Iceland and Norway reported zero cases.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-ECHINOCOCCOSIS	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-FRANCEECHINO	V	Co	P	C	Y	Y	Y	Y	Y
Germany	DE-SURVNET@RKI-7.3	Cp	Co	P	C	Y	N	N	N	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-LIMS	—	—	—	—	—	—	—	—	—
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-ECHINOCOCCOSIS	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-ECHINOCOCCOSIS	V	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

VERO/SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI* (VTEC/STEC) INFECTION

- VTEC/STEC infections appear to be declining in EU and EEA/EFTA countries as a whole with a notification rate in 2006 of 0.7 cases per 100 000.
- The disease is mainly diagnosed in young children, with the notification rate in children under four years old being more than ten times higher than for any of the other age groups.
- There is a clear seasonal distribution of VTEC/STEC cases with a peak in the summer months.
- The proportion of non-O157 serogroups reported increased substantially in 2006 and accounted for nearly half of the known serogroups.
- The majority of haemolytic uremic syndrome cases were in children 0–4 years old and were mostly associated with serogroup O157.

Epidemiological situation in 2006

In 2006, 3 463 VTEC/STEC cases were reported by 27 EU and EEA/EFTA countries, 3 458 of which were confirmed, giving an overall EU notification rate of 0.74 per 100 000 population (Table 3.3.6). After several years of increasing notification rates in the EU (this is due to several factors and does not necessarily represent a real increase[1]), the notification rates have been decreasing since 2004, probably due to a greater tendency for the correct reporting of only confirmed VTEC/STEC infections rather than all pathogenic *E. coli* infections. A decrease in reported cases was especially observed in Slovakia, Germany (although it still contributed almost one third of the cases) and Bulgaria, but an increase was noted in Norway, Sweden, Ireland and the UK. The highest notification rates were observed in Ireland (3.6 per 100 000) and Sweden (2.9 per 100 000). All other EU and EEA/EFTA countries that reported data had notification rates below 3.0 per 100 000 population (Portugal, Romania and Liechtenstein did not report). The majority of cases were domestically acquired with an EU average of 9 % imported cases.

Age and gender distribution

The notification rate was noticeably highest among small children (0–4 year-olds), with an EU rate of 7.5 per 100 000 (Figure 3.3.13) followed by the slightly older children (5–14 year-olds) with a rate of 1.6 per 100 000. There was no difference in notification rates between males and females (1 case per 100 000 for both).

Seasonality

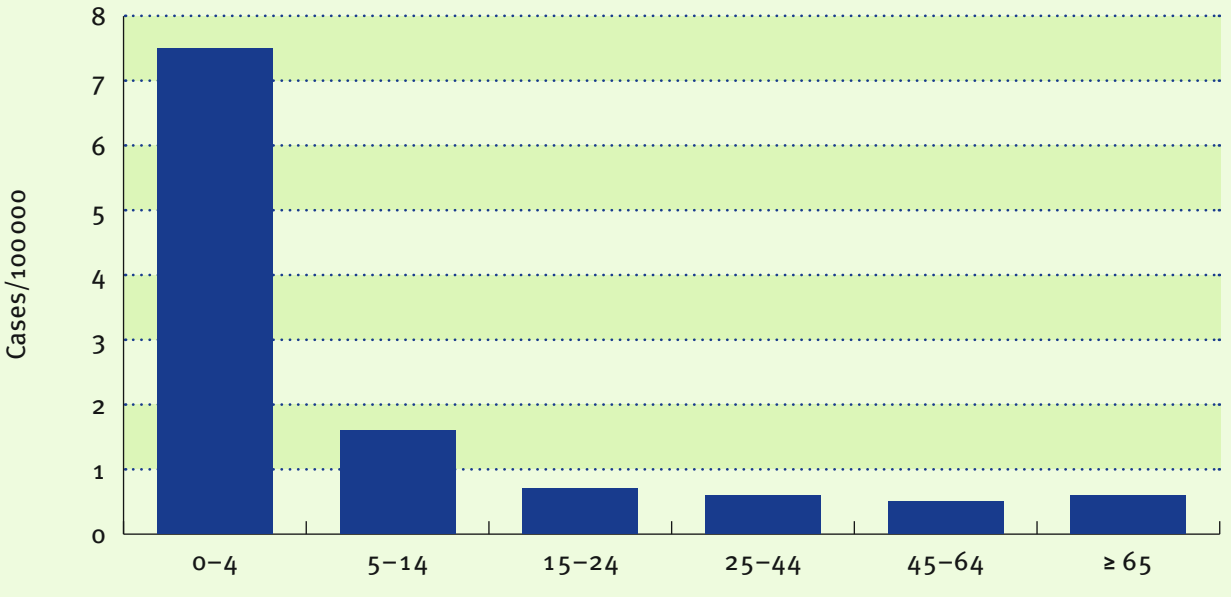
There was a clear seasonal distribution of VTEC/STEC cases increasing gradually from the beginning of the year with a marked peak in the summer months followed by a decline in the autumn (Figure 3.3.14). An exception was Norway which reported the

Table 3.3.6. Number and notification rate of reported VTEC/STEC cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	41	41	0.50
Belgium	C	47	47	0.45
Bulgaria	U	0	0	0.0
Cyprus	U	0	0	0.0
Czech Republic	C	4	4	< 0.1
Denmark	C	146	146	2.7
Estonia	C	8	8	0.59
Finland	C	14	14	0.27
France	C	67	67	0.11
Germany	C	1236	1236	1.5
Greece	C	1	1	< 0.1
Hungary	C	3	3	< 0.1
Ireland	C	158	153	3.6
Italy	C	17	17	< 0.1
Latvia	C	0	0	0.0
Lithuania	U	0	0	0.0
Luxembourg	C	2	2	0.43
Malta	C	5	5	1.2
Netherlands	C	42	42	0.26
Poland	C	4	4	< 0.1
Portugal	U	—	—	—
Romania	U	—	—	—
Slovakia	C	8	8	0.15
Slovenia	C	30	30	1.5
Spain	C	13	13	< 0.1
Sweden	C	265	265	2.9
United Kingdom	C	1301	1301	2.2
EU total		3412	3407	0.74
Iceland	C	1	1	0.33
Liechtenstein	U	—	—	—
Norway	C	50	50	1.1
Total		3463	3458	0.74

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.13. Age-specific notification rates of VTEC/STEC cases in EU and EEA/EFTA countries, 2006 (n = 3 305)



Source: Country reports. Austria, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Luxembourg, Malta, Netherlands, Poland, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Bulgaria, Cyprus, Latvia and Lithuania all reported zero cases.

highest number of cases in February and March because of an outbreak caused by cured meat sausages[2,3].

Enhanced surveillance in 2006

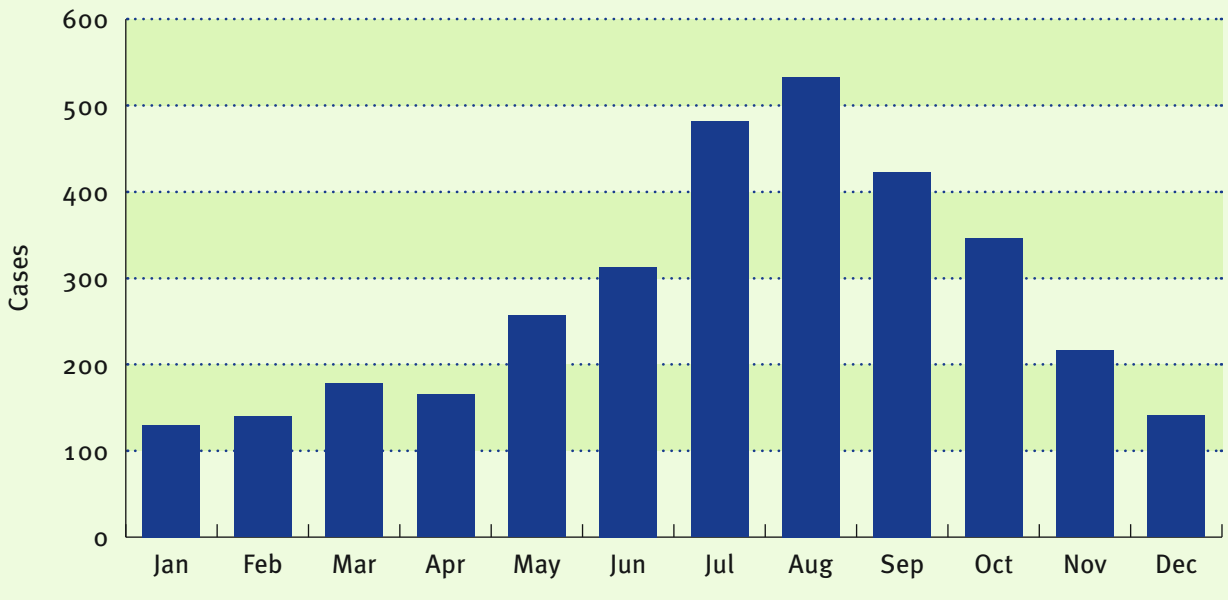
Through the reporting in the dedicated surveillance network Enter-net and the Zoonoses Report enhanced datasets are available for VTEC/STEC infections in 2006[4]. The proportion of non-O157 serogroups reported increased substantially in 2006 and accounted for nearly half of the known serogroups (serogroup known for 72 % of cases). The United Kingdom accounted for 78 % of the O157 cases (1 275 cases)[4].

Six countries reported confirmed cases with haemolytic uremic syndrome (HUS): France, Hungary, Ireland, the Netherlands, Norway and the UK, adding up to a total of 126 cases. The majority of HUS cases were in children 0–14 years old and were mostly associated with serogroup O1574. While there was a clear seasonal pattern in VTEC O157 cases (see Figure 3.3.14), this was not as evident in the non-O157 serogroups.

Discussion

Young children are significantly over-represented among VTEC/STEC cases and cases with HUS. It could be that they are more sensitive to the toxins produced by these bacteria but it could also reflect a higher exposure to VTEC/STEC bacteria. Another reason is that they would be more likely to have the diagnosis confirmed by laboratory test. In a study on risk factors for illness associated with VTEC/STEC infection

Figure 3.3.14. Seasonal distribution of VTEC/STEC cases in EU and EEA/EFTA countries, 2006 (n = 3 323)



Source: Country reports. Austria, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Luxembourg, Malta, Netherlands, Poland, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Bulgaria, Cyprus, Latvia and Lithuania all reported zero cases.

in Germany, the risk factor: 'having touched a ruminant' had the highest odds of disease in children under three years of age[5]. Raw milk was the only food identified as a risk factor in this age group. In persons aged 10 years or older, only food items (for example, lamb meat and raw sausages) were significantly associated with illness.

Food is a well-known source for VTEC/STEC infections, especially food derived from ruminants such as milk, cheese and meat[4]. In 2006, Norway reported an outbreak of *E. coli* O103 from cured meat sausages affecting 17 cases, of which 10 developed HUS[2,3]. Fifteen of the cases were between two and eight years old. The UK also reported a few outbreaks with sorbitol-fermenting O157. However, the source was never confirmed[6].

Even though serogroup O157 is still the most frequently reported and causes the highest number of HUS cases, other serogroups can also cause severe disease as seen in the example above from Norway.

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Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-EHEC	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-RENASHU	V	Se	A	C	Y	Y	Y	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-VTEC	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-ENTERNET	V	Se	P	C	Y	N	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Netherlands	NL-ENTEROHAEMORHAGIC_ ECOLI	Cp	Co	A	C	Y	Y	N	N	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-ENTEROHAEMORHAGIC_ ECOLI	O	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

GIARDIASIS

- The surveillance systems for giardiasis need to be strengthened considerably to enable better analysis of the data at European level.
- A large proportion of cases are probably imported by travellers returning from abroad, as indicated by the seasonal trends.

Epidemiological situation in 2006

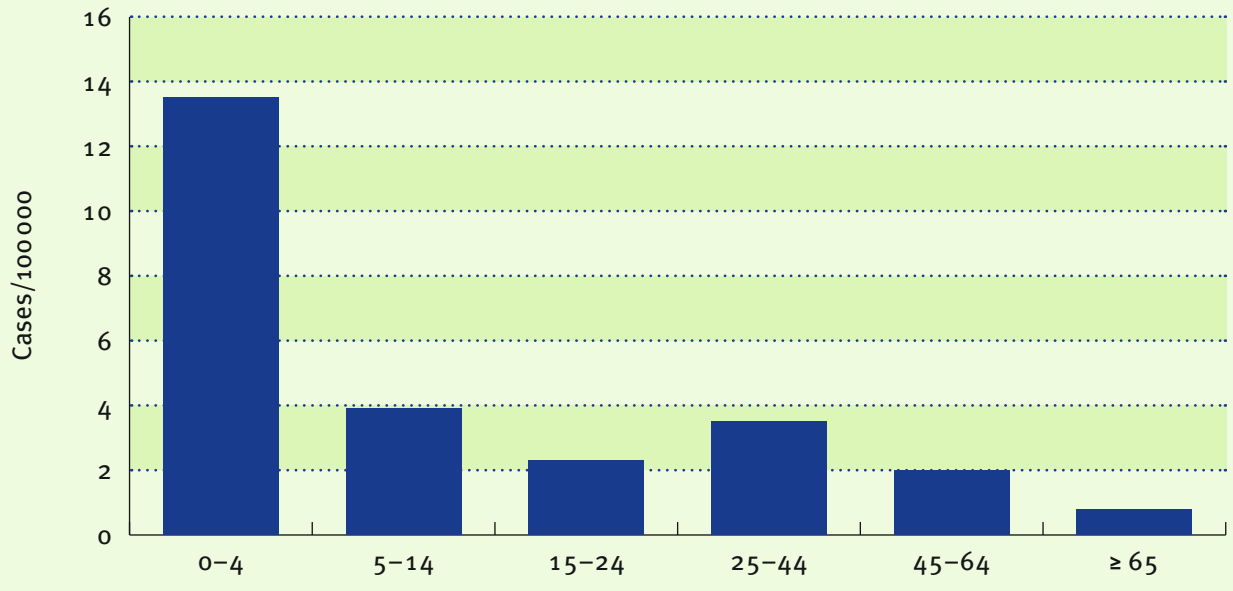
In 2006, 193 495 cases were reported by 23 countries, of which 193 424 were confirmed. Romania reported the highest rates of infection (816.9 per 100 000, sixteen times the EU average) followed by Estonia (34.9 per 100 000) and then Bulgaria (28.7 per 100 000) and Sweden (14.2 per 100 000). The overall notification rate was 58.1 per 100 000.

Age and gender distribution

The age distribution for the 7 264 confirmed cases of giardiasis for which data on age groups were available (Figure 3.3.15) shows the highest notification rate in the 0–4 year-olds (13.5 per 100 000).

Of the 11 036 cases with gender data available, more cases were reported in men (4.7

Figure 3.3.15. Age-specific notification rates of giardiasis cases in EU and EEA/EFTA countries, 2006 (n = 7 264)



Source: Country reports. Belgium, Cyprus, Czech Republic, Estonia, Finland, Hungary, Ireland, Latvia, Malta, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Luxembourg reported zero cases.

Table 3.3.7. Number and notification rate of reported giardiasis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	84	84	1.0
Belgium	C	1 238	1 238	11.8
Bulgaria	A	2 212	2 212	28.7
Cyprus	C	6	6	0.78
Czech Republic	C	141	141	1.4
Denmark	U	—	—	—
Estonia	A	469	469	34.9
Finland	C	272	272	5.2
France	U	—	—	—
Germany	C	3 661	3 661	4.4
Greece	U	—	—	—
Hungary	C	31	31	0.31
Ireland	C	65	65	1.5
Italy	U	—	—	—
Latvia	C	9	9	0.39
Lithuania	A	17	17	0.50
Luxembourg	U	0	0	0.0
Malta	C	11	11	2.7
Netherlands	U	—	—	—
Poland	A	2 945	2 875	7.5
Portugal	U	—	—	—
Romania	A	176 526	176 526	816.9
Slovakia	C	93	93	1.7
Slovenia	C	24	23	1.2
Spain	A	909	909	2.1
Sweden	C	1 282	1 282	14.2
United Kingdom	C	3 167	3 167	5.2
EU total		193 162	193 091	58.9
Iceland	C	39	39	13.0
Liechtenstein	U	—	—	—
Norway	C	294	294	6.3
Total		193 495	193 424	58.1

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

per 100 000) than women (3.8 per 100 000), male to female ratio of 1.2:1.

Seasonality

Giardiasis presents a mild biphasic seasonality with peaks in late winter/early spring (March) and in autumn (September to November) (Figure 3.3.16). This seasonality is particularly pronounced in Bulgaria , but is also observed in other countries.

Discussion

The notification rates for giardiasis in European countries vary greatly. The information on surveillance systems shows a wide variety from voluntary, sentinel systems to compulsory and comprehensive ones. Therefore, notification rates are difficult to compare. A considerable number of cases are probably imported by people returning from travel abroad[1]. However, no data on case importation were provided from the countries. No threats were opened in 2006.

References

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Figure 3.3.16. Seasonal distribution of giardiasis cases in EU and EEA/EFTA countries, 2006 (n = 12 460)

Source: Country reports. Belgium, Bulgaria, Cyprus, Czech Republic, Finland, Hungary, Ireland, Malta, Poland, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Luxembourg reported zero cases.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-HBV/GIARDIASIS	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-GIARDIASIS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

HEPATITIS A

- The notification rate for hepatitis A has decreased considerably in the last ten years. However, no overall trend could be observed during the most recent years.
- Large differences in endemicity between countries still exist. Bulgaria had the highest notification rate, over 30 times that of most other EU and EEA/EFTA countries. This could be partly explained by two outbreaks that occurred there in 2006.
- The highest notification rates were reported among the young (under 15 years old) and the rates were slightly higher for males than for females.
- The disease showed a seasonal pattern with a peak in early autumn.

Epidemiological situation in 2006

In 2006, 20 066 hepatitis A cases were reported by 27 EU and two EEA/EFTA countries, of which 19 602 were confirmed (only Liechtenstein did not report). The overall notification rate was 3.9 per 100 000 population (Table 3.3.8). Although the notification rate has decreased significantly over the last 10 years (from 15.1 per 100 000), no clear trend has been apparent during the last four years. Bulgaria reported the highest number of cases with a notification rate of 94.1 per 100 000 population, followed by Romania and Slovakia with 24.8 and 8.6 per 100 000, respectively. All other EU and EEA/EFTA countries reported notification rates below 3 per 100 000 population. On average, 72.8 % of hepatitis A cases were domestically acquired (n = 4 168).

Age and gender distribution

The highest notification rate was observed among the younger age groups with 10.4 cases per 100 000 in the 5–14 year-olds and 9.0 per 100 000 in the 0–4 year-olds (Figure 3.3.17). There was a slightly higher notification rate of hepatitis A in men (1.7 cases per 100 000) than in women (1.3 cases per 100 000) observed in the 6 850 cases for whom this information was available.

Seasonality

A peak in the total number of reported cases was observed in September and October. A few countries, though, reported a different seasonal pattern. For example, Spain saw most of its cases in winter and the Czech Republic reported most cases in spring.

Discussion

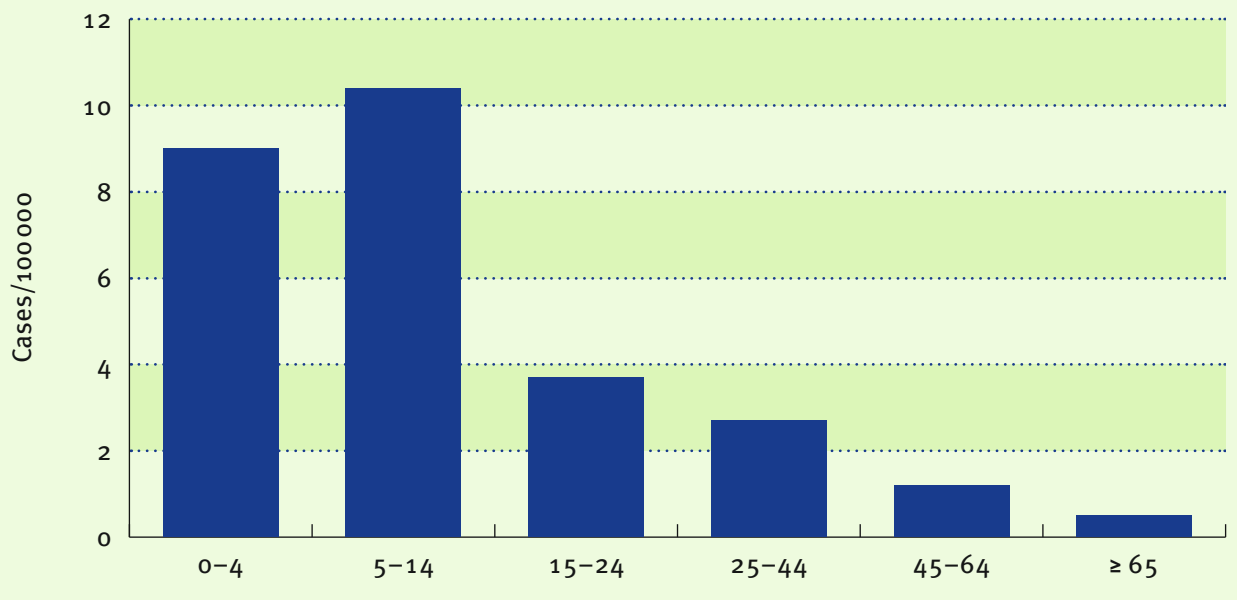
Large differences in endemicity between countries still exist. In 2006, Bulgaria had the highest notification rate, nearly four times higher than the second highest-rated country, Romania, and more than 30 times higher than most other EU and EEA/EFTA countries. The increase in Bulgaria in 2006 can be explained by two outbreaks that oc-

Table 3.3.8. Number and notification rates of reported hepatitis A cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	10	1	< 0.1
Belgium	C	225	225	2.1
Bulgaria	A	7 266	7 266	94.1
Cyprus	C	3	3	0.39
Czech Republic	C	132	131	1.3
Denmark	C	42	42	0.77
Estonia	A	5	5	0.37
Finland	C	26	26	0.49
France	C	1 336	1 336	2.1
Germany	C	1 226	1 226	1.5
Greece	C	133	123	1.1
Hungary	C	287	286	2.8
Ireland	C	38	38	0.90
Italy	C	890	890	1.5
Latvia	C	47	47	2.0
Lithuania	A	99	99	2.9
Luxembourg	C	3	3	0.64
Malta	C	7	7	1.7
Netherlands	C	268	262	1.6
Poland	A	109	105	0.28
Portugal	C	45	40	0.38
Romania	C	5 351	5 351	24.8
Slovakia	C	462	461	8.6
Slovenia	C	10	10	0.50
Spain	C	1 506	1 079	2.5
Sweden	C	80	80	0.88
United Kingdom	C	417	417	0.69
EU total		20 023	19 559	3.97
Iceland	C	2	2	0.67
Liechtenstein	U	—	—	—
Norway	C	41	41	0.9
Total		20 066	19 602	3.94

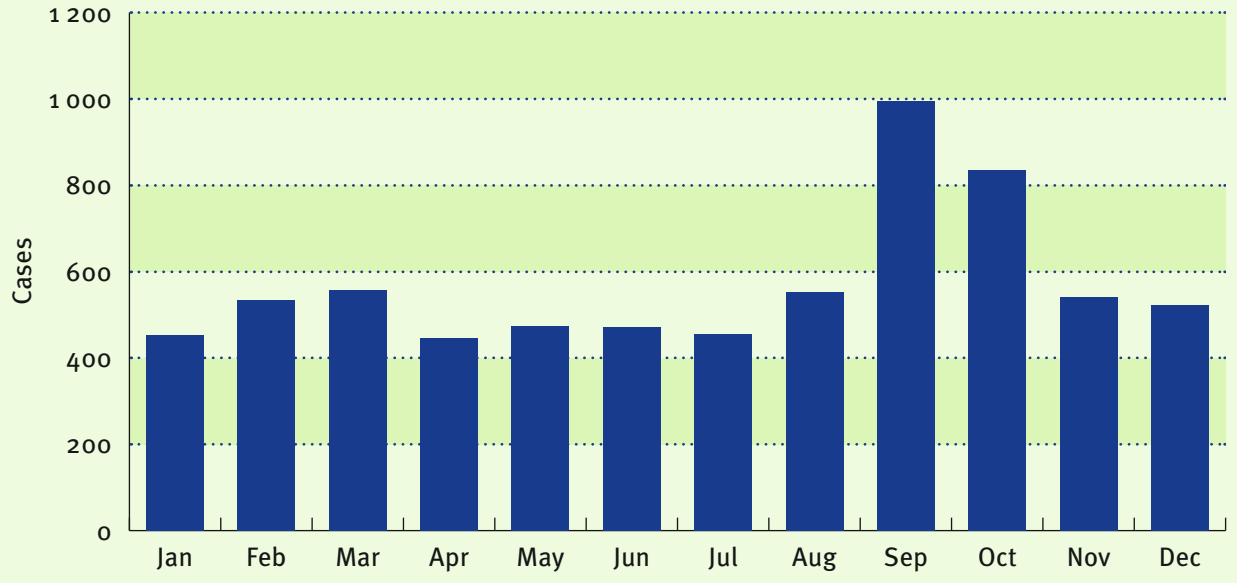
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.17. Age-specific notification rates of hepatitis A cases in EU and EEA/EFTA countries, 2006 (n = 14 027)



Source: Country reports. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway.

Figure 3.3.18. Seasonal distribution of hepatitis A cases in EU and EEA/EFTA countries, 2006 (n = 6 834)



Source: Country reports. Austria, Belgium, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway.

curred in the country resulting in over 1450 hepatitis A cases[1]. The smaller outbreak (150 cases) was associated with a contaminated supply of drinking water while the larger outbreak, affecting a Roma community, was precipitated by poor hygienic conditions. An immunisation campaign was thereafter launched targeting children 2–8 years of age.

In most EU Member States, the lower notification rate of hepatitis A has led to an increase in the susceptibility of young people. In countries with intermediate endemicity the potential for widespread outbreaks affecting the young population is therefore apparent. By contrast, in highly endemic regions most infections occur during early childhood when the disease is mostly asymptomatic[1,2].

References

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Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-HAV	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-SENTINELLES	V	Se	A	C	N	Y	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SEIEVA	V	Co	A	C	N	Y	Y	Y	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-HEPATITISA	Cp	Co	P	C	N	Y	N	N	Y
Romania	RO-RSS	—	—	—	—	—	—	—	—	—
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-HEPATITISA	O	Co	P	C	Y	N	Y	N	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

LEPTOSPIROSIS

- Leptospirosis is a relatively rare disease in the EU and EEA/EFTA countries.
- The notification rate is higher among men than women.

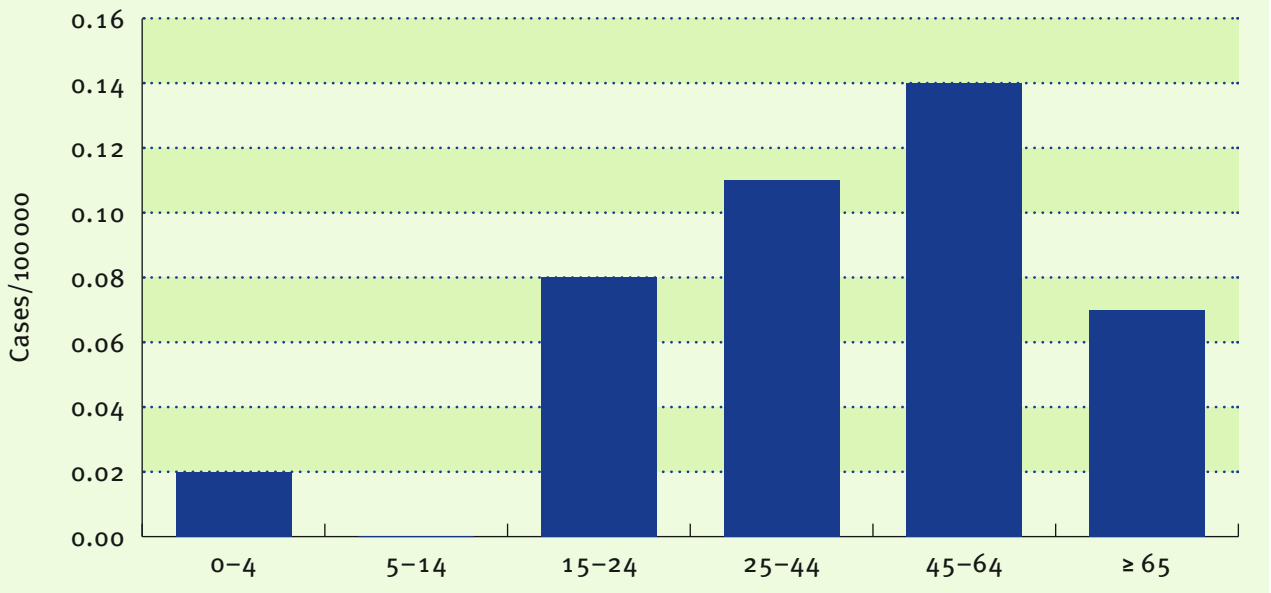
Epidemiological situation in 2006

In 2006, 774 cases were reported by 26 countries (France, Iceland, Liechtenstein and Norway did not report), with 758 of them confirmed, representing a decrease of 19 % from the previous year. The overall notification rate, though, remained similar to that of last year (0.18 per 100 000).

Age and gender distribution

Data on age groups were available for 355 (47 %) cases from 22 countries. The highest notification rate was reported in the 45–64 year age group (0.14 per 100 000), followed by the 25–44 year-olds (0.11 per 100 000) (Figure 3.3.19).

Figure 3.3.19. Age-specific notification rates of leptospirosis cases in EU and EEA/EFTA countries, 2006 (n = 355)



Source: Country reports. Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and UK. Cyprus and Luxembourg reported zero cases.

Table 3.3.9. Number and notification rate of reported leptospirosis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	8	8	0.10
Belgium	C	21	21	0.20
Bulgaria	A	20	20	0.26
Cyprus	U	0	0	0.0
Czech Republic	C	18	18	0.18
Denmark	C	5	5	0.09
Estonia	C	6	6	0.45
Finland	C	5	5	0.10
France	U	—	—	—
Germany	C	46	46	0.06
Greece	C	21	16	0.14
Hungary	C	27	27	0.27
Ireland	C	20	18	0.43
Italy	C	22	22	0.04
Latvia	C	5	5	0.22
Lithuania	A	5	5	0.15
Luxembourg	U	0	0	0.0
Malta	C	1	1	0.25
Netherlands	C	23	23	0.14
Poland	C	6	3	0.01
Portugal	C	41	35	0.33
Romania	C	386	386	1.8
Slovakia	C	22	22	0.41
Slovenia	C	5	5	0.25
Spain	C	3	3	0.01
Sweden	C	2	2	0.02
United Kingdom	C	56	56	0.09
EU total		774	758	0.18
Iceland	U	—	—	—
Liechtenstein	U	—	—	—
Norway	U	—	—	—
Total		774	758	0.18

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Data on gender were available for 339 (45 %) cases from 21 countries. There were 4.6 times as many cases reported in men (0.15 per 100 000) as in women (0.03 per 100 000).

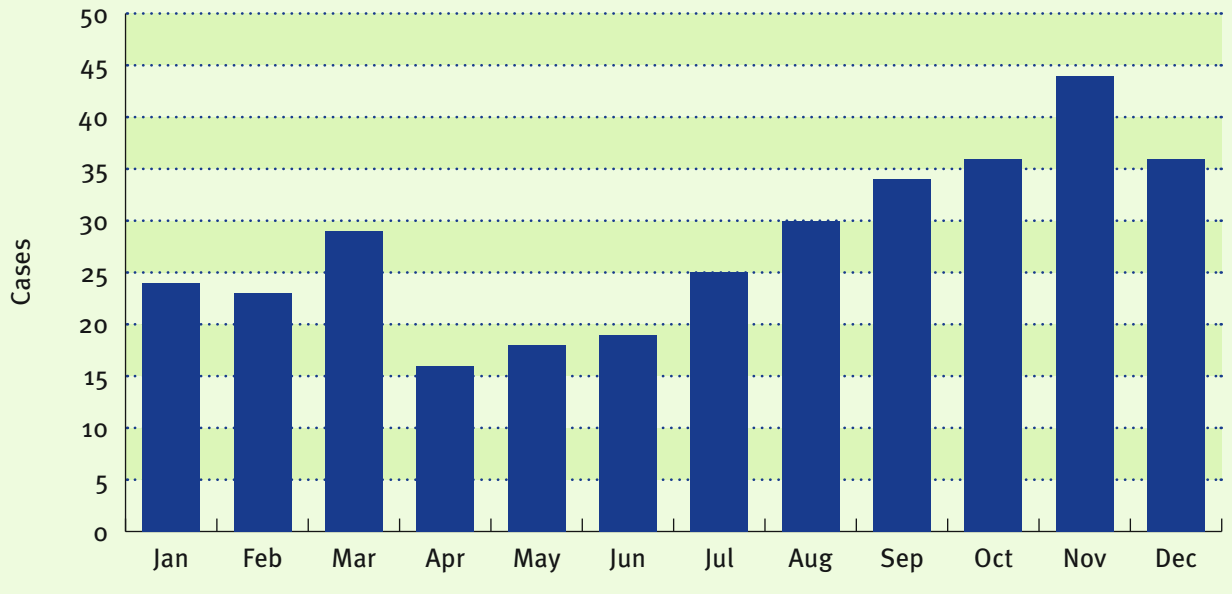
Seasonality

Autumn is the season with the highest number of reported cases, with a peak during the month of November (Figure 3.3.20).

References

1. Hawker J, Begg N, Blair I, Reintjes R, Weinberg J. Communicable disease control handbook. 2nd Edition. Oxford: Blackwell; 2005.

Figure 3.3.20. Seasonal distribution of leptospirosis cases in EU and EEA/EFTA countries, 2006 (n = 334)



Source: Country reports. Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and UK. Cyprus and Luxembourg reported zero cases.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-LEPTOSPIROSIS	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-LEPTOSPIROSIS	Cp	Co	P	C	N	Y	N	N	Y
Romania	RO-RSS	—	—	—	—	—	—	—	—	—
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-LEPTOSPIROSIS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

LISTERIOSIS

- The majority of listeriosis cases are reported in those over 65 years of age.
- Most cases appear to be domestically acquired.
- Control measures should be aimed at the farm and food-processing level, in order to prevent contamination of food products, while preventive measures include providing appropriate information for consumers on how to minimise the risk of ingesting food contaminated by *Listeriae*.
- Surveillance must be improved, especially on reporting confirmed cases of human listeriosis. Similarly, laboratory diagnosis should be improved to link contaminated food to human infection.

Epidemiological situation in 2006

In 2006, 1628 reported cases were confirmed by 27 countries, with Malta and Iceland reporting zero cases (Portugal, Romania and Liechtenstein did not report). Denmark (1.0 per 100 000), followed by Finland (0.88 per 100 000) and Luxembourg (0.85 per 100 000) reported the highest notification rates. The overall notification rate was 0.35 per 100 000 population.

Age and gender distribution

Of the 1612 reported cases with age data available, 55.8 % occurred in individuals over 65 years of age, and this age group also shows the highest notification rate of 1.2 per 100 000. Listeriosis cases in children under four years old accounted for 7 % of the cases, with the second highest rate of 0.47 per 100 000.

The reported cases were relatively evenly distributed between men and women (0.4 per 100 000 and 0.3 per 100 000, respectively) for the 1617 cases for which this information was available.

Seasonality

Cases of listeriosis where less frequently reported in the first quarter of 2006 than in the rest of the year (Figure 3.3.22). However, no obvious seasonal trend could be observed in the individual country data.

Discussion

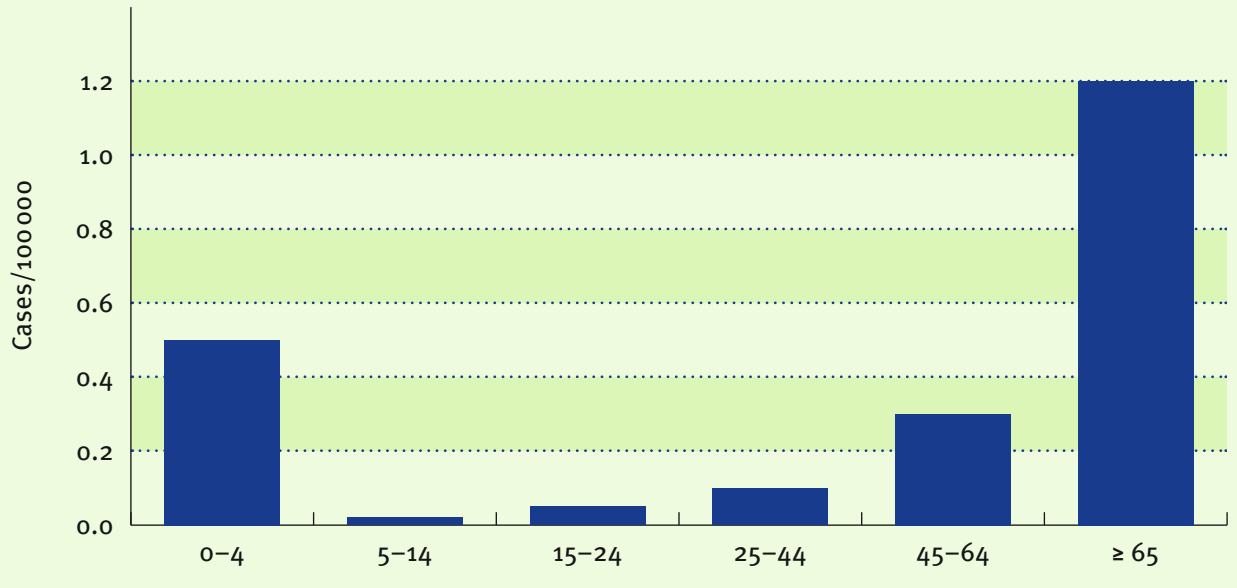
There appears to have been a significant increasing trend in the listeriosis notification rate in the EU from 2003 to 2006[1]. However, this should be treated with caution because the interpretation of the case definitions and the specific surveillance systems differs across European countries[2]. The majority of the countries reported that most of their cases were domestic (59.7 %) or of unknown origin (36.6 %)[1]. In 2006, the Czech Republic reported one large out-

Table 3.3.10. Number and notification rate of reported listeriosis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	10	10	0.12
Belgium	C	67	67	0.64
Bulgaria	C	6	6	0.08
Cyprus	C	1	1	0.13
Czech Republic	C	78	78	0.76
Denmark	C	56	56	1.0
Estonia	C	1	1	0.07
Finland	C	46	46	0.88
France	C	290	290	0.46
Germany	C	508	508	0.62
Greece	C	7	7	< 0.1
Hungary	C	14	14	0.14
Ireland	C	7	7	0.17
Italy	C	59	59	0.10
Latvia	C	2	2	< 0.1
Lithuania	A	4	4	0.12
Luxembourg	C	4	4	0.85
Malta	U	0	0	0.0
Netherlands	C	64	64	0.39
Poland	C	28	28	0.07
Portugal	U	—	—	—
Romania	U	—	—	—
Slovakia	C	12	12	0.22
Slovenia	C	7	7	0.35
Spain	C	79	79	0.18
Sweden	C	42	42	0.46
United Kingdom	C	209	209	0.35
EU total		1601	1601	0.35
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	C	27	27	0.58
Total		1628	1628	0.35

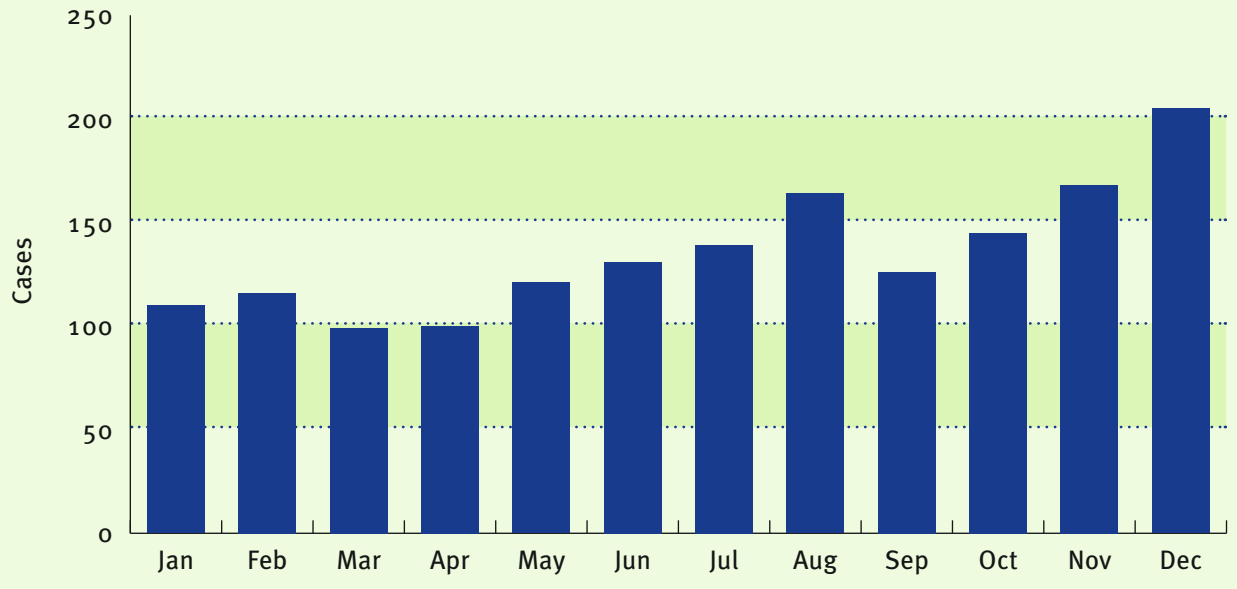
Source: Country reports except for Czech Republic and Estonia (Zoonoses Report)1. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.21. Age-specific notification rates of listeriosis cases in EU and EEA/EFTA countries, 2006 (n = 1612)



Source: Country reports. Austria, Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Netherlands, Poland, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Malta and Iceland reported zero cases.

Figure 3.3.22. Seasonal distribution of listeriosis cases in EU and EEA/EFTA countries, 2006 (n = 1624)



Source: Country reports. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Netherlands, Poland, Slovakia, Slovenia, Spain, Sweden and UK. Malta and Iceland reported zero cases.

break, involving 78 cases, of whom 13 died. The source of this outbreak was identified as soft cheese[1,3].

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1. European Food Safety Authority (EFSA). The Community summary report on trends and sources of zoonoses, zoonotic agents, antimicrobial resistance and foodborne outbreaks in the European Union in 2006. The EFSA Journal. 2007(130). Available from: http://www.efsa.europa.eu/EFSA/DocumentSet/Zoon_report_2006_en,0.pdf.
2. Denny J, McLauchlin J. Human *Listeria monocytogenes* infections in Europe: an opportunity for improved European surveillance. Euro Surveill. 2008;13 (13).
3. Vit M, Olejnik R, Dlhý J, Karpísková R, Cástková J, Príkazský V, Príkazská M, Benes C, Petrás P. Outbreak of listeriosis in the Czech Republic, late 2006: preliminary report. Euro Surveill. 2007 Feb 8;12(2):E070208.1.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Bulgaria	BG-MOH	—	—	—	—	—	—	—	—	—
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y
Estonia	EE-LISTERIOSIS	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-EPIBAC	V	Se	A	C	Y	N	Y	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-NRS	—	—	—	—	—	—	—	—	—
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				
						Laboratories	Physicians	Hospitals	Others	National coverage
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-LISTERIA_MONOCYTOGENES	V	Co	A	C	Y	N	N	N	Y
Netherlands	NL-MENINGITIS/SEPTICAEMIA	V	Co	P	C	Y	N	N	N	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-LISTERIOSIS	V	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

SALMONELLOSIS

- The notification rate of salmonellosis is still high in the EU and EEA/EFTA countries, although differences can be observed between countries.
- The percentage of imported cases in 2006 was 10.5 % in 22 countries.
- The highest rates of infection were observed in the younger age groups, especially in the 0–4 year-olds.
- The seasonal distribution showed a clear increase in cases from July to October.

Epidemiological situation in 2006

In 2006, 168 639 salmonellosis cases were confirmed out of the 171 791 cases reported by all EU countries and Iceland and Norway (only Liechtenstein did not report) giving an overall notification rate of 34 per 100 000 population (Table 3.3.11). In nine of the reporting countries (Austria, Czech Republic, Finland, Germany, Hungary, Lithuania, Luxembourg, Slovakia and Slovenia), the notification rates were much higher than the average rate. Only four countries reported fewer than 10 cases per 100 000 population (France, Greece, Portugal and Romania).

The number of salmonellosis cases decreased by 8 % between 2005 and 2006 in the 28 countries with data available for both years. Twenty-two countries provided information on the suspected origin of the infection (domestic or imported) and the overall proportion of imported cases was 10.5 % of all the confirmed cases. The proportion of cases reported as imported was more than 70 % in four countries (Finland, Iceland, Norway and Sweden), 25 % in the United Kingdom and less than 15 % in other countries. Malta, Portugal and Spain reported all their salmonella cases as probably domestically acquired.

Age and gender distribution

In all the reporting countries, the age-specific notification rate was very high in children, especially in the age group 0–4 years with 180.5 cases per 100 000 population. The age-specific rate was even higher than this in nine countries, with the highest being 1 636.5 cases per 100 000 population reported in the Czech Republic. These rates tend to decrease with age until 25 years. The rates remain below 25 cases per 100 000 population in the subsequent age groups (25–44 years, 45–64 years and 65 years and over).

There were no differences in the overall rates between males and females (35.1 and 35.4 per 100 000, respectively) were observed in the 146 526 cases for which this information was available.

Seasonality

The month with the highest number of reported cases was September. If seasonal distribution was analysed without the

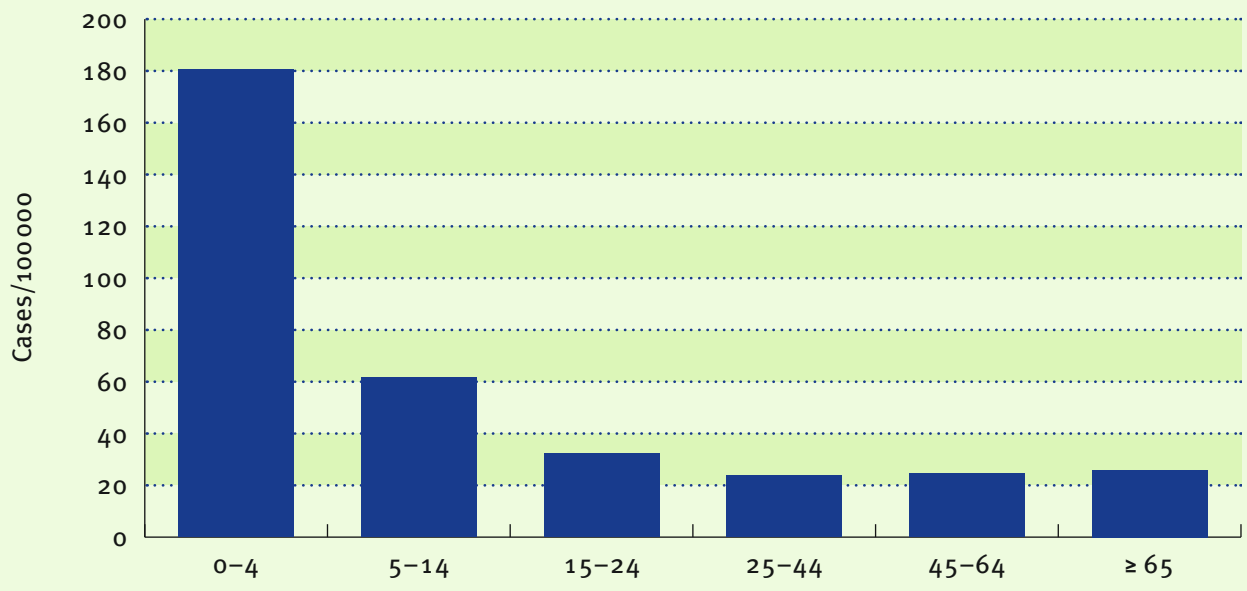
Table 3.3.11. Number and notification rate of reported salmonellosis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	4 787	4 787	57.9
Belgium	C	3 630	3 630	34.5
Bulgaria	A	1 056	1 056	13.7
Cyprus	C	99	99	12.9
Czech Republic	C	25 102	24 186	235.9
Denmark	C	1 662	1 662	30.6
Estonia	C	453	453	33.7
Finland	C	2 576	2 576	49.0
France	C	6 008	6 008	9.5
Germany	C	52 575	52 575	63.8
Greece	C	985	890	8.0
Hungary	C	9 752	9 389	93.2
Ireland	C	422	420	10.0
Italy	C	6 272	6 272	10.7
Latvia	C	866	781	34.0
Lithuania	A	3 557	3 467	101.9
Luxembourg	C	308	308	65.7
Malta	C	63	63	15.6
Netherlands[a]	C	1 667	1 667	10.2
Poland	A	13 362	12 502	32.8
Portugal	C	415	387	3.7
Romania	A	645	645	3.0
Slovakia	C	8 784	8 191	152.0
Slovenia	C	1 519	1 399	69.8
Spain	C	5 117	5 117	11.7
Sweden	C	4 056	4 056	44.8
United Kingdom	C	14 124	14 124	23.4
EU total		169 862	166 710	33.8
Iceland	C	116	116	38.7
Liechtenstein	U	—	—	—
Norway	C	1 813	1 813	39.1
Total		171 791	168 639	33.9

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

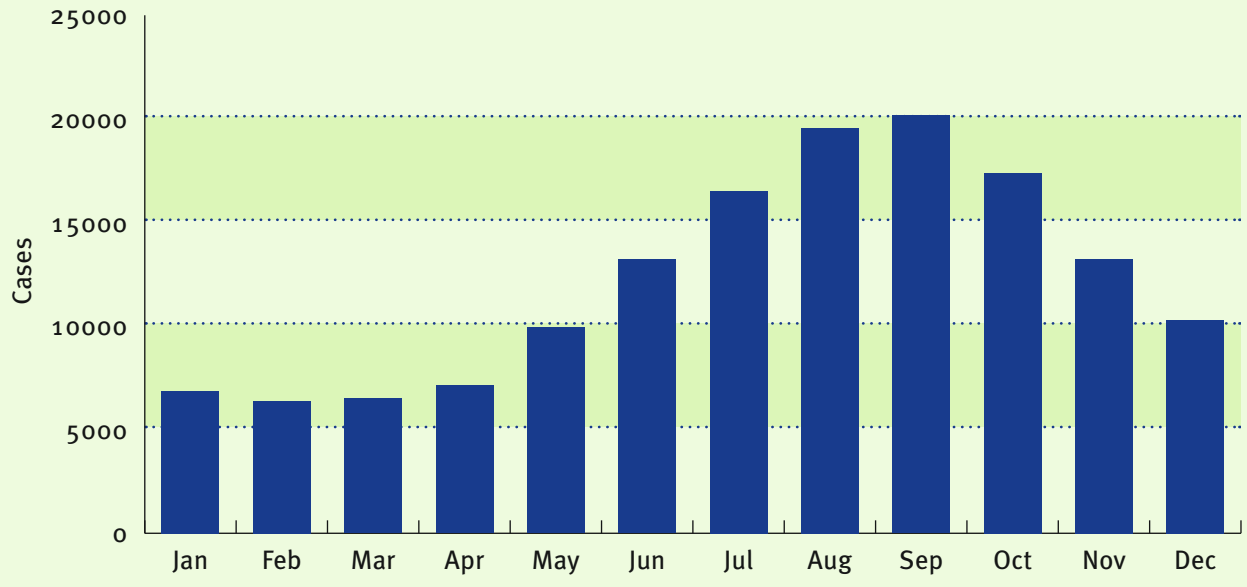
(a) Data based on a sentinel system; coverage estimated to be 64 %.

Figure 3.3.23. Age-specific notification rates of salmonellosis cases in EU and EEA/EFTA countries, 2006 (n = 142 325)



Source: Country reports. Austria, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway.

Figure 3.3.24. Seasonal distribution of salmonellosis cases in EU and EEA/EFTA countries, 2006 (n = 147 215)



Source: Country reports. Austria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Netherlands, Portugal, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway.

German salmonellosis cases, the month with the highest number of cases would be August. However, there is still a clear trend for an increase in the number of cases in the late summer.

Enhanced surveillance

Data from enhanced surveillance from 2006 shows that in humans, as in previous years, the two most common *Salmonella* serovars in 2006 were *S.* Enteritidis and *S.* Typhimurium, representing 75 % of all known types, compared with 82 % in 2005 (Table 3.3.12).

Their seasonal variability has been observed in earlier reports, yet when further analysing specific serovar case counts per month *S.* Enteritidis demonstrates a much more prominent summer/autumn peak than other serovars.

Table 3.3.12. Top five *Salmonella* serovars reported in 2006

Serovar	N	%
Enteritidis	90 362	62.5
Typhimurium	18 685	12.9
Infantis	1 246	0.9
Virchow	1 056	0.7
Newport	730	0.5
Hadar	713	0.5

Source: TESSy. *S.* spp. reported through TESSy 2006, N = 17 359[1].

Discussion

Salmonellosis continues to have a high notification rate in European countries (34 cases per 100 000 population). Differences between countries in some cases are significant and again demonstrate the difficulties of comparison[2]. Salmonella continued to be the cause of a number of outbreaks at multinational, national and sub-national levels in 2006.

Some European countries have more imported cases of salmonella than domestic. Other countries could have difficulties in systematically obtaining data on whether the case is imported or not.

References

1. European Food Safety Authority (EFSA). The Community summary report on trends and sources of zoonoses, zoonotic agents, antimicrobial resistance and foodborne outbreaks in the European Union in 2006. The EFSA Journal. 2007(130). Available from: http://www.efsa.europa.eu/EFSA/DocumentSet/Zoon_report_2006_en,0.pdf
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Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y
Estonia	EE-SALMONELLOSIS	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-ENTERNET	V	Se	P	C	Y	N	N	N	—
Italy	IT-NRS	—	—	—	—	—	—	—	—	—
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Liechten-stein	LI-SWISS	—	—	—	—	—	—	—	—	—
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-LSI	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-SALMONELLOSIS	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-SALMONELLOSIS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

SHIGELLOSIS

- The notification rate of shigellosis in 2006 was relatively low (1.7 per 100 000 population).
- The disease affects mainly the very young, with the highest notification rate among children aged 0–4 years.
- In countries where the highest notification rate was in middle-aged adults, the majority of cases were also travel-associated.
- A peak in the total number of reported cases was seen in the late summer and autumn months.

Epidemiological situation in 2006

In 2006, a total of 6 513 shigellosis cases were reported in 26 EU and EEA/EFTA countries (Denmark, France, Italy and Liechtenstein did not report), 6 410 of which were confirmed, and the overall EU notification rate was 1.7 per 100 000 population (Table 3.3.13). This represents a decrease of 24 % compared with the reported number by the same countries in 2005. The highest notification rate was reported by Bulgaria (11.4 per 100 000), Slovakia (8.1 per 100 000), Lithuania (5.9 per 100 000) and Sweden (4.7 per 100 000).

The proportion of imported versus domestically-acquired cases differed substantially between countries. In Finland, Sweden, Norway, the Netherlands, Ireland, Germany and the UK, between 63 and 92 % of the shigellosis cases were considered to be imported or travel-associated. This is in contrast to countries such as Greece, Slovenia, Slovakia and Hungary where 87–100 % of cases were domestically acquired.

Age and gender distribution

The notification rate was highest among small children (0–4 year-olds) with 7.1 cases per 100 000 population (Figure 3.3.25). Bulgaria and Slovakia reported notification rates as high as 148.7 and 90.0 cases per 100 000, respectively, in this age group. A few countries, though, such as Finland, the Netherlands and Germany, saw the highest notification rates among people aged 25–44 years. There was no difference in notification rates between men (1.3 per 100 000) and women (1.4 per 100 000) in the 4 514 cases which included this information.

Seasonality

A peak in the total number of reported cases was seen in the late summer and autumn months.

Discussion

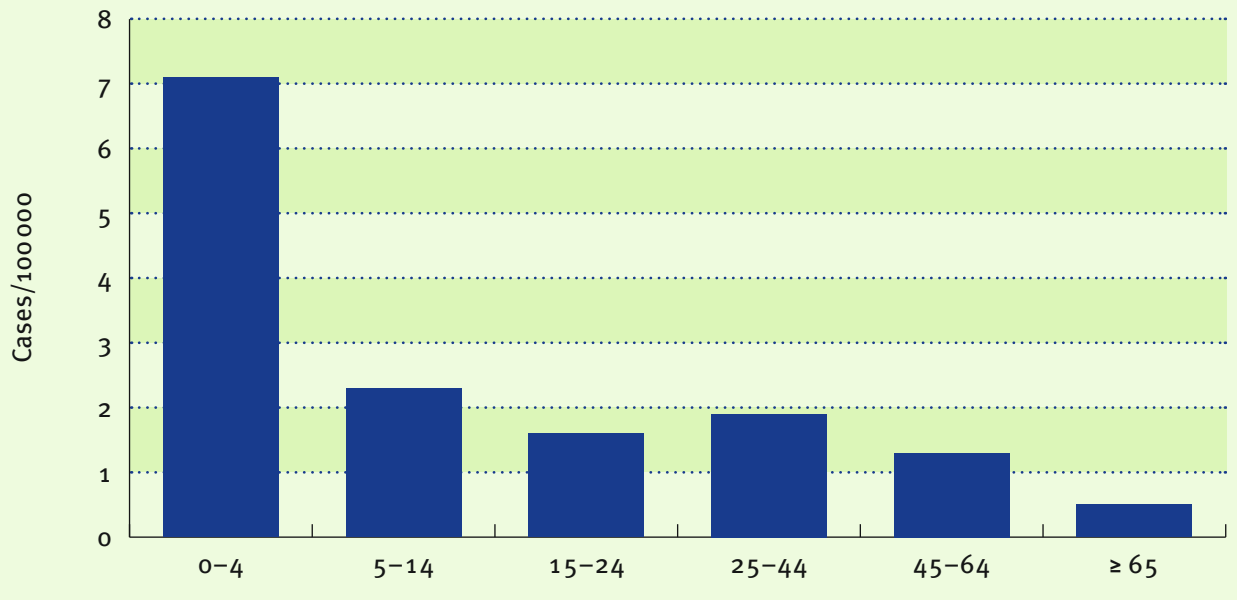
Shigellosis still has a high impact on the very young, with the highest notification rate among children aged 0–4 years. In countries where the highest notification rate

Table 3.3.13. Number and notification rate of reported shigellosis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	77	77	0.93
Belgium	U	305	305	2.9
Bulgaria	A	879	879	11.4
Cyprus	C	2	2	0.26
Czech Republic	C	289	276	2.7
Denmark	U	—	—	—
Estonia	A	53	53	3.9
Finland	C	74	74	1.4
France	U	—	—	—
Germany	C	814	814	0.99
Greece	C	30	26	0.23
Hungary	C	93	73	0.72
Ireland	C	54	53	1.3
Italy	U	—	—	—
Latvia	C	87	73	3.2
Lithuania	A	203	203	5.9
Luxembourg	C	13	13	2.8
Malta	U	0	0	0.0
Netherlands	C	256	248	1.5
Poland	A	35	30	0.08
Portugal	C	2	1	< 0.1
Romania	C	559	559	2.6
Slovakia	C	465	436	8.1
Slovenia	C	43	36	1.8
Spain	C	148	148	0.34
Sweden	C	429	429	4.7
United Kingdom	C	1425	1425	2.4
EU total		6375	6272	1.71
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	C	138	138	3.0
Total		6513	6410	1.73

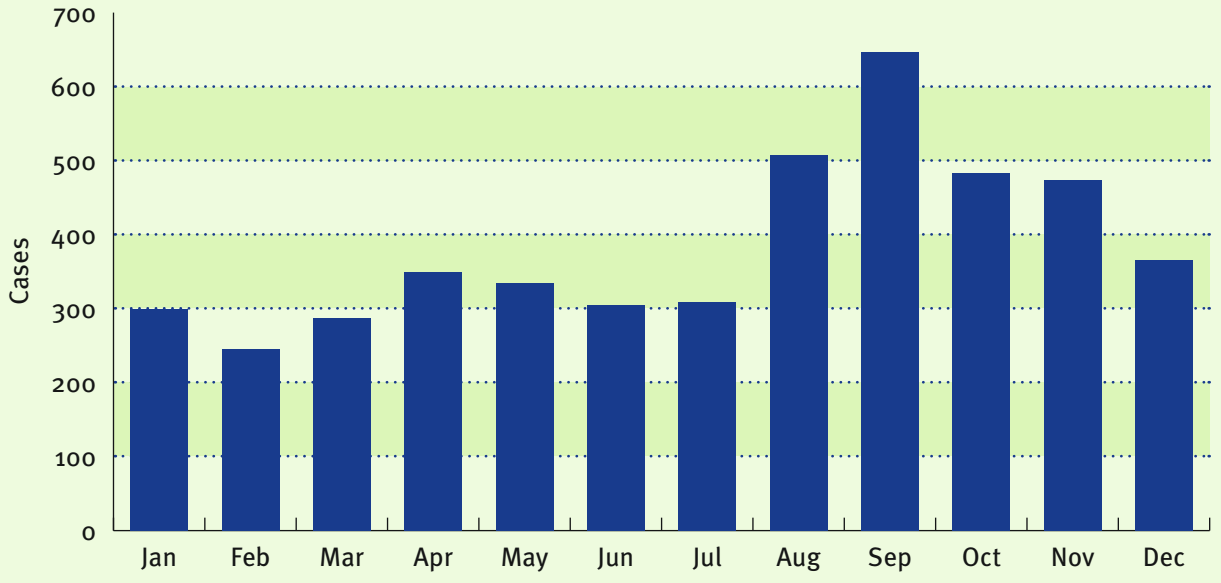
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.25. Age-specific notification rates of shigellosis cases in EU and EEA/EFTA countries, 2006 (n = 5 478)



Source: Country reports. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, Finland, Germany, Greece, Hungary, Ireland, Latvia, Luxembourg, Netherlands, Portugal, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Malta and Iceland reported zero cases.

Figure 3.3.26. Seasonal distribution of shigellosis cases for EU and EEA/EFTA countries, 2006 (n = 4 604)



Source: Country reports. Austria, Cyprus, Czech Republic, Finland, Germany, Greece, Hungary, Ireland, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Malta and Iceland reported zero cases.

was in middle-aged adults, this is most likely related to travel, as the majority of cases in these countries were imported. Also the difference from the general seasonal pattern observed in some countries could be a result of travel, during winter holidays, for example. There were also several incidents of shigellosis acquired during travel in 2006 reported through different alerts systems and publications[1].

References

1. Schimmer B, Meldal H, Perederij NG, Vold L, Petukhova MA, Grahek-Ogden D, Nygård K. Cross-border investigation of a *Shigella sonnei* outbreak in a group of Norwegian tourists after a trip to Russia. Euro Surveill. 2007 Apr 1;12(4):E9-10.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-PERTUSSIS/ SHIGELLOSIS/ SYPHILIS	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-SHIGELLOSIS	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-SHIGELLOSIS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

TOXOPLASMOSIS

- Toxoplasmosis is clearly still an under-reported disease despite the increased coverage in terms of number of reporting countries.
- Not all EU countries have a surveillance system for toxoplasmosis.
- Toxoplasmosis is diagnosed more commonly among women than men, probably due to screening of pregnant women in some countries.

Epidemiological situation in 2006

In 2006, 4 938 toxoplasmosis cases were reported by 18 Member States (see Table 3.3.14). Of these, 4 640 cases were confirmed. In addition, four countries (Cyprus, Luxembourg, Malta and Sweden) reported zero cases. Although this total appears to be a large increase from the 505 cases reported the previous year, much of this increase is due the number of reporting countries almost doubling; increasing from 10 to 18. Further, some countries report only congenital toxoplasmosis while others choose to report all cases diagnosed. The notification rate was highest in Bulgaria (39.1 per 100 000), twenty times the mean notification rate of 1.6 per 100 000. This rate is considered a crude estimate due to the low number of countries reporting cases and the mix of the type of cases reported.

Age and gender distribution

A total of 10 countries reported data on age groups and gender. Data on age groups were available for 986 cases, which is higher then last year, but still represents only 21 % of all reported confirmed cases. Therefore this data can only provide a crude estimation of the true affected age groups. The highest notification rate was detected in the age group 15–24 years (1.1 per 100 000). However, most of the cases (42 %) were reported in the age group 25–44 years, as was observed last year.

Of 1 007 cases with information on gender, the majority were reported in women (65 %), with a male to female ratio of 1:1.8. The reported number for women was higher than for men in all countries providing data, except for Spain.

Seasonality

Information on month was reported by 10 countries (1 445 cases) representing 31 % of all reported cases. It appears that the number of reported cases may be higher towards the end of the year, but this increase was not observed in 2005. Due to the weak information on seasonality, any seasonal trends need to be interpreted with caution.

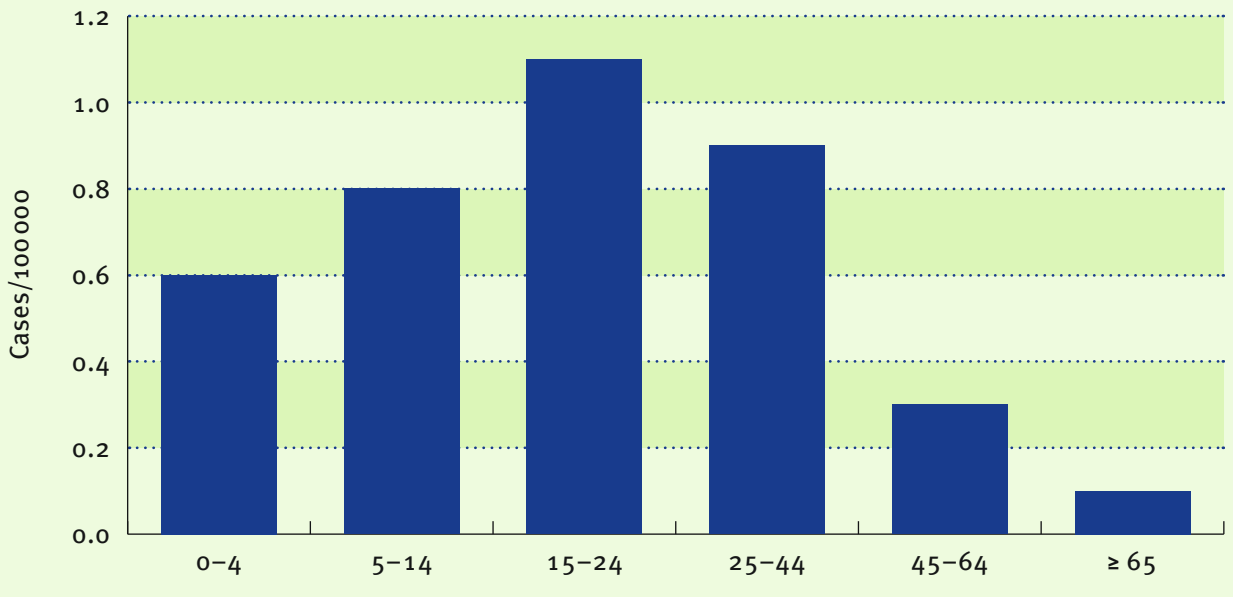
Table 3.3.14. Number and notification rate of reported toxoplasmosis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	U	—	—	—
Belgium	U	—	—	—
Bulgaria	A	3 016	3 016	39.1
Cyprus	U	0	0	0.0
Czech Republic	C	328	328	3.2
Denmark	U	—	—	—
Estonia	C	3	3	0.22
Finland	C	43	43	0.82
France	U	—	—	—
Germany[a]	C	10	10	< 0.1
Greece	U	—	—	—
Hungary	C	99	98	0.97
Ireland	C	44	42	1.0
Italy	U	—	—	—
Latvia	C	4	4	0.17
Lithuania	A	165	165	4.9
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	U	—	—	—
Poland	A	731	438	1.2
Portugal	U	—	—	—
Romania	U	—	—	—
Slovakia	C	303	303	5.6
Slovenia	C	24	22	1.1
Spain	C	41	41	< 0.1
Sweden	U	0	0	0.0
United Kingdom	C	127	127	0.21
EU total		4 938	4 640	1.61
Iceland	U	—	—	—
Liechtenstein	U	—	—	—
Norway	U	—	—	—
Total		4 938	4 640	1.61

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

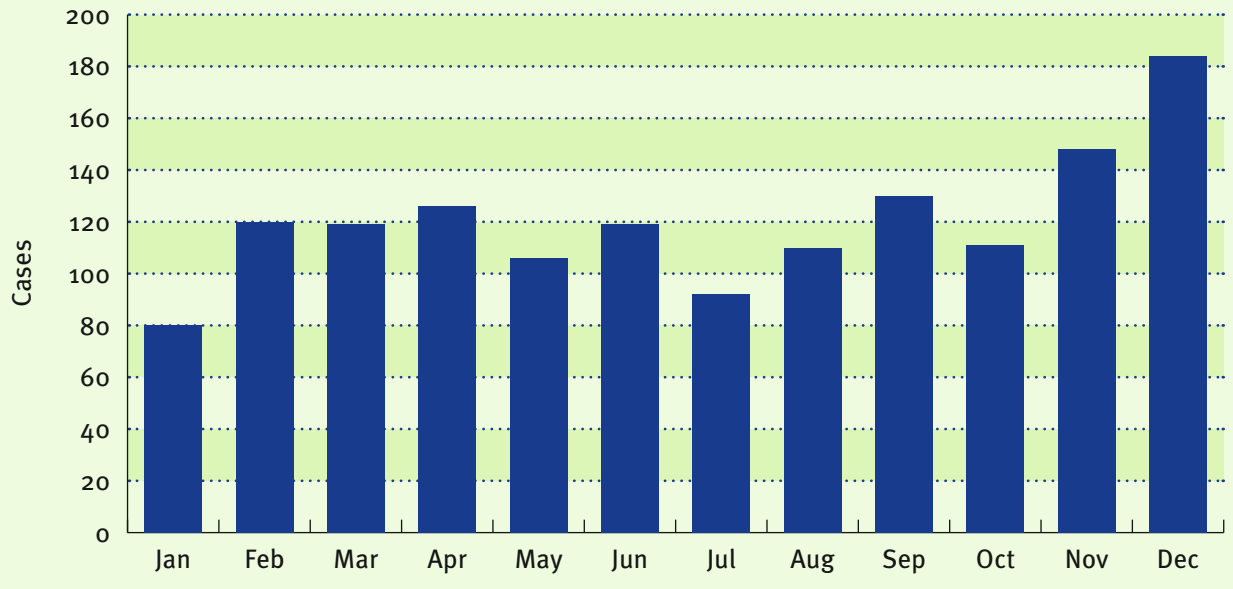
(a) Only congenital toxoplasmosis cases reported.

Figure 3.3.27. Age-specific notification rates of toxoplasmosis cases in EU and EEA/EFTA countries, 2006 (n = 986)



Source: Country reports. Czech Republic, Estonia, Finland, Hungary, Ireland, Latvia, Lithuania, Slovakia, Slovenia, Spain and UK. Cyprus, Luxembourg, Malta and Sweden reported zero cases.

Figure 3.3.28. Seasonal distribution of toxoplasmosis cases in EU and EFTA countries, 2006 (n = 1445)



Source: Country reports. Czech Republic, Estonia, Finland, Hungary, Ireland, Latvia, Slovakia, Slovenia, Spain, UK. Cyprus, Luxembourg, Malta and Sweden reported zero cases.

Discussion

The surveillance data on toxoplasmosis remains rather limited at the European level and does not allow for much further analysis or interpretation.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-TOXOPLASMOSIS	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_REFERENCE_CENTRES	V	Co	P	C	Y	N	N	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-NOTIFIABLE_DISEASES	Cp	Co	P	A	Y	Y	N	—	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
United Kingdom	UK-TOXOPLASMOSIS	V	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

TRICHINELLOSIS

- Trichinellosis cases are relatively rare but outbreaks do still occur.
- The highest notification rate was in the age group 25–44 years.
- Trichinellosis prevention is based on accurate inspection of all slaughtered pigs and horses, which is mandatory in the EU.
- Imported and wild animal meat presents a higher risk and its undercooked or raw consumption should be discouraged.

Epidemiological situation in 2006

In 2006, 708 cases were confirmed out of 761 cases reported by the 12 Member States and two EEA/EFTA countries, while 17 countries reported zero cases (only Liechtenstein did not report). Bulgaria (2.3 per 100 000), followed by Romania (1.6 per 100 000) reported the highest notification rates. The overall notification rate was 0.14 per 100 000.

Age and gender distribution

Nine European countries supplied age-specific data. Of the 507 reported cases with age data available, the notification rate was highest in the group 25–44 years (0.14 per 100 000) followed by the age groups 45–64 and 15–24 years (0.13 per 100 000).

Data on gender were available from eight countries, reporting 156 confirmed cases. Of these, 59.6 % of cases were male (0.4 per 100 000) and 40.4 % female (0.03 per 100 000), with a male to female ratio of 1.5:1.

Seasonality

Data on seasonality were available from nine EU countries (n = 336), and most of these cases occurred in December and January. However, this data is heavily influenced by the cases reported by Bulgaria (54 % of the data), and the peaks in December and January may be a reflection of potential outbreaks in that country. No threats were opened in 2006.

Discussion

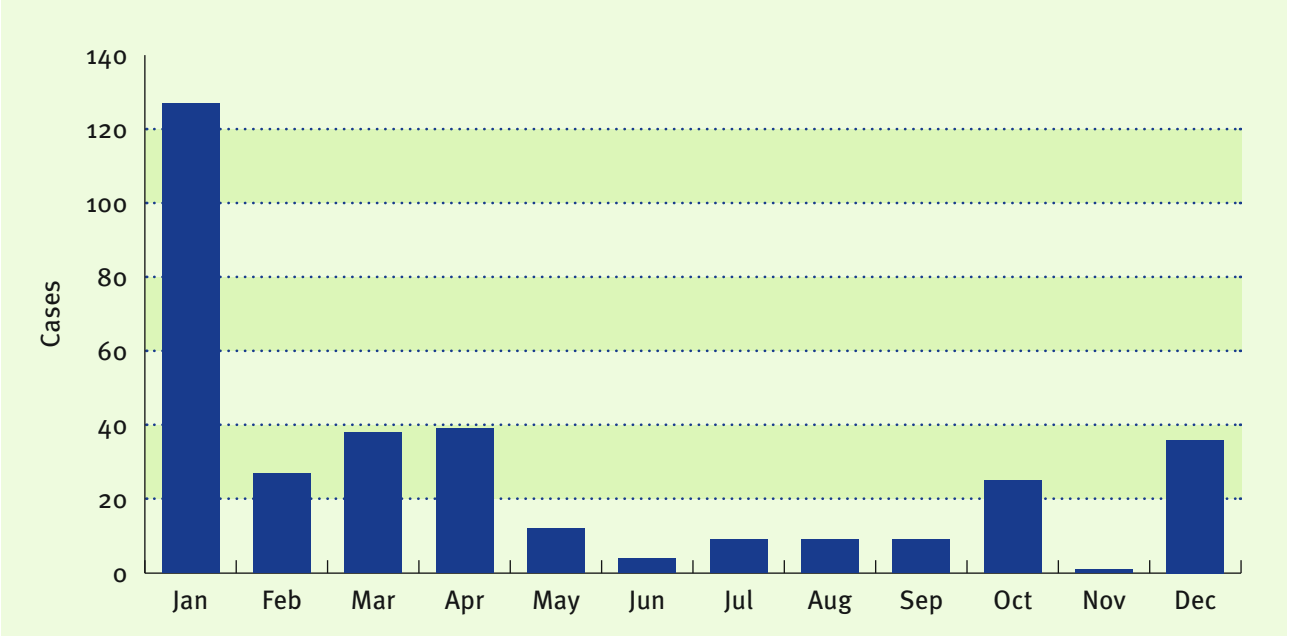
Trichinellosis cases are relatively rare but outbreaks do still occur. Generally, few cases of *Trichinella* in humans are reported in the EU, and the increase observed in 2006 was mainly due to substantial outbreaks in Poland, Germany, Lithuania and Spain[1]. In 2006, Bulgaria and Romania submitted data for the first time. They reported 180 and 350 confirmed cases, respectively, representing 75.7 % of all confirmed cases in 2006. Bulgaria and Romania reported very high numbers of positive samples from

Table 3.3.15. Number and notification rate of reported trichinellosis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	1	1	< 0.1
Belgium	U	0	0	0.0
Bulgaria	A	180	180	2.3
Cyprus	U	0	0	0.0
Czech Republic	U	0	0	0.0
Denmark	U	0	0	0.0
Estonia	U	0	0	0.0
Finland	U	0	0	0.0
France	C	12	10	< 0.1
Germany	C	22	22	< 0.1
Greece	U	0	0	0.0
Hungary	C	0	0	0.0
Ireland	U	0	0	0.0
Italy	C	1	1	< 0.1
Latvia	C	11	11	0.48
Lithuania	A	20	20	0.59
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	U	0	0	0.0
Poland	C	130	89	0.23
Portugal	U	0	0	0.0
Romania	A	350	350	1.6
Slovakia	C	5	5	< 0.1
Slovenia	C	1	1	< 0.1
Spain	C	28	18	0.0
Sweden	U	0	0	0.0
United Kingdom	U	0	0	0.0
EU total		761	708	0.14
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	U	0	0	0.0
Total		761	708	0.14

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.29. Seasonal distribution of trichinellosis cases in EU and EEA/EFTA countries, 2006 (n = 336)



Source: Country reports. Bulgaria, France, Germany, Italy, Latvia, Poland, Slovakia, Slovenia and Spain. Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Luxembourg, Malta, Netherlands, Portugal, Sweden, United Kingdom, Iceland, Liechtenstein and Norway all reported zero cases.

pigs, indicating that trichinellosis must be considered a significant zoonotic disease in these two countries[1].

References

1. European Food Safety Authority (EFSA). The Community summary report on trends and sources of zoonoses, zoonotic agents, antimicrobial resistance and foodborne outbreaks in the European Union in 2006. The EFSA Journal. 2007(130). Available from: http://www.efsa.europa.eu/EFSA/DocumentSet/Zoon_report_2006_en,0.pdf

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-ANTH/CHOL/DIPH/ MALA/ SPOX/TRIC/TULA/TYPH	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-TRICHINOSIS	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-TRICHINOSIS	V	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

TULARAEMIA

- There is no clear trend in tularaemia notifications in the EU and EEA/EFTA.
- The tularaemia notification rate increases with age.
- The rate in males is higher than in females.

Epidemiological situation in 2006

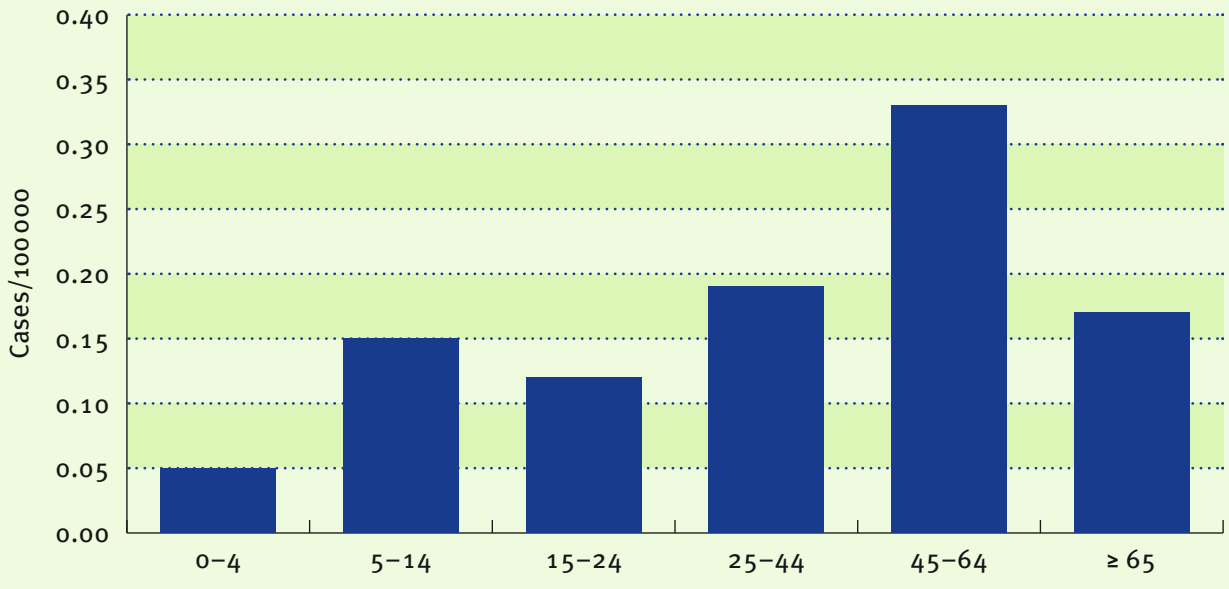
In 2006 there were 1048 cases of tularaemia (0.23 per 100 000) confirmed out of 1056 cases reported by 25 countries (Denmark, Netherlands, Portugal, Iceland and Liechtenstein did not report), double the 508 cases reported in 2005. This increase can in part be explained by the 475 cases reported by Finland, which did not report in 2005.

Age and gender distribution

Individuals in the age group 45–64 years appear to be at increased risk (Figure 3.3.30), with a rate of 0.33 per 100 000, possibly due to occupational or recreational exposures.

Gender-specific data were provided by nine countries (887 cases, with ten countries reporting zero cases) and showed a slightly higher notification rate in males of 0.24 per

Figure 3.3.30. Age-specific notification rates of tularaemia cases in EU and EEA/EFTA countries, 2006 (n = 901)



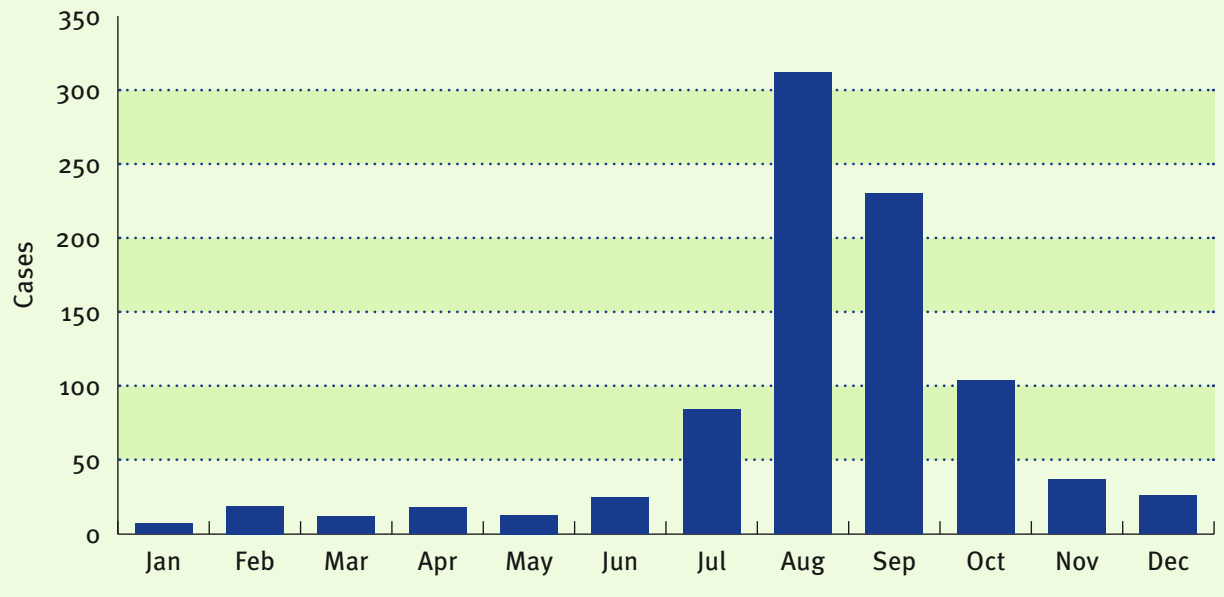
Source: Country reports: Bulgaria, Czech Republic, Finland, France, Germany, Italy, Poland, Slovakia, Slovenia, Spain, Sweden and Norway. Belgium, Cyprus, Estonia, Greece, Ireland, Latvia, Luxembourg, Malta, Romania, and UK reported zero cases.

Table 3.3.16. Number and notification rate of reported tularaemia cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	6	6	< 0.1
Belgium	U	0	0	0.0
Bulgaria	A	14	14	0.18
Cyprus	U	0	0	0.0
Czech Republic	C	87	79	0.77
Denmark	U	—	—	—
Estonia	U	0	0	0.0
Finland	C	475	475	9.0
France	C	24	24	< 0.1
Germany	C	1	1	< 0.1
Greece	U	0	0	0.0
Hungary	C	139	139	1.4
Ireland	U	0	0	0.0
Italy	C	2	2	< 0.1
Latvia	C	0	0	0.0
Lithuania	A	2	2	0.06
Luxembourg	U	—	—	—
Malta	U	0	0	0.0
Netherlands	U	—	—	—
Poland	C	3	3	< 0.1
Portugal	U	—	—	—
Romania	U	0	0	0.0
Slovakia	C	49	49	0.91
Slovenia	C	1	1	< 0.1
Spain	U	1	1	< 0.1
Sweden	C	241	241	2.7
United Kingdom	U	0	0	0.0
EU total		1045	1037	0.23
Iceland	U	—	—	—
Liechtenstein	U	—	—	—
Norway	C	11	11	0.24
Total		1056	1048	0.23

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.31. Seasonal distribution of tularaemia cases in EU and EEA/EFTA countries, 2006 (n = 887)



Source: Country reports. Czech Republic, Finland, France, Germany, Italy, Poland, Slovakia, Slovenia, Spain, Sweden and Norway. Belgium, Cyprus, Estonia, Greece, Ireland, Latvia, Luxembourg, Malta, Romania and UK reported zero cases.

100 000 individuals compared with 0.17 per 100 000 in females.

Seasonality

The hot summer months account for a large proportion of the reported cases (Figure 3.3.31). A peak was observed in August with 312 reported cases, which represent more than one third of cases reported throughout the year.

Discussion

At the EU level, although no deaths from tularaemia were reported in 2006, cases of tularaemia persist in some European countries.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-ANTH/CHOL/DIPH/ MALA/ SPOX/TRIC/TULA/TYPH	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-MANDATORY_INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-TULARAEMIA	V	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

TYPHOID/PARATYPHOID FEVER

- Typhoid/paratyphoid fever mostly affects the youngest age group (0–4 years).
- Data suggest that the majority of the cases were imported.

Epidemiological situation in 2006

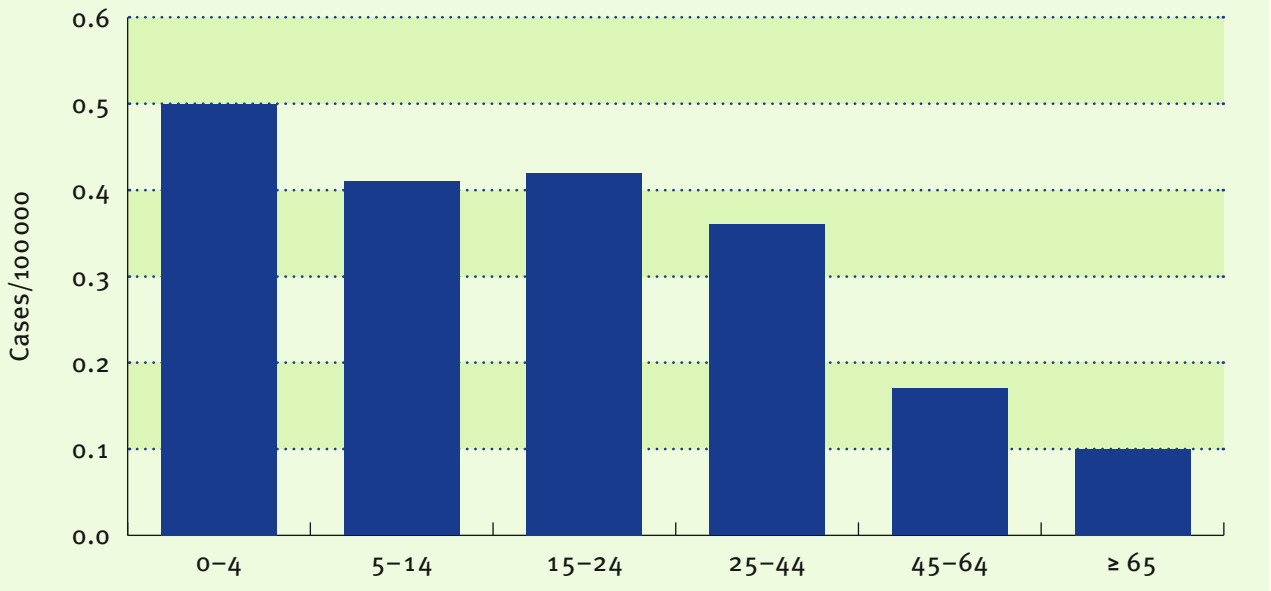
In 2006, a total of 1411 human typhoid or paratyphoid cases were reported by 26 countries (Belgium, Denmark, Iceland and Liechtenstein did not report) and 1361 of them were confirmed. This is slightly (4%) more than were reported in 2005. The UK, with 0.91 per 100 000, reported the highest notification rate, followed by Norway (0.78 per 100 000). The overall notification rate was 0.28 per 100 000. Based on data from 16 countries, 70% of the reported cases with known importation status (n = 785) were imported.

Age and gender distribution

Age-related data were available from 18 countries (n = 1321). The highest notification rate was reported in children in the 0–4 year-olds (0.50 per 100 000).

Data on gender were available on the cases from 18 countries (n = 1268). The data show only a slight difference between men

Figure 3.3.32. Age-specific notification rates of typhoid/paratyphoid fever cases for EU and EEA/EFTA countries, 2006 (n = 1321)



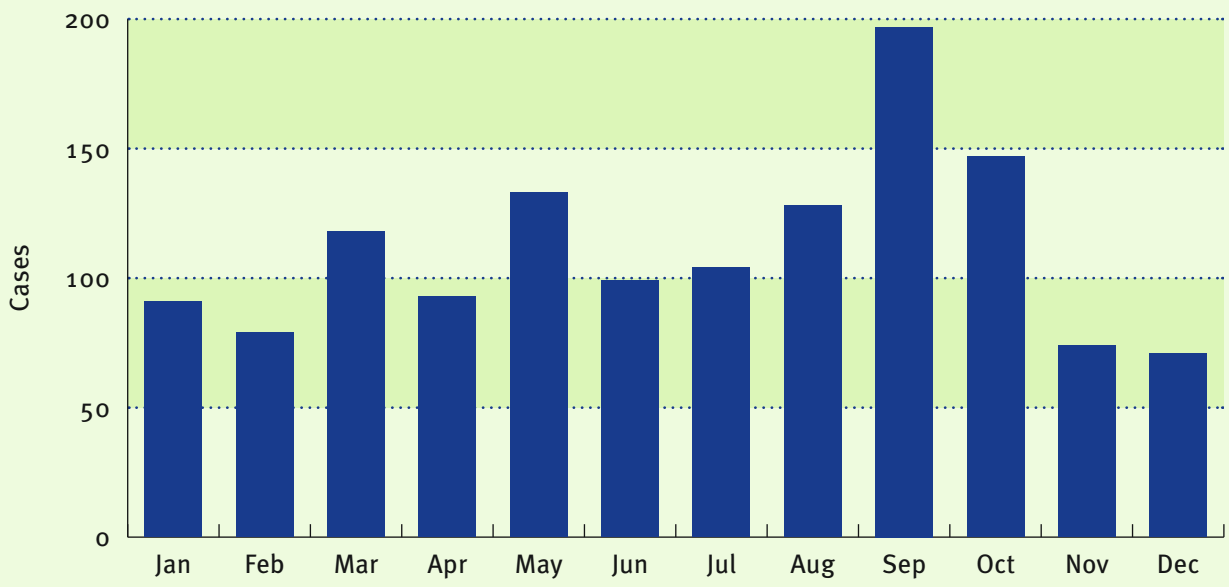
Source: Country reports. Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Bulgaria, Cyprus, Latvia, Luxembourg and Malta reported zero cases.

Table 3.3.17. Number and notification rate of reported typhoid/paratyphoid fever cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	17	17	0.21
Belgium	C	—	—	—
Bulgaria	U	0	0	0.0
Cyprus	U	0	0	0.0
Czech Republic	C	4	4	0.0
Denmark	U	—	—	—
Estonia	C	1	1	< 0.1
Finland	C	10	10	0.19
France	C	165	165	0.26
Germany	C	148	148	0.18
Greece	C	15	15	0.13
Hungary	C	2	2	< 0.1
Ireland	C	10	9	0.21
Italy	C	219	219	0.37
Latvia	C	0	0	0.0
Lithuania	A	6	6	0.18
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	C	57	57	0.35
Poland	C	5	5	< 0.1
Portugal	C	52	41	0.39
Romania	C	15	15	< 0.1
Slovakia	C	3	3	< 0.1
Slovenia	C	5	5	0.25
Spain	C	82	44	0.10
Sweden	C	12	12	0.13
United Kingdom	C	547	547	0.91
EU total		1375	1325	0.28
Iceland	U	—	—	—
Liechtenstein	U	—	—	—
Norway	C	36	36	0.78
Total		1411	1361	0.28

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.33. Seasonal distribution of typhoid/paratyphoid fever cases in EU and EEA/EFTA countries, 2006 (n = 1334)



Source: Country reports. Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Bulgaria, Cyprus, Latvia, Luxembourg and Malta reported zero cases.

(56 %; 0.32 per 100 000) and women (44 %; 0.24 per 100 000).

Seasonality

The number of reported cases shows a peak in autumn with the highest number of reported cases in September and October (Figure 3.3.33).

Discussion

Typhoid and paratyphoid fever remain rare infections mainly related to travellers.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-ANTH/CHOL/DIPH/ MALA/ SPOX/TRIC/TULA/TYPH	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Portugal	PT-TYPHOID/PARATYPHOID	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-TYPHOID/PARATYPHOID	O	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

VARIANT CREUTZFELDT-JAKOB DISEASE (VCJD)

- Variant CJD is still a very low prevalence disease in the EU, but with a high mortality.
- Besides through eating contaminated meat, Variant CJD is also transmissible via blood transfusion.
- There is a need to continue accurate surveillance for CJD of all types because of continuing uncertainty about the future trend and potential new links between animal and human prion diseases.

Epidemiological situation in 2006

In 2006, a total of 13 vCJD cases died in four EU Member States (Table 3.3.18). This is only one case less than was reported in 2005. Ten cases were confirmed and three were probable. Six cases were reported by France, five by the UK, one by Ireland and one case was reported from the Netherlands. The overall mortality rate remains low at 0.03 per 1 000 000.

Age and gender distribution

Most of the cases (11/13) were under 45 years old (Figure 3.3.34). The age of the

Table 3.3.18. Number of vCJD deaths in the EU and EEA/EFTA, 2006

Country	Gender	Diagnosis	Year death	Age death	Blood donor	Blood recipient
United Kingdom	female	probable vCJD	2006	24	yes	no
United Kingdom	male	probable vCJD	2006	30	no	no
United Kingdom	male	confirmed vCJD	2006	30	no	yes
United Kingdom	male	confirmed vCJD	2006	32	no	yes*
United Kingdom	male	probable vCJD	2006	34	no	no
France	female	confirmed vCJD	2006	19	no	no
France	male	confirmed vCJD	2006	47	no	no
France	female	confirmed vCJD	2006	34	yes	no
France	female	confirmed vCJD	2006	43	no	no
France	male	confirmed vCJD	2006	22	no	no
France	female	confirmed vCJD	2006	53	no	no
Ireland	male	confirmed vCJD	2006	21	yes	unknown
Netherlands	male	confirmed vCJD	2006	16	no	no

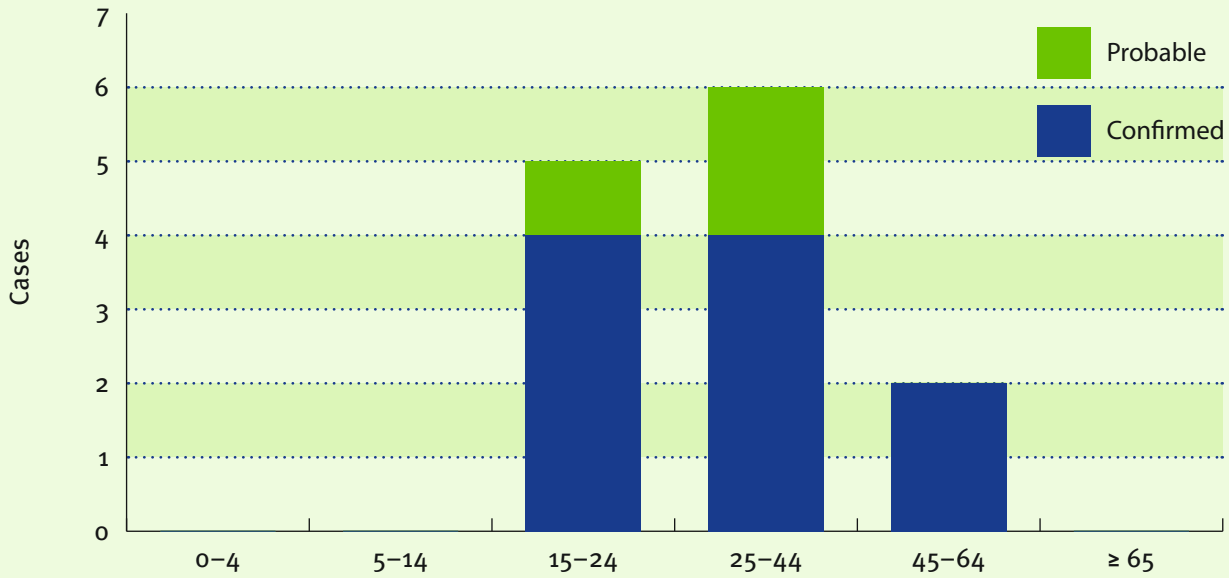
* Most likely blood transfusion transmission.

Source: EuroCJD, countries contributing reports of zero deaths: Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Italy, Latvia, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden.

cases ranged from 16 to 53 with a median of 30 years.

Slightly more cases occurred in men (8/13) than in women (5/13).

Figure 3.3.34. Number of probable and confirmed vCJD deaths by age groups in UK, France, Ireland and the Netherlands in 2006 (n = 13)



Source: EuroCJD.

Seasonality

Variant CJD shows no seasonal trends with cases occurring throughout the year, as might be expected in a disease with incubation periods extending to several years.

Discussion

Countries throughout Europe continue surveillance of vCJD through collaboration within the EuroCJD network[1]. The primary objectives of the EuroCJD network are to continue and further develop the surveillance of vCJD and to identify novel forms of CJD that might be linked to BSE or other animal prion diseases. All collaborating countries have established national surveillance systems for CJD in order to identify and investigate all new cases or related disorders. Methods for case classification have been harmonised and risk factors are investigated by a common questionnaire.

The transmission of BSE to humans in the form of variant CJD through prions in the food chain has had profound political, social and economic implications. Because of the extended incubation period of these disorders, there has been uncertainty about the likely extent of a future outbreak of variant CJD in the UK and other countries.

Current data are relatively reassuring as the numbers of deaths from vCJD in the UK have declined over recent years from a peak in 2000. However, uncertainty remains about the possibility of increased numbers of cases over coming years, particularly as there is now evidence of transmission of vCJD through blood transfusion[2].

References

1. EuroCJD [homepage on the Internet]. Edinburgh: The European and Allied Countries Collaborative Study Group of CJD (EUROCJD). Available from: http://www.eurocjd.ed.ac.uk/EUROINDEX.htm.
2. Hewitt PE, Llewelyn CA, Mackenzie J, Will RG. Creutzfeldt-Jakob disease and blood transfusion: results of the UK Transfusion Medicine Epidemiological Review Study. Vox Sang. 2006; 91 (3):221-30.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-CJD	V	Co	—	C	Y	Y	Y	N	Y
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-CJD	Cp	Co	P	C	N	Y	Y	Y	Y
Finland	FI-Other source	Cp	Co	P	C	N	N	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-VCJD	Cp	Co	P	C	N	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-NON_EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-CJD	Cp	Co	P	C	Y	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-TRANS_SPONGIFORM_ ENCEPHALOPATHIES	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-VCJD	Cp	Co	P	C	N	Y	N	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-VCJD	V	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

YERSINIOSIS (NON-PESTIS)

- The highest burden of yersiniosis is in young children (0–4 year-olds) both in terms of number of reported cases and notification rate per 100 000.

Epidemiological situation in 2006

In 2006, a total of 9 067 cases of human yersiniosis were confirmed out of the 9 075 cases notified by 25 countries (Table 3.3.19) (France, Greece, Netherlands, Romania and Liechtenstein did not report). This is 4.5 % less than was reported in the previous year by the same countries. The overall notification rate for 2006 is 2.3 per 100 000.

Age and gender distribution

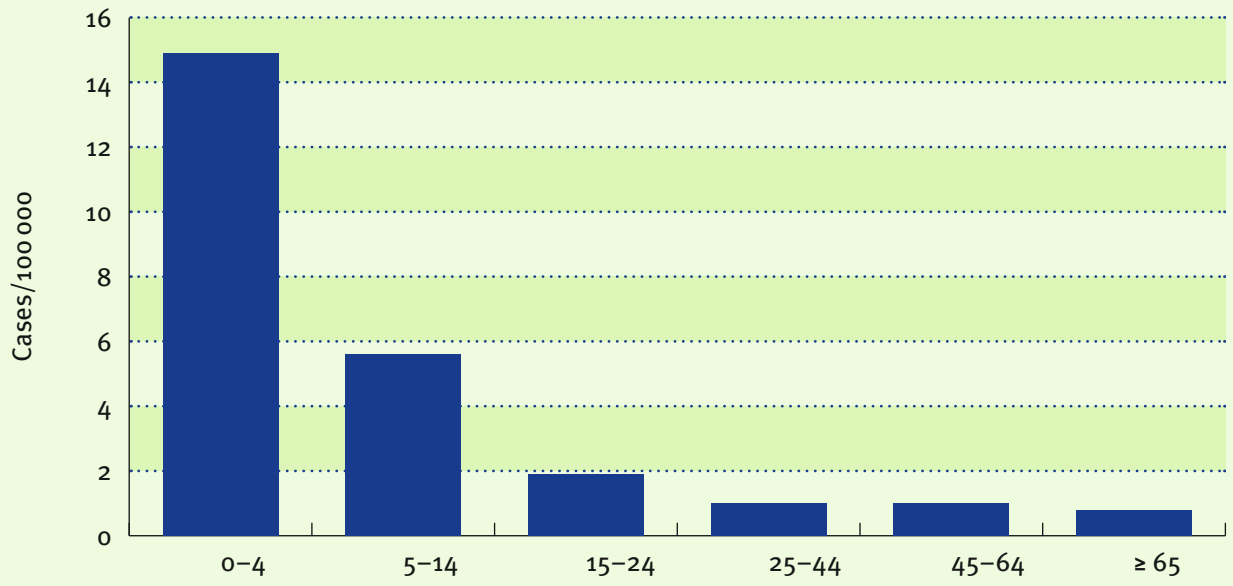
Data on age were available for 8 608 (95 %) cases from 19 countries. The most affected group was the 0–4 year-olds with 2 799 (31 %) cases and also with the highest notification rate of 14.8 per 100 000 (Figure 3.3.35).

Data by gender were available for 8 646 (95.3 %) cases. No real differences in notification rates were seen between men (2.4 per 100 000) and women (2.1 per 100 000).

Seasonality

Yersiniosis cases show no true seasonality pattern although most of the cases appear to be reported in the second half of the year (Figure 3.3.36).

Figure 3.3.35. Age-specific notification rates of yersiniosis cases in EU and EEA/EFTA countries, 2006 (n = 8 608)



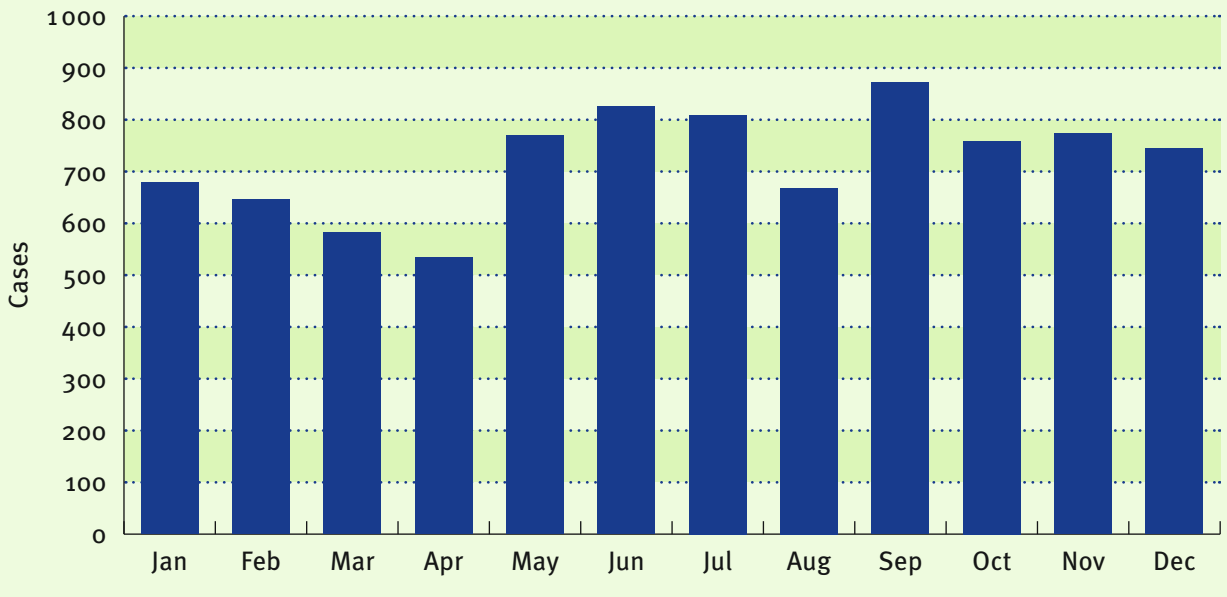
Source: Country reports. Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Ireland, Latvia, Luxembourg, Poland, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Cyprus, Italy, Malta, Portugal and Iceland reported zero cases.

Table 3.3.19. Number and notification rate of reported human yersiniosis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	158	158	1.9
Belgium	C	264	264	2.5
Bulgaria	C	5	5	0.06
Cyprus	U	0	0	0.0
Czech Republic	C	535	534	5.2
Denmark	C	215	215	4.0
Estonia	C	42	42	3.1
Finland	C	795	795	15.1
France	U	—	—	—
Germany	C	5 161	5 161	6.3
Greece	U	—	—	—
Hungary	C	38	38	0.38
Ireland	C	1	1	< 0.1
Italy	U	0	0	0.0
Latvia	C	94	92	4.0
Lithuania	A	411	411	12.1
Luxembourg	C	5	5	1.1
Malta	U	0	0	0.0
Netherlands	U	—	—	—
Poland	C	110	110	0.29
Portugal	U	0	0	0.0
Romania	U	—	—	—
Slovakia	C	83	82	1.5
Slovenia	C	80	76	3.8
Spain	C	375	375	0.86
Sweden	C	558	558	6.2
United Kingdom	C	59	59	0.10
EU total		8 989	8 981	2.4
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	C	86	86	1.9
Total		9 075	9 067	2.3

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.3.36. Seasonal distribution of yersiniosis cases, in EU and EEA/EFTA countries, 2006 (n = 8 660)



Source: Country reports Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Ireland, Latvia, Luxembourg, Poland, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Cyprus, Italy, Malta, Portugal and Iceland reported zero cases.

Discussion

From the investigations on the occurrence of *Yersinia* spp. in various types of animals and foodstuffs, including pig meat and bovine meat, *Y. enterocolitica* were generally found in low proportions[1]. Isolation and identification of *Y. enterocolitica* remain problematic. Identification of strains virulent to humans requires the identification of both the biotype and the serotype to determine whether the strain is potentially pathogenic. In Europe, the majority of human pathogenic *Y. enterocolitica* belong to biotype 4 (serotype O:3) or less commonly biotype 2 (serotype O:9).

References

1. European Food Safety Authority (EFSA). The Community summary report on trends and sources of zoonoses, zoonotic agents, antimicrobial resistance and foodborne outbreaks in the European Union in 2006. The EFSA Journal. 2007(130). Available from: http://www.efsa.europa.eu/EFSA/DocumentSet/Zoon_report_2006_en,0.pdf

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Bulgaria	BG-MOH	—	—	—	—	—	—	—	—	—
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y
Estonia	EE-YERSINIOSIS	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-ENTERNET	V	Se	P	C	Y	N	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-YERSINOSIS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

3.4 EMERGING AND VECTOR-BORNE DISEASES

Malaria, plague, Q fever, SARS, smallpox, viral haemorrhagic fevers (including Crimean-Congo haemorrhagic fever and chikungunya) yellow fever, West Nile fever.

MALARIA

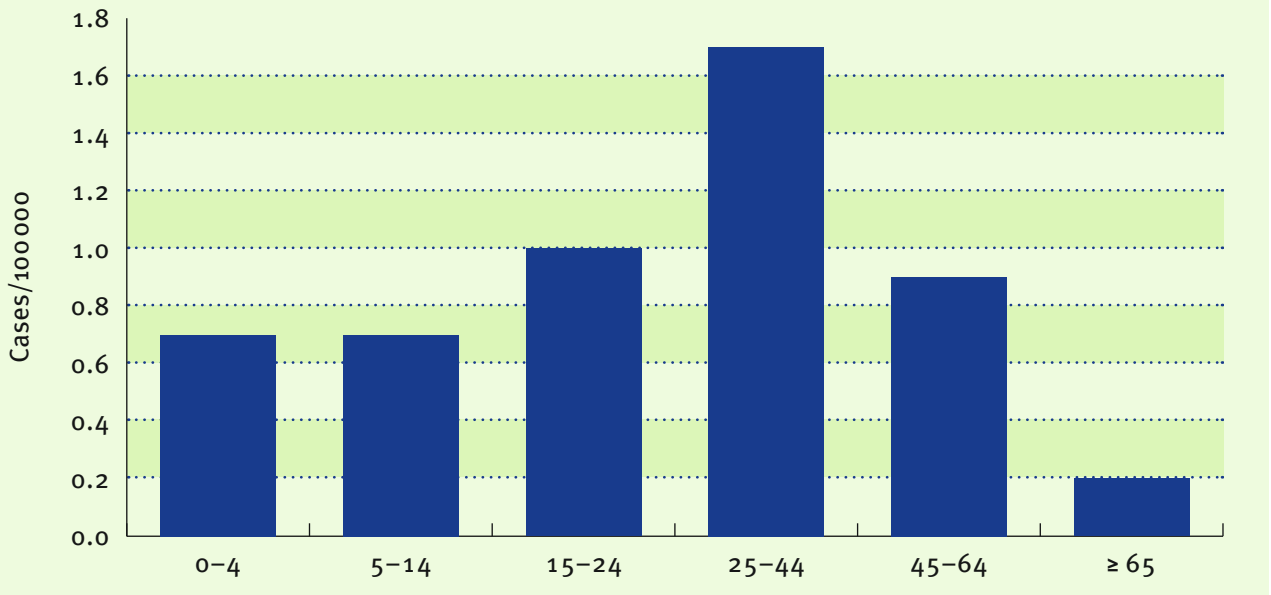
Epidemiological situation in 2006

Of the 4 233 reported cases in 2006, the majority (4 231) were confirmed and most were imported into the 26 reporting countries. There were no reports from Denmark, France, Liechtenstein or Iceland, while only Lithuania reported zero cases. The overall notification rate for the EU and EEA/EFTA is 0.99 per 100 000, but as these cases were imported, this figure is of limited value.

Age and gender distribution

The notification rate is twice as high in males as in females (1.3 and 0.67 respectively, per 100 000 population) and the highest rates are seen in the age group of 25–44 year-olds (1.7 per 100 000) (Figure 3.4.1). These rates probably reflect travel habits rather than any other risk factor.

Figure 3.4.1. Age-specific notification rates of malaria cases in EU and EEA/EFTA countries, 2006 (n = 4 112)



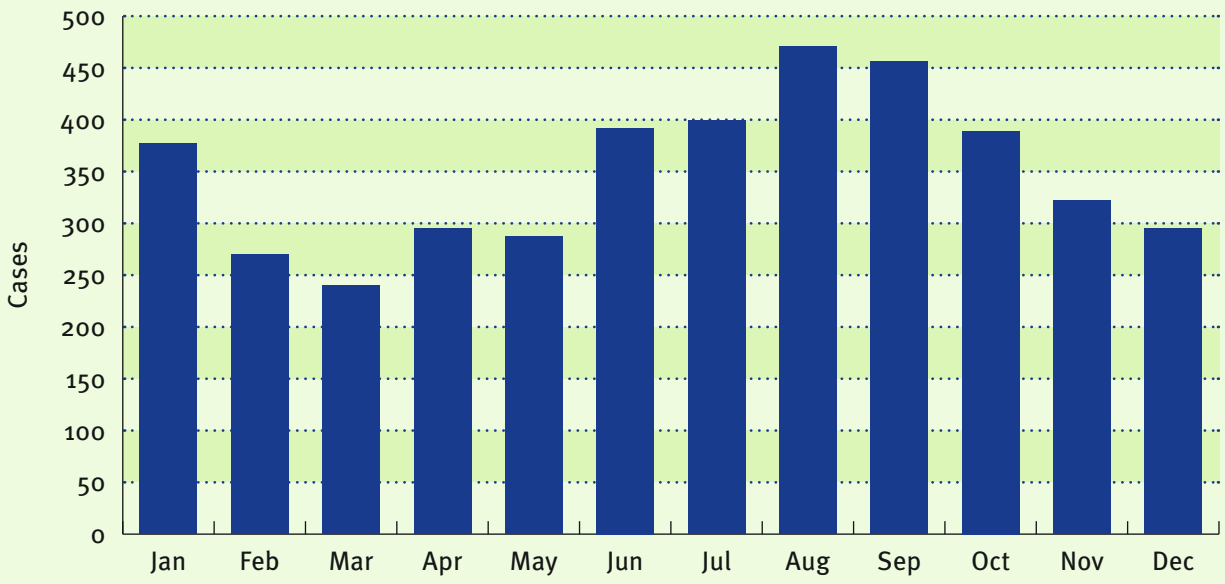
Source: Country reports: Austria, Belgium, Cyprus, Czech Republic, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and UK. Lithuania reported zero cases.

Table 3.4.1. Number and notification rate of reported malaria cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	50	50	0.60
Belgium	C	195	195	1.786
Bulgaria	A	14	14	0.18
Cyprus	C	1	1	0.13
Czech Republic	C	16	16	0.16
Denmark	U	—	—	—
Estonia	C	6	6	0.45
Finland	C	31	31	0.59
France	U	—	—	—
Germany	C	566	566	0.69
Greece	C	22	22	0.20
Hungary	C	18	18	0.18
Ireland	C	96	94	2.2
Italy	C	630	630	1.1
Latvia	C	4	4	0.17
Lithuania	U	0	0	0.0
Luxembourg	C	4	4	0.85
Malta	C	1	1	0.25
Netherlands	C	250	250	1.5
Poland	C	19	19	< 0.1
Portugal	C	48	48	0.45
Romania	C	16	16	< 0.1
Slovakia	C	10	10	0.19
Slovenia	C	3	3	0.15
Spain	C	338	338	0.77
Sweden	C	93	93	1.0
United Kingdom	C	1758	1758	2.9
EU total		4 189	4 187	0.99
Iceland	U	—	—	—
Liechtenstein	U	—	—	—
Norway	C	44	44	0.95
Total		4 233	4 231	0.99

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.4.2. Seasonal distribution of malaria cases in EU and EEA/EFTA countries, 2006 (n = 4193)



Source: Country reports. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and UK. Lithuania reported zero cases.

Seasonality

There is a clear seasonal trend to the reporting of malaria cases with an increase in the summer and the immediate post-Christmas winter period (Figure 3.4.2). This pattern may be related to travellers returning from endemic areas.

Discussion

Historically, malaria was endemic in Europe, but was eventually eliminated in 1975 as a result of a number of factors, including socioeconomic development, improvements in building codes, land use and agricultural practices, health education and nutrition[1,2]. Nevertheless, conditions for transmission in Europe have remained favourable since the vector is still present and as documented by several reported incidents of autochthonous transmission of a tropical malaria strain by local vectors to a susceptible person[3,4].

While climatic factors may favour autochthonous transmission, increased vector density and accelerated parasite development, other factors decrease the probability of climate-related re-emergence of malaria in Europe.

The incidence of malaria in Europe is relatively low compared with historic levels and thus is not a major public health problem. Nevertheless, continued surveillance is warranted since it supports the assessment of prophylaxis recommendations.

So far, malaria cases in Europe are imported cases and thus this remains a travel medicine issue (Table 3.4.1). Since they are due to travellers returning from endemic areas, the decreasing incidence suggests adherence to prophylaxis recommendations.

References

1. Kuhn KG, Campbell-Lendrum DH, Davies CR. A continental risk map for malaria mosquito (Diptera: Culicidae) vectors in Europe. J Med Entomol. 2002;39(4):621-30.
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4. Krüger A, Rech A, Su XZ, Tannich E. Two cases of autochthonous Plasmodium falciparum malaria in Germany with evidence for local transmission by indigenous Anopheles plumbeus. Trop Med Int Health. 2001;6(12):983-5.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Czech Republic	CZ-PARASITIC_INFECTIONS	O	Se	P	C	Y	Y	—	—	Y
Denmark	DK-LAB	Cp	Co	P	C	Y	N	N	N	Y
Estonia	EE-ANTH/CHOL/DIPH/ MALA/ SPOX/TRIC/TULA/TYPH	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.3	Cp	Co	P	C	Y	N	N	N	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-NOTIFIABLE_DISEASES	Cp	Co	P	A	Y	Y	N	—	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-MALARIA	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-MALARIA	O	Co	A	C	Y	Y	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

PLAGUE (*YERSINIA PESTIS* INFECTION)

- There were no cases of indigenous plague reported in the EU during 2006.

Epidemiological situation in 2006

No cases of plague were reported in 2006 by 28 countries in the EU and EEA/EFTA. No reports were available from the Czech Republic or Liechtenstein.

Discussion

On 15 June 2007, the IHR (2005) entered into force. Among the provisions that apply to conveyances is a new Ship Sanitation Control Exemption Certificate/Ship Sanitation Control Certificate SSCEC/SSCC. These certificates replace the De-ratting Certificate/De-ratting Exemption Certificate (DC/DEC) issued under IHR (1969).

The risk of transmission of bubonic plague in the EU is practically non existent. However, plague is still endemic in many countries in Africa, in the former Soviet Union, the Americas and Asia. In 2003, nine countries reported 2 118 cases and 182 deaths. Of those cases, 98.7 % were reported from Africa together with 98.9 % of the deaths. Today the distribution of plague coincides with the geographical distribution of its natural foci.

Plague threats in 2006–07

In June 2006 a WHO alert of a cluster of plague in the Democratic Republic of Congo was issued. One hundred cases of suspected pneumonic plague were reported, including 19 deaths in Ituri district, Oriental province. No further spread was reported; however, a new cluster in another area of DRC was reported in September.

References

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2. Heymann D. Control of Communicable Diseases Manual. 18th ed. Washington (DC): American Public Health Association; 2004.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				
						Laboratories	Physicians	Hospitals	Others	National coverage
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-VHF	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Portugal	PT-PLAGUE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-PLAGUE	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

Q FEVER

- The reported notification rate of Q fever in 2006 is lower than the previous years. However, due to incomplete data, no conclusions on trends can be made.

Epidemiological situation in 2006

A total of 583 cases of Q fever were confirmed out of the 620 reported by 15 out of the 22 Member States for which data are available (seven countries reported zero cases), corresponding to an overall notification rate of 0.14 per 100 000 population. Countries' notification rates vary between 0.01 and 0.35 per 100 000, with Bulgaria, Spain, Cyprus and Germany having the higher notification rates.

The number of cases reported in 2006 is lower than the 958 cases reported in 2005, when notification rates of up to 0.49 and 0.48 per 100 000 population were reported in Germany and France. In the past three years, the overall European notification rate of Q fever has been decreasing from 0.43 in 2002 to 0.15 in 2006.

Age and gender distribution

The majority of Q fever cases occurred in men, with a male to female ratio of 2.8:1 (n = 555). The highest notification rate rates were reported in the 25–44 year and 45–64 year age groups, with a notification rate of 0.21 and 0.18 per 100 000 population respectively (Figure 3.4.3).

Seasonality

The highest number of cases (42 %) was reported in the months of June and July, which corresponds, and is related, to the lambing season.

Discussion

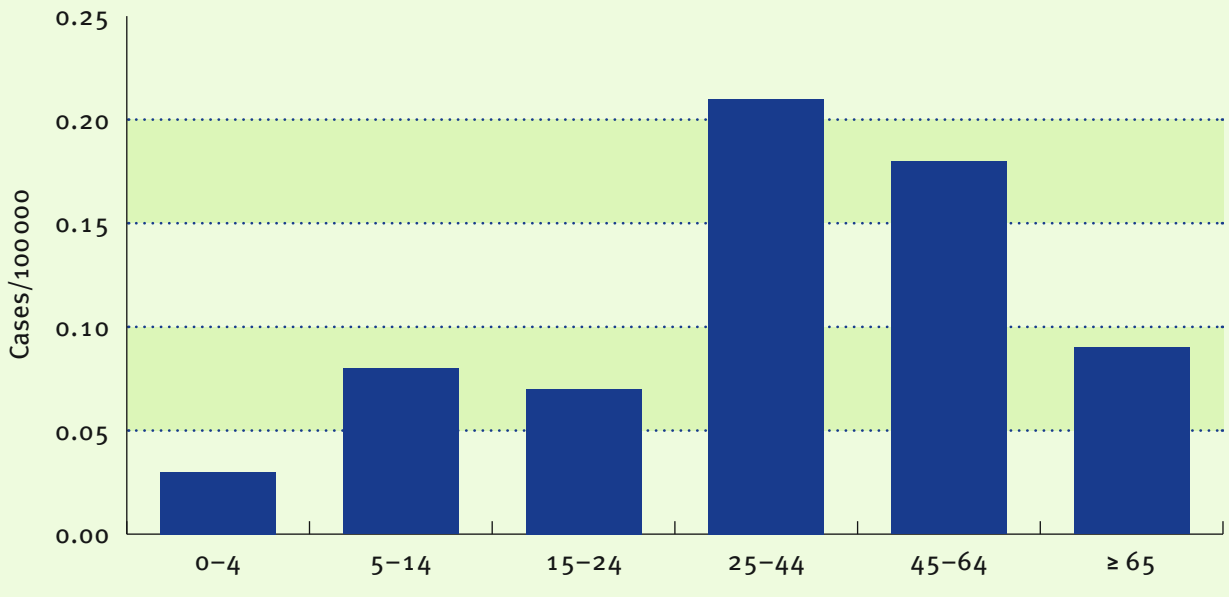
Compared with the past three years, there is a clear decrease in the overall notification rate of Q fever in Europe. This is mainly explained by the fact that most German cases from 2005 were linked to a specific outbreak, and the fact that no data are available for France, which made up a large part (29.6 %) of the reported cases in 2005. In addition, data are only available for 14 countries, and Q fever is generally an under-reported disease due to its non-specific clinical features. For all these reasons, it is not possible to draw any meaningful conclusions on the trend of Q fever case reports.

Table 3.4.2. Number and notification rate of reported Q fever cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	U	—	—	—
Belgium	U	8	8	< 0.1
Bulgaria	A	27	27	0.35
Cyprus	C	2	2	0.26
Czech Republic	U	—	—	—
Denmark	U	—	—	—
Estonia	U	0	0	0.0
Finland	C	3	3	< 0.1
France	U	—	—	—
Germany	C	204	204	0.25
Greece	C	2	2	< 0.1
Hungary	C	12	12	0.12
Ireland	C	12	8	0.19
Italy	U	0	0	0.0
Latvia	C	1	1	< 0.1
Lithuania	U	0	0	0.0
Luxembourg	U	—	—	—
Malta	U	0	0	0.0
Netherlands	C	12	12	< 0.1
Poland	U	0	0	0.0
Portugal	C	10	9	< 0.1
Romania	U	0	0	0.0
Slovakia	C	0	0	0.0
Slovenia	C	3	3	0.15
Spain	C	145	145	0.33
Sweden	C	1	1	< 0.1
United Kingdom	C	178	146	0.24
EU total		620	583	0.14
Iceland	U	—	—	—
Liechtenstein	U	—	—	—
Norway	U	—	—	—
Total		620	583	0.14

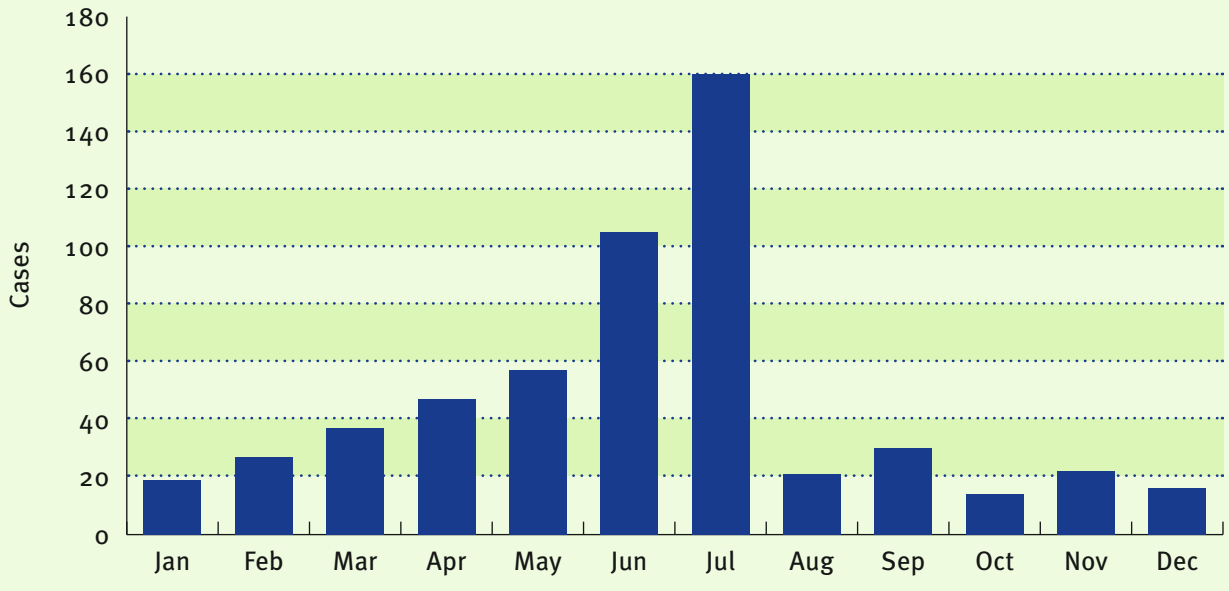
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.4.3. Age-specific notification rates of Q fever cases in EU and EEA/EFTA countries, 2006 (n = 570)



Source: Country reports. Belgium, Bulgaria, Cyprus, Finland, Germany, Greece, Hungary, Ireland, Netherlands, Portugal, Slovenia, Spain, Sweden and UK. Estonia, Italy, Lithuania, Malta, Poland, Romania and Slovakia reported zero cases.

Figure 3.4.4. Seasonal distribution of Q fever cases in EU and EEA/EFTA countries, 2006 (n = 555)



Source: Country reports. Belgium, Cyprus, Finland, Germany, Greece, Hungary, Ireland, Netherlands, Portugal, Slovenia, Spain, Sweden and UK. Estonia, Italy, Lithuania, Malta, Poland, Romania and Slovakia reported zero cases.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-VHF	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-QFEVER	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-Q-FEVER	V	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

- The knowledge about the epidemiology and ecology of SARS-CoV infection is still incomplete.
- It remains very difficult to predict when or whether SARS will re-emerge in epidemic form.
- SARS has been shown to spread rapidly worldwide, therefore tight surveillance should be maintained in the inter-epidemic period.

Epidemiological situation in 2006

For 2006, despite ongoing surveillance, there were zero reports of the SARS virus infection in humans in the EU or worldwide.

Threat reports

No threats related to SARS were reported in 2006.

Discussion

SARS is believed to be an animal virus that recently crossed the species barrier to infect humans.

Bats have been identified as potential reservoir hosts of coronaviruses associated with severe acute respiratory syndrome (SARS-CoV) in different studies[1].

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Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-SARS	Cp	Co	A	C	Y	Y	Y	Y	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-SARS	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-NON_EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				
						Laboratories	Physicians	Hospitals	Others	National coverage
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-SARS	V	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

SMALLPOX

- There were no reports of smallpox or potential smallpox in the EU and EEA/EFTA countries in 2006.

Smallpox was a systemic disease, officially eradicated since 1979 (WHO), caused by infection with the *Variola major* virus, whose only reservoir was infected humans.

This pathogen has been considered as an agent with the potential for intentional release for which the European Commission has issued European clinical guidelines. Otherwise the only risks of transmission would be from handling laboratory stores of the virus held in a small number of reference laboratories.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-ANTH/CHOL/DIPH/MALA/SPOX/TRIC/TULA/TYPH	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-SMALLPOX	O	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

VIRAL HAEMORRHAGIC FEVERS (VHF)

- A total of 28 VHF cases were reported from four different Member States. This included one confirmed case of Lassa fever, imported from Sierra Leone to Germany, and seven confirmed cases of Crimean-Congo Haemorrhagic Fever (CCHF) reported from Bulgaria.

Epidemiological situation in 2006

In 2006, four Member States reported a total of 28 (all confirmed) cases of VHF in EU and EEA/EFTA countries.

In July 2006, one case of Lassa fever was confirmed in a 69 year-old man coming from Sierra Leone to Germany; the man recovered after three months of intensive care. No infection was identified in any of his contacts.

Bulgaria reported a total of 14 VHF cases: for seven of them, CCHF was confirmed, while for the remaining cases the final diagnosis remained uncertain. Six of the VHF cases were in the 45–66 age group, and another six were in the over 65 years age group. The remaining two cases belonged to the 25–46 age group.

No information on the definitive cause of infection was available for the 15 VHF cases reported from Estonia, or the five cases of VHF reported from the United Kingdom.

No data on VHF were available for the Czech Republic, Luxembourg, Portugal, Spain or Liechtenstein.

Discussion

The group of VHF is a diverse one, and specifications on the exact cause of infection are not systematically provided. This makes it difficult to draw any conclusions. In 2005, apart from Hantavirus, no cases of VHF were reported.

Importation of VHF cases requires particular attention considering the need for urgent tracing of persons who have been in contact with the case during the infectious period, in order to prevent further spread.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-VHF	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-VHF	O	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

CHIKUNGUNYA

- There was a major outbreak of chikungunya in the Indian Ocean, involving French Overseas Territories (still a part of the EU).
- Several European Member States reported imported cases of chikungunya fever.

Epidemiological situation in 2006

In 2005–06, the French Overseas Department of La Réunion experienced a large outbreak of chikungunya fever, the epidemic peak of which was reached in early February 2006. A total of 266 000 cases are estimated to have occurred, corresponding to 35 % of the island's population; these figures were later confirmed by several seroprevalence studies. During 2006, 254 death certificates mentioning chikungunya were received by the local health authorities.

Mayotte, a French Overseas Collectivity, was also affected by the chikungunya epidemic in the same period. A total of 7 290 suspected or confirmed cases were reported by the medical professionals, although this figure underestimates the magnitude of the outbreak on the island. A seroprevalence study estimated that 38 % of the population was affected.

Following the outbreak in the Indian Ocean and later also India, several Member States reported imported cases of chikungunya fever in 2006.

Fifty-three cases of chikungunya were reported in Germany during 2006, all of which were imported. Chikungunya has been a notifiable disease in Germany since 2001.

Discussion

Before the outbreak in the Indian Ocean, chikungunya fever was a rather unknown and under-reported disease. The extent of the outbreak on the French island of La Réunion put chikungunya high up on the public health agenda, motivating Member States to strengthen surveillance, diagnostic capacity and outbreak preparedness. The European risk assessment carried out by ECDC in March 2006 played an important role in this increased awareness.

In France, chikungunya has been a notifiable disease since July 2006.

WEST NILE FEVER

- Although sporadic outbreaks of West Nile virus (WNV) have occurred within the European Union, data and reporting are scarce.
- In 2006, a total of four cases of West Nile Fever were reported (one in Hungary, two in Romania and one in the United Kingdom.

Epidemiological situation in 2006

Only the UK case was confirmed to be imported, whereas the two Romanian cases and the Hungarian case were of unknown origin. Of the four cases, WNV demonstrated no particular age pattern. However, all four of the cases were reported in the late summer, with two reported in August and two in September.

Discussion

Since the first large outbreak of West Nile virus in Romania in 1996, in which 835 patients were admitted to hospital and 393 had laboratory-diagnosed West Nile Fever[1], WNV has been recognised as a major public health concern in Europe. No vaccine is currently available, although several are in development and some have already been used to prevent equine infection[2].

Indigenous WNV outbreaks in the Czech Republic in 1997[3] and France in 2003[4] further demonstrated the need for awareness about WNV in the EU. Additionally, sporadic imported cases have been reported in several European countries over the past several years, with the origin of infection of most being the USA.

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Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	NOT NOTIFIABLE IN2006	—	—	—	—	—	—	—	—	—
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-VHF	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-WEST_NILE_VIRUS	V	Se	A	C	Y	Y	Y	Y	N
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-WEST_NILE_FEVER	Cp	Co	P	C	Y	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-WEST_NILE_FEVER	V	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

YELLOW FEVER

- There were no cases of imported yellow fever infections reported in the European countries, not even through the IHR (2005).
- Yellow fever has not caused any outbreaks in Europe for more than a century.
- In 2006 no cases were reported imported through travel from endemic regions.
- There is a theoretical risk of introduction of yellow fever virus and dissemination within Europe. Surveillance should continue in all Member States, in particular in areas where the vector is present and the risk for autochthonous virus transmission exists.
- Non-vaccinated travellers take a high risk without the effective protection of yellow fever 17D vaccination.

Epidemiological situation in 2006

For 2006, no cases of Yellow fever virus infection were reported from 27 countries (25 Member States, Iceland and Norway). No data were available from Denmark, Romania or Liechtenstein. In previous years one case of yellow fever was reported from Germany (1999) imported from Ivory Coast[1], and one case from Belgium (2001), imported from Gambia[2]. Both cases died. Ireland reported one case in 1998 and another in 1999, but no further information is available on the country of origin[3].

Table 3.4.3. Number of confirmed yellow fever cases and deaths in selected high risk countries, 2006[4]

Country	Cases	Deaths	Case fatality rate (%)
Cameroon	1	0	0
Central African Republic	1	0	0
Côte d'Ivoire	16	3	19
Ghana	1	0	0
Guinea	1	0	0
Mali	5	4	80
Togo	3	0	0
Bolivia	16	10	63
Brazil	2	2	100
Colombia	5	5	100
Peru	63	34	54

Source: WHO Weekly epidemiological record No 8, 2008, 83, 69-Epidemic and pandemic alert and response, 2006.

Worldwide outbreaks in 2006

In 2006, 114 confirmed cases of yellow fever, including 58 deaths (case fatality rate 51%) were reported from 11 countries to WHO (see Table 3.4.3).

Discussion

Yellow fever is commonly under-reported in the affected areas because the symptoms can be easily mistaken and most areas are lacking effective surveillance systems. WHO estimates that there are approximately 200 000 cases of yellow fever every year with 30 000 deaths[5].

Yellow fever is one of the diseases regulated by the IHR (2005) and considered to be a public health emergency of international concern. Vaccination is required for all travellers leaving an area from where there is risk of transmission. A country in which the yellow fever vector is present may require that a traveller coming from a country where the risk of transmission is present, and who is unable to produce a valid certificate of vaccination against yellow fever, is quarantined.

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Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-VHF	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	Y	Y	Y	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-YELLOW_FEVER	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-YELLOW_FEVER	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

3.5 VACCINE-PREVENTABLE DISEASES

Diphtheria, infection with *Haemophilus influenzae* type b, invasive pneumococcal infections, measles, invasive meningococcal disease, mumps, pertussis, poliomyelitis, rabies, rubella, tetanus.

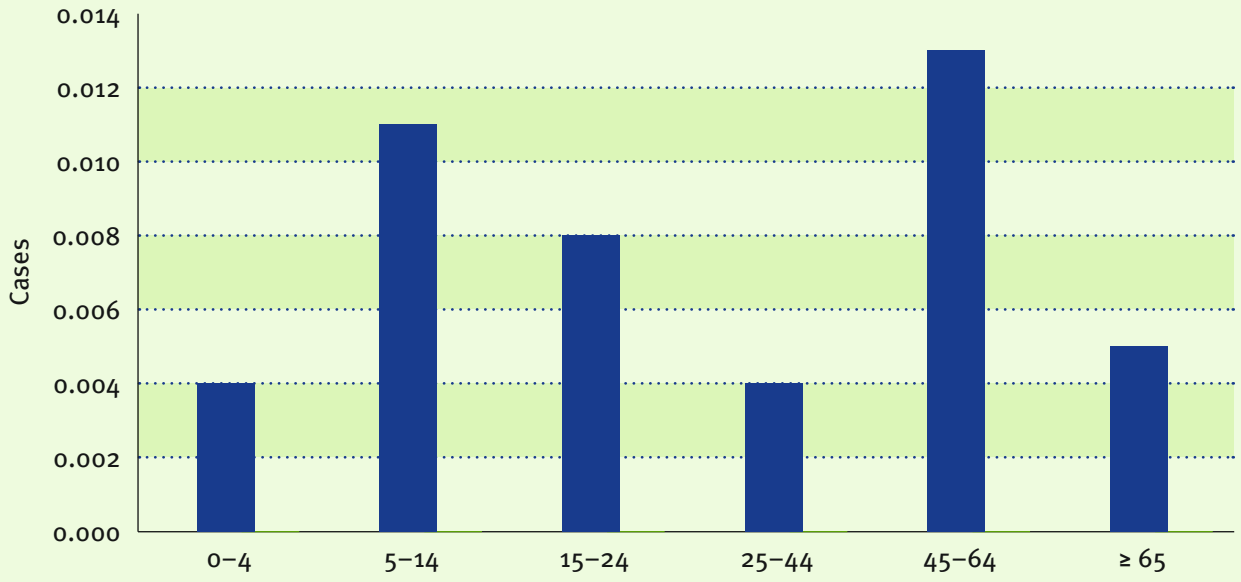
DIPHTHERIA

- In 2006, 38 cases were reported across the EU.
- 84 % of cases were reported from Latvia.
- The highest notification rates were observed among the 45–64 year-olds.
- The overall notification rate for diphtheria for 2006 in the EU is < 0.1 per 1 000 000.

Epidemiological situation in 2006

In 2006, 38 cases of diphtheria were reported and confirmed in just three countries of the EU and EEA/EFTA. Latvia reported 32 cases (84 % of the total) with a notification rate of 1.4 per 100 000. France and the United Kingdom each reported three cases. The European notification rate is 0.0086 per 100 000. No reports were available from Greece or Liechtenstein.

Figure 3.5.1. Age-specific notification rates of diphtheria cases in EU and EEA/EFTA countries, 2006 (n = 38)



Source: Country reports. France, Latvia and UK. All other reporting countries reported zero cases.

Table 3.5.1. Number and notification rate of reported diphtheria cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	U	0	0	0.0
Belgium	U	0	0	0.0
Bulgaria	U	0	0	0.0
Cyprus	U	0	0	0.0
Czech Republic	U	0	0	0.0
Denmark	U	0	0	0.0
Estonia	U	0	0	0.0
Finland	U	0	0	0.0
France	C	3	3	< 0.1
Germany	U	0	0	0.0
Greece	U	—	—	—
Hungary	C	0	0	0.0
Ireland	U	0	0	0.0
Italy	U	0	0	0.0
Latvia	C	32	32	1.4
Lithuania	U	0	0	0.0
Luxembourg	U	—	—	—
Malta	U	0	0	0.0
Netherlands	U	0	0	0.0
Poland	U	0	0	0.0
Portugal	U	0	0	0.0
Romania	U	0	0	0.0
Slovakia	C	0	0	0.0
Slovenia	U	0	0	0.0
Spain	U	—	—	—
Sweden	U	0	0	0.0
United Kingdom	C	3	3	< 0.1
EU total		38	38	0.0087
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	U	0	0	0.0
Total		38	38	0.0086

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Age and gender distribution

The highest notification rate rates were observed in the 45–64 year-olds (0.013 per 100 000), followed by the 5–14 year-olds (0.011 per 100 000). Fourteen cases were observed in males and 24 cases in females with a ratio of 1:1.7.

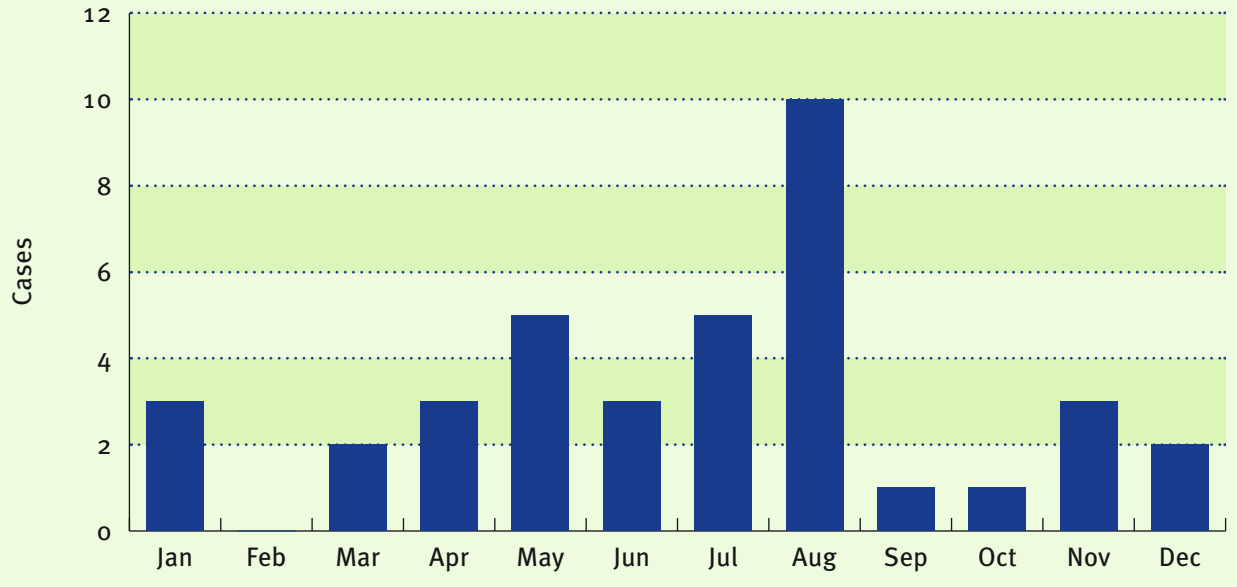
Seasonality

In Latvia, the notification rate of diphtheria peaked in August with nine cases, but seasonal trends cannot be considered reliable due to the small number of cases.

Discussion

The notification rate for diphtheria has decreased greatly all over Europe during the past 10 years. Most of the cases that have occurred were seen in Latvia (84 %), probably the tail end of a larger epidemic seen in the Baltic region in previous years. Currently, Latvia is still observing cases, although this is more or less the same rate as in previous years.

Figure 3.5.2. Seasonal distribution of diphtheria cases in EU and EEA/EFTA countries, 2006 (n = 38)



Source: Country reports. France, Latvia and UK. All other reporting countries reported zero cases.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-ANTH/CHOL/DIPH/ MALA/ SPOX/TRIC/TULA/TYPH	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-INVESTIGATIONFORMS	—	—	—	—	—	—	—	—	—
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-DIPHTERIA	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-DIPHTHERIA	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

HAEMOPHILUS INFLUENZAE TYPE B

- Most EU countries have implemented universal *Haemophilus influenzae* type b (Hib) vaccination.
- Since the introduction of the Hib vaccine, the incidence has fallen and continues to be low for the whole population in EU countries (below one per 100 000).

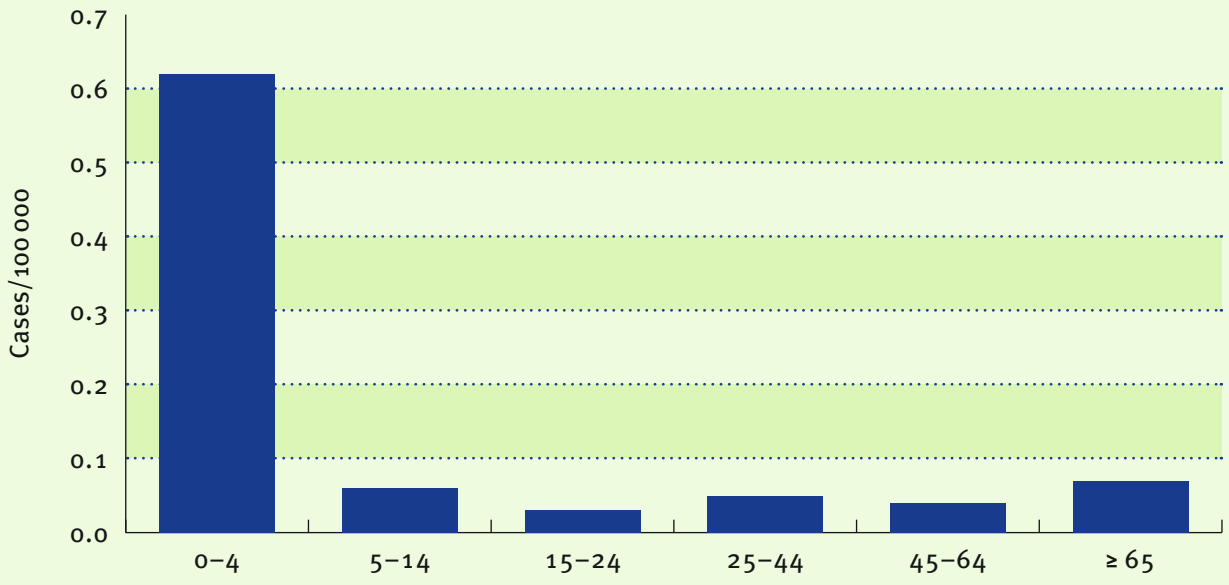
Epidemiological situation in 2006

In 2006, there were 417 confirmed cases out of the 427 cases reported by 27 countries (France, Romania and Liechtenstein did not report). As in 2005, Estonia reported the highest notification rates with 1.5 per 100 000, followed by Ireland with 0.33 per 100 000. The overall notification rate was 0.07 per 100 000, with Bulgaria, Cyprus, Hungary, Latvia, Luxembourg, Malta, Slovenia and Iceland reporting zero cases.

Age and gender distribution

The most affected age group were the 0–4 year-old children with a notification rate of 0.62 per 100 000, representing slightly more

Figure 3.5.3. Age-specific notification rates of invasive *Haemophilus influenzae* type b cases in EU and EEA/EFTA countries, 2006 (n = 226 cases)



Source: Country reports. Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, Greece, Ireland, Italy, Lithuania, Netherlands, Portugal, Slovakia, Spain, UK and Norway. Bulgaria, Cyprus, Hungary, Latvia, Luxembourg, Malta, Slovenia and Iceland reported zero cases. (Data from Sweden excluded).

Table 3.5.2. Number and notification rate of reported invasive *Haemophilus influenzae* type b cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	1	1	< 0.1
Belgium	C	3	3	< 0.1
Bulgaria	U	0	0	0.0
Cyprus	U	0	0	0.0
Czech Republic	C	12	12	0.12
Denmark	C	4	4	< 0.1
Estonia	C	20	20	1.5
Finland	C	2	2	< 0.1
France	U	—	—	—
Germany	C	12	12	< 0.1
Greece	C	3	3	< 0.1
Hungary	C	0	0	0.0
Ireland	C	14	14	0.33
Italy	C	2	2	< 0.1
Latvia	C	0	0	0.0
Lithuania	C	11	2	< 0.1
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	C	24	24	0.15
Poland	A	54	53	0.14
Portugal	C	7	7	< 0.1
Romania	U	—	—	—
Slovakia	C	5	5	< 0.1
Slovenia	U	0	0	0.0
Spain	U	4	4	< 0.1
Sweden[a]	C	123	123	—
United Kingdom	C	124	124	0.21
EU total		425	415	0.07[b]
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	C	2	2	< 0.1
Total		427	417	0.07[b]

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

(a) The total number of invasive Haemophilus influenzae cases (not only type b) is presented for Sweden. Of 37 cases with known serotype, 15 of them were reported as type b infection.

(b) Rate excludes Swedish data.

than one third of all the 226 cases with known age information. The second highest notification rate was observed in the population aged 65 years and over (0.07 per 100 000). In the youngest age group the notification rate was highest in Estonia with 13.5 per 100 000 cases, and in the elderly group (≥ 65 years old) the highest notification rates were also reported by Estonia with 2.7 per 100 000.

There were more infections reported in males (121 cases, 54 %) than in females (102 cases, 46 %) with notification rates of 0.09 and 0.07 per 100 000, respectively.

Seasonality

As expected there were more infections observed during the early winter months.

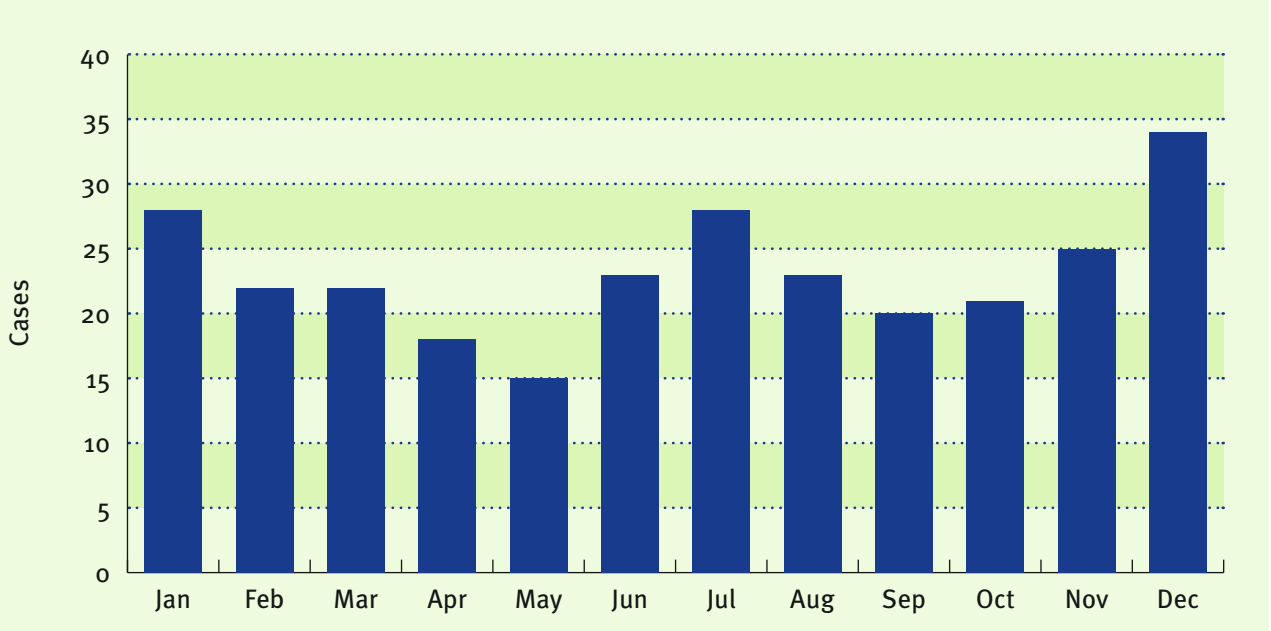
Enhanced surveillance in 2006

The EU-IBIS surveillance network was started in 1999. In 2006 it collected data from 24 European and two non-European countries. The 2006 report concluded that in general the *Haemophilus influenzae* notification rate continued to be low across Europe for the whole population, with only some countries showing an notification rate above one per 100 000, especially in the younger age groups.

Discussion

Some countries continue to show a relatively high notification rate in the youngest age group – despite introduction of the Hib vaccine – and to a lesser extent also for the elderly compared with other age groups.

Figure 3.5.4. Seasonal distribution of *Haemophilus influenzae* type b cases in EU and EEA/EFTA countries, 2006 (n = 279)



Source: Country reports. Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, Greece, Ireland, Italy, Lithuania, Netherlands, Poland, Portugal, Slovakia, Spain, UK and Norway. Bulgaria, Cyprus, Hungary, Latvia, Luxembourg, Malta, Slovenia and Iceland reported zero cases. (Data from Sweden excluded).

This could reflect a genuinely high number of cases or could equally be the result of enhanced surveillance measures. Similarly, zero cases could be the real case number or simply the result of a weak surveillance.

In summary, the country data for 2006 did not show any remarkable differences from the data for the previous years. *Haemophilus influenzae* type b infections continue to affect mostly the youngest and the oldest in the population. However, even for these groups, it remains a relatively rare disease.

References

1. Ramsay M, Slack M, Chandra M. EU-IBIS Network: Invasive *Haemophilus influenzae* in Europe 2006. London: Health Protection Agency; 2006. Available from: http://www.euibis.org/documents/2006_hib.pdf

Surveillance systems overview

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (CB)/Aggregated(A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Czech Republic	CZ-HIB	Cp	Co	A	C	Y	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-HIB	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_REFERENCE_CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1	Cp	Co	P	C	Y	N	N	N	Y
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N

Surveillance systems overview *continued*

Country	Data source	Compulsory (Cp)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive (P)	Case-Based (CB)/Aggregated(A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Hungary	HU-EFRIR	Cp	Co	P	C	Y	Y	Y	—	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-HIB/MENINGOCOCCAL	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-MENINGITIS	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-MENINGITIS/SEPTICAEMIA	V	Co	P	C	Y	N	N	N	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-HAEMOPHILUS_INFLUENZAE	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-HIB	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

INVASIVE PNEUMOCOCCAL DISEASE (IPD)

- The systems of notification of invasive pneumococcal disease vary widely. In several countries there are no surveillance systems for pneumococcal diseases at all[3].
- Several European countries have introduced the heptavalent pneumococcal vaccine (PCV7) in their vaccination schedules, at least for high risk groups[1].
- There are concerns regarding the possibility that common serotypes are being replaced by serotypes not covered by PCV7 after introduction of the vaccine, as has already been observed in the United States. This reinforces the importance of surveillance systems covering not only the disease but also the serotype distribution[2,3].

Epidemiological situation in 2006

In 2006, 14 215 cases, with 14 172 cases confirmed, were reported by 21 countries (three reported zero cases). Due to the wide differences in notification practices — some countries refer only to pneumococcal meningitis — and due to the lack of surveillance systems for invasive pneumococcal disease in several countries, these numbers should be considered as rough estimates and be interpreted with caution. The overall rate for these reporting countries was 6.1 per 100 000 in 2006, with the highest rates being reported by Norway (21.7 per 100 000), Sweden (14.7 per 100 000), Finland (14.2 per 100 000) and Belgium (14.1 per 100 000).

Age and gender distribution

The most affected groups were the youngest (under five years) and the oldest (65 years and over) with notification rates of 15.6 and 19.6 per 100 000, respectively. The rates appear to be much lower for school children and young adults and then appear to start increasing again with age.

Information on gender was available for 13 751 cases, with 7 523 cases reported in males (8.2 per 100 000) and 6 228 cases reported in females (6.5 per 100 000).

Seasonality

The seasonal distribution of pneumococcal disease follows a pattern common to other respiratory diseases. The lowest rates were observed during summer. They then increased rapidly in autumn and winter, reaching a peak in March.

Enhanced surveillance in 2006

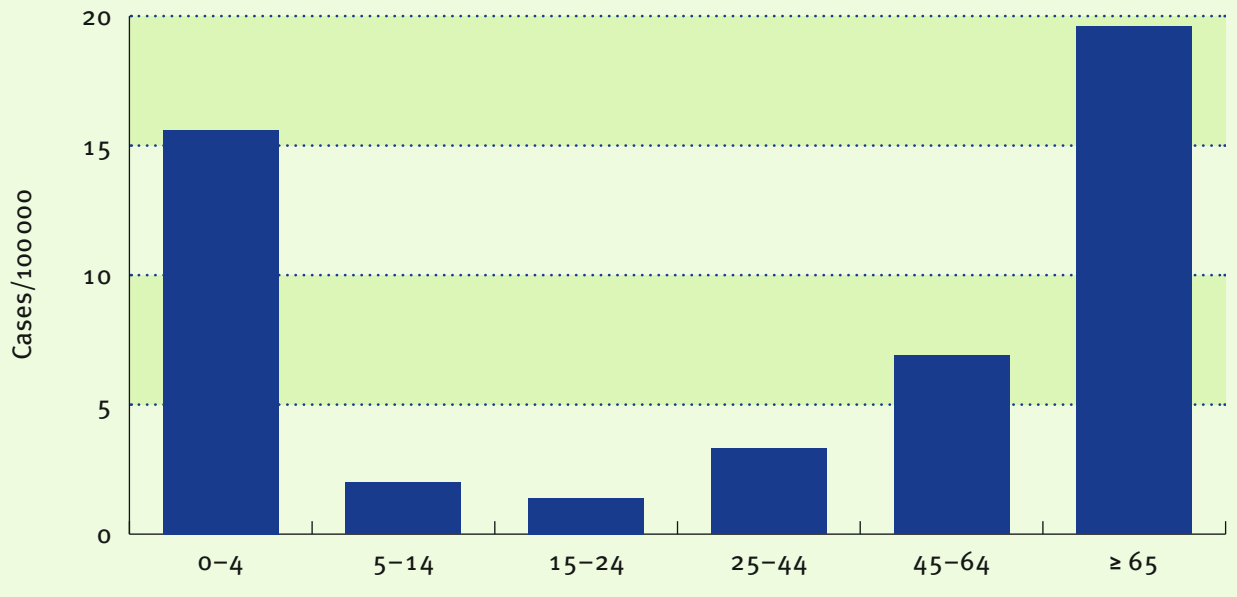
The main objective of the EU-funded project Pnc-Euro was to investigate the epidemiology of *Streptococcus pneumoniae* prior to the introduction of the conjugate vaccines. In 2006 the project performed a survey for updating the information on pneumococcal

Table 3.5.3. Number and notification rate of reported invasive pneumococcal disease cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	163	141	1.7
Belgium	C	1484	1484	14.1
Bulgaria	A	1	1	< 0.1
Cyprus	C	7	7	0.91
Czech Republic	C	192	192	1.9
Denmark	C	92	92	1.7
Estonia	A	37	37	2.8
Finland	C	745	745	14.2
France	U	—	—	—
Germany	U	—	—	—
Greece	U	—	—	—
Hungary	C	56	56	0.56
Ireland	C	407	407	9.7
Italy	U	—	—	—
Latvia	C	0	0	0.0
Lithuania	C	13	10	0.29
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	U	—	—	—
Poland	A	214	196	0.51
Portugal	U	—	—	—
Romania	U	—	—	—
Slovakia	C	44	44	0.82
Slovenia	C	13	13	0.65
Spain	C	2587	2587	5.9
Sweden	C	1334	1334	14.7
United Kingdom	C	5820	5820	9.6
EU total		13209	13166	5.8
Iceland	U	—	—	—
Liechtenstein	U	—	—	—
Norway	C	1006	1006	21.7
Total		14215	14172	6.0

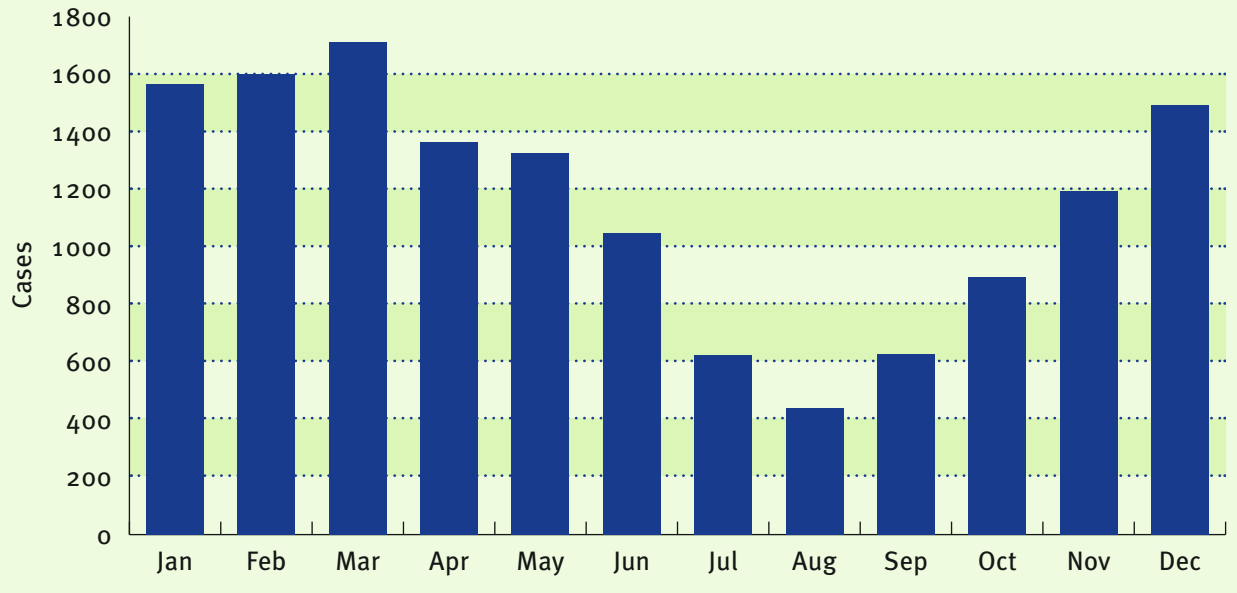
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.5.5. Age-specific notification rates of invasive pneumococcal disease in EU and EEA/EFTA countries, 2006 (n = 13798)



Source: Country reports. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Hungary, Ireland, Lithuania, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Latvia, Luxembourg and Malta reported zero cases.

Figure 3.5.6. Seasonal distribution of invasive pneumococcal disease cases in the EU and EEA/EFTA countries, 2006 (n = 13885)



Source: Country reports: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Hungary, Ireland, Lithuania, Poland, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Latvia, Luxembourg and Malta reported zero cases.

surveillance practice in the EU[3]. Responses were received from 22 of 27 countries. Several countries stated that reporting pneumococcal disease was not mandatory, limiting the completeness of the surveillance reports. Four of the respondents had no surveillance system at all for pneumococcal disease. Some countries had established reporting systems for pneumococcal meningitis only. All in all, the surveillance systems were very heterogeneous throughout Europe, contributing to large inter-country variations in incidence and limiting the reliability of EU-wide statements.

Discussion

The incidence rate varied widely between countries, ranging from 0.0 to 14.7 per 100 000, probably reflecting EU-wide differences in case definition, surveillance and reporting rather than any true inter-country incidence variation.

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3. Pebody RG, Hellenbrand W, D'Ancona F, Ruutu P. Pneumococcal disease surveillance in Europe. Euro Surveill. 2006;11(9):pii=646. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=646

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-PEDISURV	V	Co	A	C	Y	Y	Y	Y	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Estonia	EE-PNEUMOCOCC	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-EPIBAC	V	Se	A	C	Y	N	Y	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-ORP	V	Co	A	C	Y	N	N	N	Y
Germany	DE_ESPED_Labsent_Children	V	Se	A	C	Y	N	Y	N	Y
Greece	GR-LABORATORY	V	O	P	A	Y	N	Y	N	N
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-ARISS	V	Se	P	C	Y	N	N	N	N
Italy	IT-MENINGITIS	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-MENINGITIS/SEPTICAEMIA	V	Co	P	C	Y	N	N	N	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-MICROBIOLOGICAL	V	Se	P	C	Y	N	N	N	N
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-PNEUMOCOCCAL	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

MEASLES

- Even though there is an overall decreasing trend over the last decade, measles is still a public health priority with the potential for outbreaks in the EU.
- 7 232 confirmed cases and six deaths related to measles were reported in 2006 in the EU.
- There are still only a few countries (seven) reporting zero cases of measles despite a commitment to eliminating measles from the region.

Epidemiological situation in 2006

A total of 8 433 cases were reported in 2006, of which 7 232 cases were confirmed by 29 countries (Liechtenstein did not report), with an overall rate of 1.45 per 100 000. Only Cyprus, Finland, Portugal, Slovakia, Slovenia, Iceland and Norway reported zero cases. Six other countries reported rates below one per million population. The highest notification rates were reported by Romania (16.3 per 100 000), Greece (2.3 per 100 000) and Estonia (2.01 per 100 000).

The total number of confirmed cases has been higher than in 2005 (n = 1 291) while the overall rate was much higher. Only Finland, Slovenia and Iceland have achieved uninterrupted 'zero reporting' for, at least, three years (2004–06).

Age and gender distribution

The most affected age group was the 0–4 year-olds (13.5 cases per 100 000) followed by the 5–14 year-olds with 3.7 per 100 000. Age-specific notification rates are relatively high up to 25 years, suggesting a significant circulation of the measles virus among adolescents and young adults as well.

There was no difference in the overall rates between males (1.5 per 100 000) and females (1.4 per 100 000).

Seasonality

Even though the date of reporting is unknown for 911 cases, a typical seasonal distribution of measles cases can be observed, with a clear spring peak.

Enhanced surveillance in 2006

A total of 8 213 cases were reported to EUVAC.NET in 2006, including 106 cases from Switzerland, Croatia and Turkey and of these, 74 % were confirmed[1].

According to EUVAC.NET no indigenous cases were reported from 11 countries: Bulgaria, Croatia, Cyprus, Finland, Hungary, Iceland, Malta, Norway, Portugal, Slovakia and Slovenia.

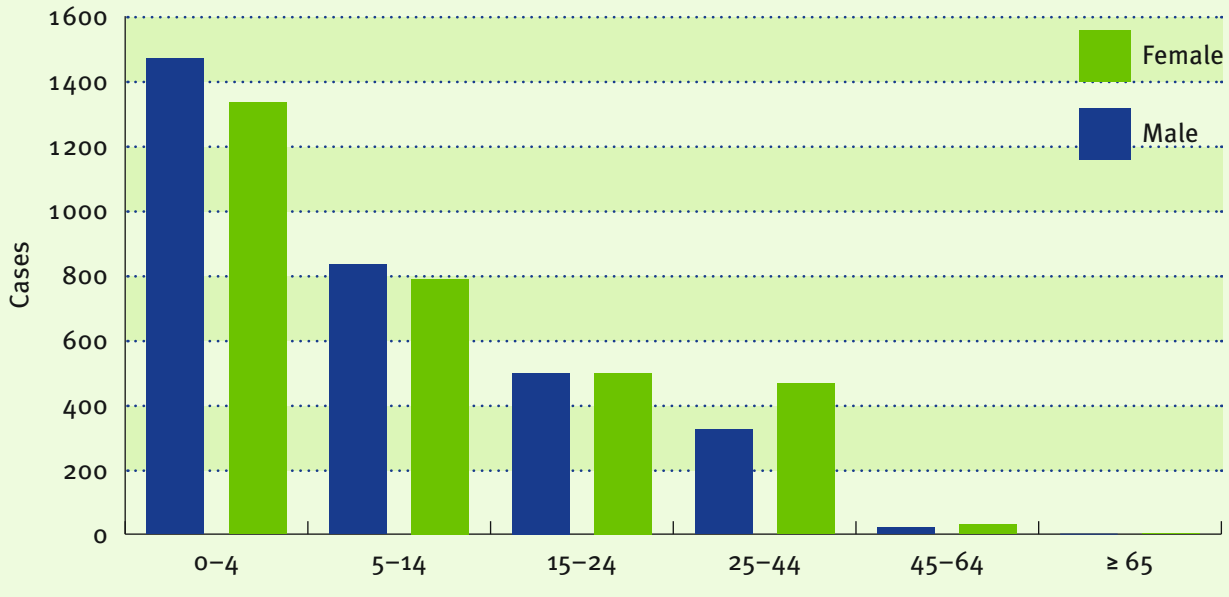
Table 3.5.4. Number and notification rate of reported measles cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	25	15	0.18
Belgium	C	15	15	0.14
Bulgaria	C	1	1	< 0.1
Cyprus	U	0	0	0.0
Czech Republic	C	7	7	< 0.1
Denmark	C	27	27	0.50
Estonia	C	27	27	2.0
Finland	U	0	0	0.0
France	C	45	45	< 0.1
Germany	C	2 307	1 475	1.8
Greece	C	522	257	2.3
Hungary	C	1	1	< 0.1
Ireland	C	83	24	0.57
Italy	C	563	563(a)	0.96
Latvia	C	7	6	0.26
Lithuania	C	1	1	< 0.1
Luxembourg	C	8	8	1.7
Malta	C	1	1	0.25
Netherlands	C	1	1	< 0.1
Poland	C	120	90	0.24
Portugal	U	0	0	0.0
Romania	C	3 524	3 524	16.3
Slovakia	C	0	0	0.0
Slovenia	U	0	0	0.0
Spain	C	363	363	0.83
Sweden	C	19	19	0.21
United Kingdom	C	766	762	1. 3
EU total		8 433	7 232	1.47
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	U	0	0	0.0
Total		8 433	7 232	1.45

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

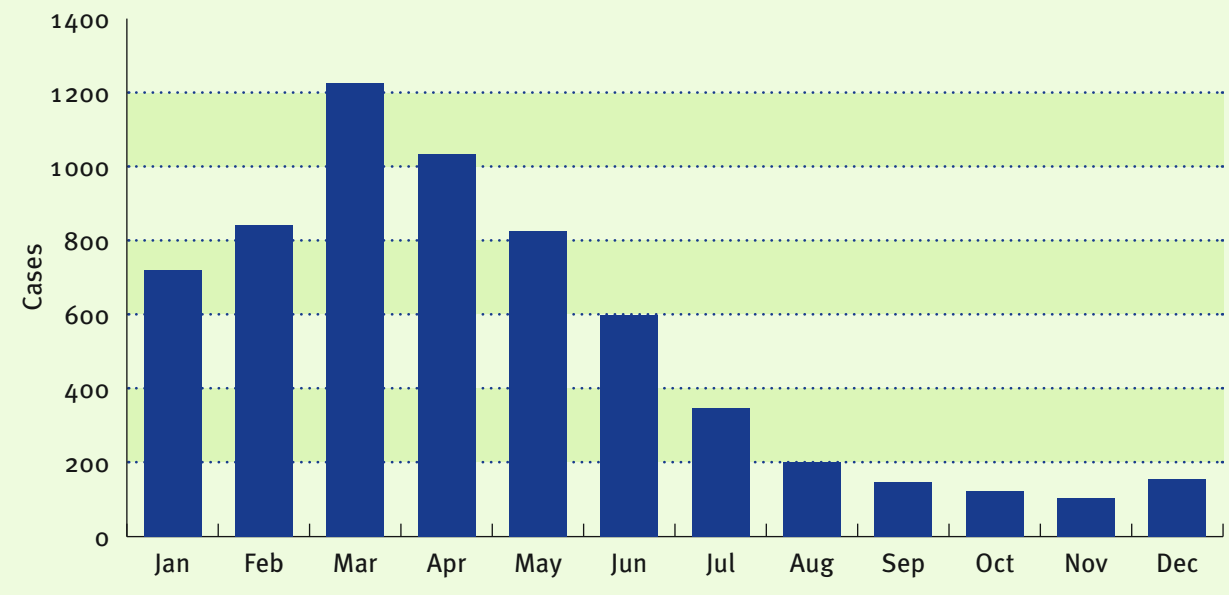
(a) These cases are confirmed by clinicians and not necessarily by laboratory means.

Figure 3.5.7. Distribution of measles cases by age and gender in EU and EEA/EFTA countries, 2006 (n = 6 279)



Source: Country reports: Austria, Bulgaria, Czech Republic, Denmark, Estonia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Romania, Spain, Sweden and UK. Cyprus, Finland, Portugal, Slovakia, Slovenia, Iceland and Norway reported zero cases.

Figure 3.5.8. Seasonal distribution of measles cases in EU and EEA/EFTA countries, 2006 (n = 6 322)



Source: Country reports. Austria, Bulgaria, Czech Republic, Denmark, Estonia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Romania, Spain, Sweden and UK. Cyprus, Finland, Portugal, Slovakia, Slovenia, Iceland and Norway reported zero cases.

Importation status was known in 70 % of case-based reports. Of these, there were 126 imported cases amounting to 4 % of case-based reports with known importation status. Sixty-four cases (51 %) were imported from another European country.

Information on known vaccination status was provided for 89 % of all reported measles cases. Overall, 77 % of those with a known vaccination status were unvaccinated.

In 2006, six deaths and 10 encephalitis cases were attributed to measles corresponding to an overall rate of 73 and 122 per 100 000 measles cases respectively. The deaths were reported from Romania (3), Germany (2) and the UK (1).

Discussion

Measles is still a major issue for several EU countries. Less than half the EU Member States have achieved zero or very low indigenous circulation of measles. In 2006, six deaths related to measles were reported in three EU countries (Germany, Romania and the United Kingdom). Most of the reported cases were indigenous: only 4 % of measles cases were imported, mostly from another EU country.

The high rate of unvaccinated cases (about 80 %) is clearly the result of sub-optimal vaccine coverage in the affected countries.

References

1. [No author listed]. Measles surveillance annual report 2006. Copenhagen: A Surveillance Community Network for Vaccine-Preventable Infectious Diseases (EUVAC); 2008. Available from: http://www.euvac.net/graphics/euvac/pdf/annual_2006.pdf

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-PEDISURV	V	Co	A	C	Y	Y	Y	Y	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-MEASLES, POLIO	Cp	Co	P	C	Y	Y	Y	Y	Y
Estonia	EE-MEASLES_POLIO	—	—	—	—	—	—	—	—	—
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-SENTINELLES	V	Se	A	C	N	Y	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Greece	GR-SENTINEL	V	Se	P	A	N	Y	N	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-MEASLES	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Italy	IT-SPES	V	Se	P	C	N	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-INVESTIGATIONFORMS	—	—	—	—	—	—	—	—	—

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-MEASLES	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-MEASLES	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

INVASIVE MENINGOCOCCAL DISEASE

- Most invasive diseases are caused by the serogroups B and C. The vaccine in common use covers only serogroup C.
- The overall notification rate in 2006 was 0.98 per 100 000.
- The notification rates of both serogroups B and C decrease with age, and adults older than 25 years rarely experience disease.

Epidemiological situation in 2006

In 2006, 5 383 cases, of which 4 877 cases were confirmed, were reported by all countries, except Liechtenstein. As in 2005, Malta and Ireland reported the highest notification rates with 4.4 per 100 000 and 4.1 per 100 000, respectively. The overall notification rate for the total of the reporting countries was 0.98 per 100 000, continuing the slight declining trend observed since 2000.

Age and gender distribution

Of the 4 834 cases with known age, 45 % were seen in children under five years old. This age group had the highest notification rate of 8.6 per 100 000, followed by the 15–24 year-olds with a notification rate of 1.4 per 100 000. In the older age groups the disease was much rarer. In the youngest age group the notification rate was highest in Ireland with 31.3 per 100 000 cases, followed by the United Kingdom with 21.2 and Lithuania with 13.2 per 100 000. The highest notification rate in the young adults age group (15–24 years old) was reported by Malta with 10.3 cases per 100 000, which also reported a similar rate for their 0–4 year-old children (10.1 per 100 000).

Information on gender was available for 4 780 cases. This showed a slightly higher rate in males: 1.09 against the 0.86 per 100 000 seen in females (2 610 cases and 2 170 cases respectively).

Seasonality

Similar to the pattern observed in 2005, the notification rate was lowest during the summer, rising again during autumn to a peak in winter and then falling again during spring. The highest notification rate was observed in the first three months of the year.

Enhanced surveillance in 2006

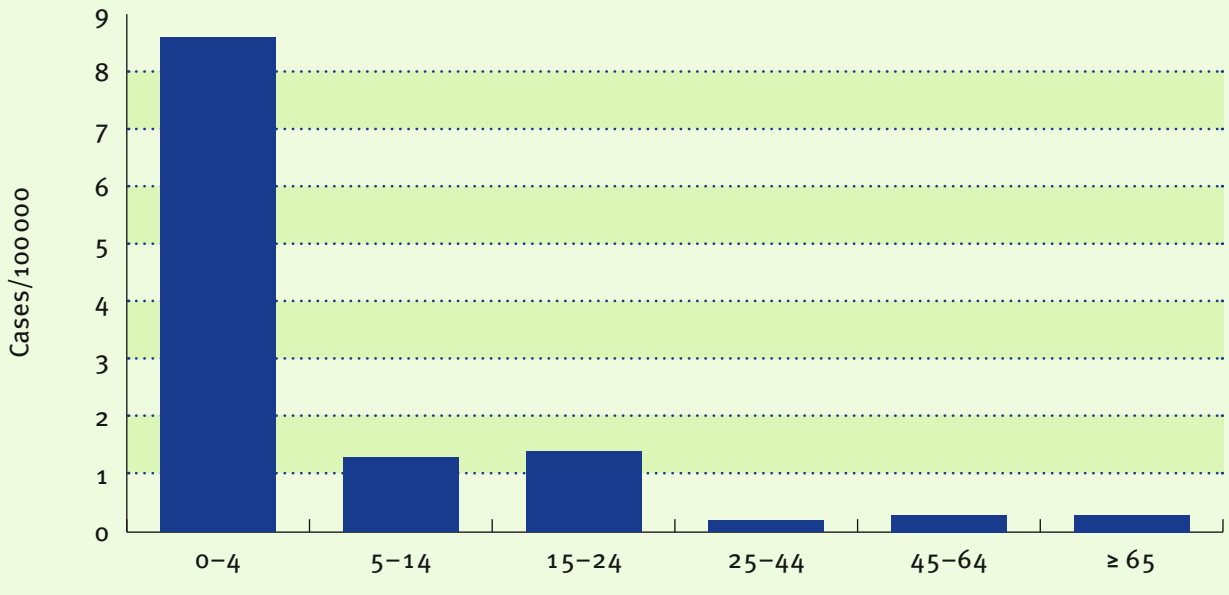
The EU-IBIS surveillance network was started in 1999. In 2006 it collected data from 24 EU and two non-EU countries. According to their 2006 report, serogroups B and C remained the major cause of invasive disease in Europe, with B being particularly prevalent in those under 20 years of age. The notification rate of both serogroups B and C decreases with age, and older adults of

Table 3.5.5. Number and notification rate of reported invasive meningococcal cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	76	72	0.87
Belgium	C	138	138	1.3
Bulgaria	A	39	39	0.51
Cyprus	C	3	3	0.39
Czech Republic	C	79	79	0.77
Denmark	C	78	78	1.4
Estonia	C	11	11	0.82
Finland	C	45	45	0.86
France	C	714	714	1.1
Germany	C	555	555	0.67
Greece	C	105	105	0.94
Hungary	C	35	32	0.32
Ireland	C	210	174	4.1
Italy	C	144	144	0.25
Latvia	C	12	8	0.35
Lithuania	C	77	45	1.3
Luxembourg	C	2	2	0.43
Malta	C	35	18	4.4
Netherlands	C	175	169	1.0
Poland	C	233	199	0.52
Portugal	C	132	103	1.0
Romania	C	145	145	0.67
Slovakia	C	36	36	0.67
Slovenia	C	11	11	0.55
Spain	C	801	595	1.4
Sweden	C	52	52	0.57
United Kingdom	C	1401	1266	2.1
EU total		5344	4838	0.98
Iceland	C	4	4	1.3
Liechtenstein	U	—	—	—
Norway	C	35	35	0.75
Total		5383	4877	0.98

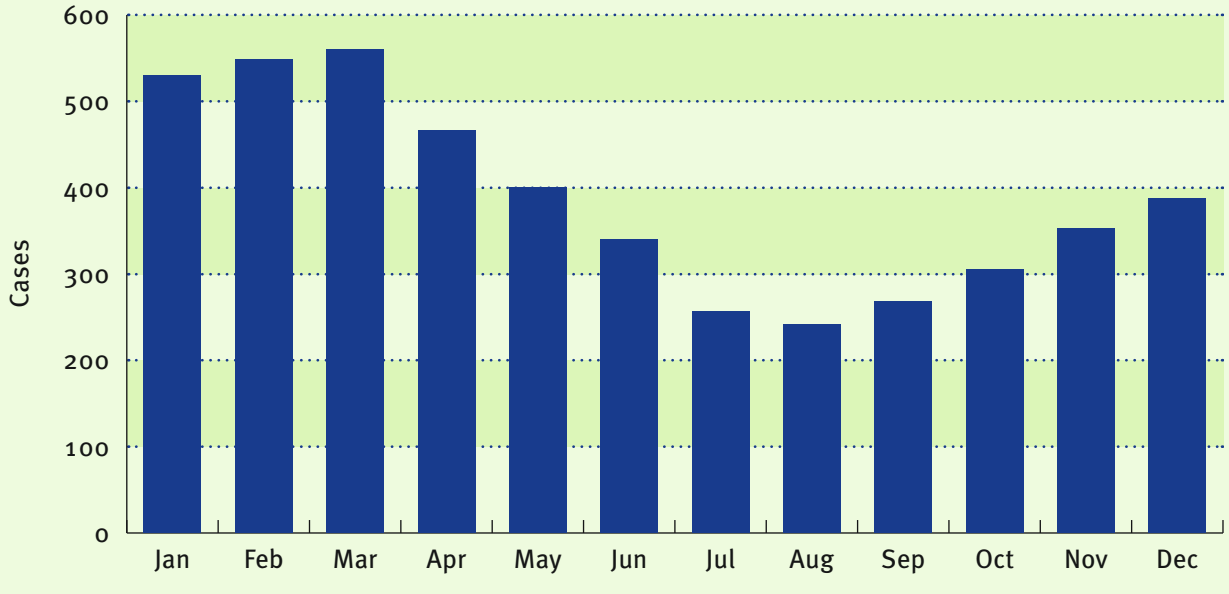
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.5.9. Age-specific notification rates of invasive meningococcal disease cases in EU and EEA/EFTA countries, 2006 (n = 4834)



Source: Country reports. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway.

Figure 3.5.10. Seasonal distribution of meningococcal disease cases in EU and EEA/EFTA countries, 2006 (n = 4656)



Source: Country reports: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, UK, Iceland, and Norway.

25 years and over rarely experience the disease. The overall rate was 1.1 per 100 000, and the decline in 2006 in comparison to the previous years is small.

Discussion

The notification rate varies widely between countries, ranging from 0.25 to 4.4 per 100 000. These numbers reflect real differences in incidence, but also differences between surveillance systems and are certainly partly due to the variation in the methods used for confirming suspected cases. Considering the reported data for recent years, there appears to have been an overall decline in incidence since 2000, although this is less marked if considering the EU-IBIS data only.

References

Ramsay M, Fox A, Chandra M. EU-IBIS Network: Invasive *Neisseria meningitidis* in Europe 2006. London: Health Protection Agency; 2006. Available from: http://www.euibis.org/documents/2006_meningo.pdf

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Czech Republic	CZ-IMO	Cp	Co	A	C	Y	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-MENINGOCOCC	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-EPIBAC	V	Se	A	C	Y	N	Y	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-HIB/MENINGOCOCCAL	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-MENINGITIS	Cp	Co	P	C	N	Y	Y	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-MENINGITIS/SEPTICAEMIA	V	Co	P	C	Y	N	N	N	Y
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-MENINGOCOCAL	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-MENINGOCOCCAL	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

MUMPS

- Mumps is the vaccine-preventable disease that still presents the highest notification rates across Europe.
- The overall trend is decreasing because of improvements in the use of the measles, mumps and rubella (MMR) vaccine.
- High notification rates are seen among adolescents and young adults.

Epidemiological situation in 2006

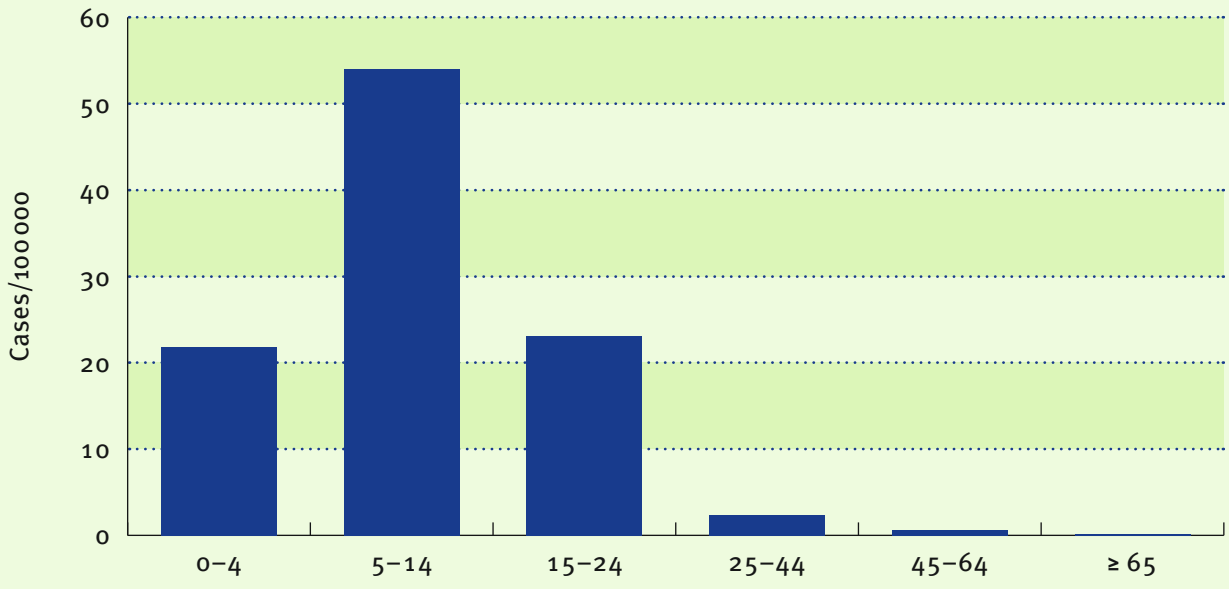
A total of 50 074 cases of mumps were reported, and 29 269 confirmed in 2006 by 25 countries (Belgium, France, Germany, the Netherlands and Liechtenstein did not report). Only Cyprus and Luxembourg reported zero cases. The highest notification rates were reported by Romania (67.9 per 100 000), the Czech Republic (38.7), Bulgaria (11.8) and the UK (10.2).

The overall notification rate of reported mumps cases (8.99 per 100 000) was lower than in 2005 (17.6 per 100 000).

Age and gender distribution

The most affected age group was the 5–14 year-olds (54 cases per 100 000), followed by the 15–24 year-olds (23.1 cases per 100 000) (Figure 3.5.11), though this might be the result of increased focus of surveil-

Figure 3.5.11. Age-specific notification rates of mumps cases in EU and EEA/EFTA countries, 2006 (n = 29 106)



Source: Country reports: Austria, Bulgaria, Czech Republic, Denmark, Estonia, Finland, Greece, Ireland, Italy, Latvia, Malta, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Cyprus and Luxembourg reported zero cases.

Table 3.5.6. Number and notification rate of reported mumps cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	227	227	2.8
Belgium	U	—	—	—
Bulgaria	A	911	911	11.8
Cyprus	U	0	0	0.0
Czech Republic	C	5 172	3 969	38.7
Denmark	C	12	11	0.20
Estonia	A	17	17	1.3
Finland	C	8	8	0.15
France	U	—	—	—
Germany	U	—	—	—
Greece	C	48	3	< 0.1
Hungary	C	30	7	< 0.1
Ireland	C	265	209	5.0
Italy	C	1 406	1 406(a)	2.4
Latvia	C	6	2	< 0.1
Lithuania	A	74	74	2.2
Luxembourg	U	0	0	0.0
Malta	C	1	1	0.25
Netherlands	U	—	—	—
Poland	A	15 115	20	< 0.1
Portugal	C	193	34	0.32
Romania	C	14 671	14 671	67.9
Slovakia	C	17	13	0.24
Slovenia	C	23	4	0.20
Spain	C	5 636	1 440	3.3
Sweden	C	60	60	0.66
United Kingdom	C	6 129	6 129	10.1
EU total		50 021	29 216	9.1
Iceland	C	29	29	9.7
Liechtenstein	U	—	—	—
Norway	C	24	24	0.52
Total		50 074	29 269	9.0

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

(a) These cases are confirmed by clinicians and not necessarily by laboratory means.

lance activities on the disease among adolescents and young adults.

Of the 13 413 cases with information on gender, the notification rates were seen to be higher among males (6.5 per 100 000) than females (4.5 per 100 000), with a male to female ratio of 1.4:1.

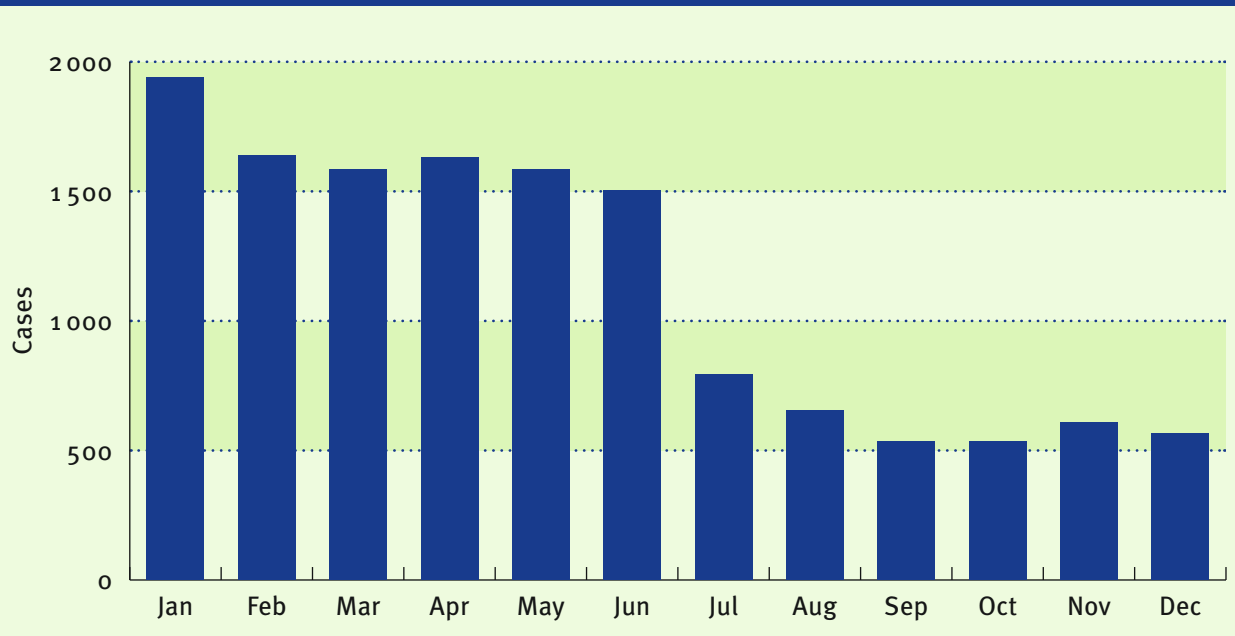
Seasonality

The month of reporting was unknown in 54 % of cases. Those cases for which seasonal data were available show a clear increase during the winter, extending into the spring, with a peak in January.

Discussion

Mumps is the vaccine-preventable disease that still presents the highest notification rates across Europe. Nevertheless, mumps incidence in 2006 has been the lowest reported since 1995. This could be the result of the improvements achieved by the MMR vaccine programmes (use of trivalent vaccine and introduction of the two-dose schedule).

Figure 3.5.12. Seasonal distribution of mumps cases in EU and EEA/EFTA countries, 2006 (n = 13 570)



Source: Country reports. Austria, Bulgaria, Czech Republic, Denmark, Finland, Greece, Ireland, Italy, Latvia, Malta, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Cyprus and Luxembourg reported zero cases.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-PEDISURV	V	Co	A	C	Y	Y	Y	Y	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-MUMPS	Cp	Co	P	A	N	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-SENTINELLES	V	Se	A	C	N	Y	N	N	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Greece	GR-SENTINEL	V	Se	P	A	N	Y	N	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-VPD_EU_CASE_DEFINITIONS	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Italy	IT-SPES	V	Se	P	C	N	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-INVESTIGATIONFORMS	—	—	—	—	—	—	—	—	—
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-MUMPS	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-MUMPS	O	O	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

PERTUSSIS

- All European countries have integrated the pertussis vaccine into their routine vaccination schedules, usually in combination with diphtheria and tetanus vaccine (DTP).
- In most countries the acellular pertussis (aP) vaccine is used.
- After a period of stability, the notification rate appears to have increased slightly in some EU countries since 2003.

Epidemiological situation in 2006

In 2006, 17 259 cases were reported by 27 countries, of which 15 987 cases were confirmed (France, Germany and Liechtenstein did not report). The overall notification rate for the total of the reporting countries was 4.5 per 100 000 in 2006. The highest notification rate was reported by Norway with 142 per 100 000, more than 30 times the European average, followed by the Netherlands with 25.6 per 100 000 and Slovenia with 22.3 per 100 000. Only Luxembourg reported zero cases. Rates vary widely in the countries also due to the differing degree of effort by clinicians to confirm probable cases.

Age and gender distribution

The most affected group were the 5–14 year olds (17.3 per 100 000), although this is strongly influenced by the large numbers reported by Norway (41 % of all cases in this age group). Norway reported a rate of 373.4 per 100 000 in their 5–14 year-olds.

The second most affected age group were children under five years old with a rate of 12.8 per 100 000 (Figure 3.5.13).

Of the 14 170 cases with information on gender, 45 % were in males (4.4 per 100 000) and 55 % in females (5.1 per 100 000).

Seasonality

Pertussis showed only a slight tendency to an increasing notification rate during the autumn and winter in 2006.

Discussion

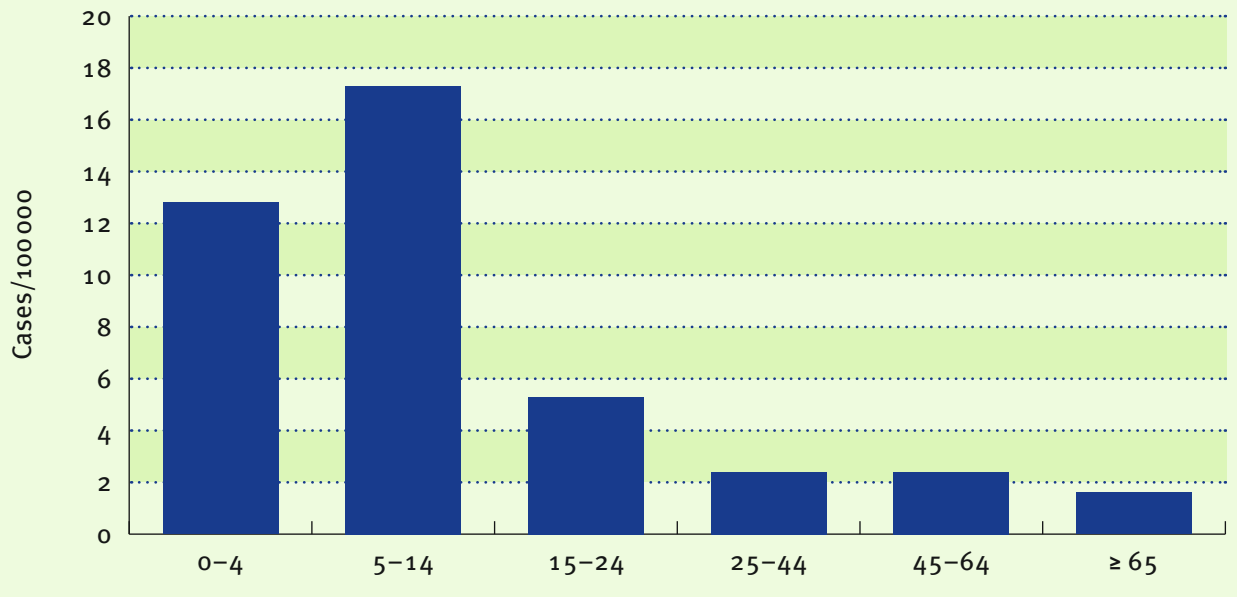
The inter-country variation was very wide, ranging from < 0.1 to 142.0 per 100 000. Although a higher notification rate is usually observed in northern countries, it remains unclear whether this large variation reflects real differences in incidence or whether they are rather due to different surveillance systems, including under-reporting in the older age groups. The reasons for the large incidence increases observed in the last year in some countries like the Netherlands and Norway are not clear. Usually, those most affected by pertussis are children under one year of age and, after introduction of a vaccine, also children between five and 14 years. These were the most affected groups in the Netherlands and Norway. One possible reason could be

Table 3.5.7. Number and notification rate of reported pertussis cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	A	78	78	0.94
Belgium	C	197	197	1.9
Bulgaria	A	335	335	4.3
Cyprus	C	8	3	0.39
Czech Republic	C	234	233	2.3
Denmark	C	55	54	1.0
Estonia	A	153	153	11.4
Finland	C	536	536	10.2
France	U	—	—	—
Germany	U	—	—	—
Greece	C	13	5	< 0.1
Hungary	C	17	17	0.17
Ireland	C	62	38	< 0.1
Italy	C	796	796	1.4
Latvia	C	29	2	< 0.1
Lithuania	C	6	4	0.12
Luxembourg	U	0	0	0.0
Malta	C	2	2	0.49
Netherlands	C	4 275	4 174	25.6
Poland	A	1 520	1 368	3.6
Portugal	C	22	21	0.20
Romania	C	37	14	< 0.1
Slovakia	C	21	21	0.39
Slovenia	C	551	446	22.3
Spain	C	374	102	0.2
Sweden	C	795	795	8.8
United Kingdom	C	553	3	< 0.1
EU total		10 669	9 397	2.70
Iceland	C	3	3	1.0
Liechtenstein	U	—	—	—
Norway	C	6 587	6 587	142.0
Total		17 259	15 987	4.54

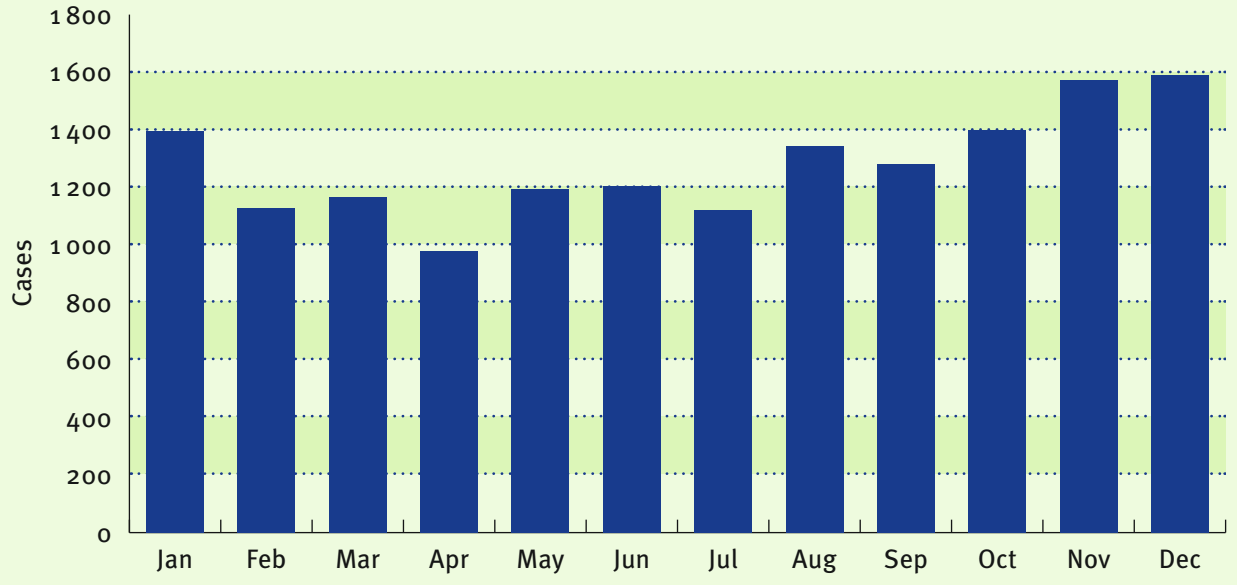
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.5.13. Age-specific notification rates of pertussis cases in EU and EEA/EFTA countries, 2006 (n = 14 525 cases)



Source: Country reports: Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Luxembourg reported zero cases.

Figure 3.5.14. Seasonal distribution of pertussis cases in EU and EEA/EFTA countries, 2006 (n = 15 375)



Source: Country reports: Belgium, Cyprus, Czech Republic, Denmark, Finland, Greece, Hungary, Ireland, Italy, Lithuania, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, UK, Iceland and Norway. Luxembourg reported zero cases.

waning immunity raising the issue of a possible booster vaccination in older children and adolescents.

References

1. EUVAC.net [homepage on the Internet]. Copenhagen: A Surveillance Community Network for Vaccine-Preventable Infectious Diseases (EUVAC). Childhood vaccination schedules. Available from: http://www.euvac.net/graphics/euvac/vaccination/pertussis.html

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-PERTUSSIS/ SHIGELLOSIS/ SYPHILIS	Cp	Co	P	A	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
France	FR-RENACOQ	V	Se	P	C	Y	Y	Y	—	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Greece	GR-SENTINEL	V	Se	P	A	N	Y	N	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-VPD_EU_CASE_DEFINITIONS	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Italy	IT-SPES	V	Se	P	C	N	Y	N	N	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-PERTUSSIS	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-PERTUSSIS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

POLIOMYELITIS

- The WHO European Region was declared polio-free in 2002.
- Neither wild nor vaccine-related polio cases were reported in the EU or the EEA/EFTA countries in 2006.
- Persistent pockets of polio transmission are still reported worldwide in northern Nigeria, northern India, and at the border between Afghanistan and Pakistan.
- Both wild and vaccine-derived polioviruses imported into Europe still remain a potential threat.

Epidemiological situation in 2006

No cases were reported by any of the 29 reporting EU and EEA/EFTA countries in 2006 (there were no reports from Liechtenstein).

Discussion

Twenty years ago, polio was widely endemic in all regions around the world, while today only a few non-European countries have continued polio transmission. The WHO America Region was declared polio-free in 1994, the WHO Western Pacific Region in 2000, and the European Region in 2002.

Pockets of polio transmission which persist in northern India, northern Nigeria and at the border between Afghanistan and Pakistan are the current focus of the polio eradication initiative.

The last persons to be infected with imported polio virus in the EU were three babies in Bulgaria in March–April and May 2001. Two of them had never received vaccination, while one had received just a single dose.

Europe remains polio-free, thanks to effective national polio vaccination programmes.

Poliovirus imported into Europe from poliovirus endemic countries still remains a threat. The most recent polio case reported in the EU was an immuno-compromised child coming from Morocco to Spain that developed an immunodeficiency-associated vaccine-derived poliovirus infection (iVDPV).

Transition to everyone using inactivated polio vaccine in their vaccination schedule is a priority in the EU.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-PEDISURV	V	Co	A	C	Y	Y	Y	Y	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-MEASLES, POLIO	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	SurvNet@rki-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				
						Laboratories	Physicians	Hospitals	Others	National coverage
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-POLIMYELITIS	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-POLIMYELITIS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

RABIES

- No human cases were reported in 2006 in the EU.
- Rabies is still endemic in wild and domestic animals in different areas of the EU.
- Cases of animals with rabies imported from endemic areas are often reported.

Epidemiological situation in 2006

In 2006 no human case of rabies was reported in the 27 EU and EEA/EFTA countries submitting data (Hungary, Netherlands and Liechtenstein did not report). Neither were there any reports of imported human cases.

Animal cases of rabies in the EU

In 2006 a total of 3 249 cases of rabies were reported in animals in the EU: 551 in domestic animals (mainly from Lithuania, Latvia and Romania), 2 262 in wild animals (mostly from Lithuania, Latvia, Romania and Estonia), 36 in bats (reported from Denmark, France, Germany, Poland, Netherlands and the UK)[1].

Discussion

Rabies is still present in Europe. Even though the burden of disease in humans is practically nil, rabies still represents a public health issue because of the considerable amount of resources needed to control the disease among animals and to prevent cases among humans.

The main animal reservoirs are: the dogs and wild animals (foxes and racoon dogs) in central and eastern Europe; and the insectivorous bat throughout the entire territory. Moreover, each year, cases of rabid animals imported from enzootic areas are reported, showing the need for a stricter control of importation of domestic animals at the borders.

References

1. World Health Organization [homepage on the Internet]. Rabies information system of the WHO Collaboration Centre for Rabies Surveillance and Research. Available from: http://www.who-rabies-bulletin.org/

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_A	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-RABIES	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-NATIONAL_ REFERENCE_ CENTRES	V	Co	P	C	Y	N	N	N	Y
Germany	DE-SURVNET@RKI-7.1/6	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EU_CASE_DEFINITION	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-RABIES	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y

Table continues overleaf

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-RABIES	O	Co	A	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

RUBELLA

- Rubella incidence is decreasing due to improvements in MMR vaccination programmes, but regional elimination remains a rather distant goal.
- Laboratory confirmation is still an issue for rubella surveillance.

Epidemiological situation in 2006

A total of 4 367 rubella cases were confirmed out of the 25 026 cases reported in 2006 by 25 countries (Belgium, France, Germany and Liechtenstein did not report; in Austria rubella has only been notifiable since since mid-2006) giving an overall notification rate of 1.3 per 100 000. Cyprus, Denmark, Luxembourg and Iceland reported zero cases. The highest notification rate was reported by Romania (at 16.4 per 100 000, more than 12 times the European average), followed by Bulgaria and Lithuania (both 3.2 per 100 000).

The total number of confirmed cases has been much higher than in 2005 (n = 1 498), but this was mainly due to the two countries added to the list of reporting countries (Romania and Bulgaria) that accounted for 87 % of all the confirmed cases in 2006. Only Denmark and Iceland have achieved uninterrupted 'zero reporting' for at least three years (2004–06).

In addition, it is worth mentioning that Poland reported 20 668 rubella cases, the majority of which were not laboratory confirmed.

Age and gender distribution

The most affected age group was the under 5 year-olds (15.9 per 100 000), while infections with the rubella virus persisted in the 5–14 year age group (4.6 per 100 000) (Figure 3.5.15).

There were 3 896 cases with information on gender. Of these, 52 % were reported in males (1.45 per 100 000) and 48 % in females (1.3 per 100 000).

Seasonality

A seasonal peak of rubella cases was observed during the spring. However, the majority of cases reported (89 %) did not include data on the month of report.

Discussion

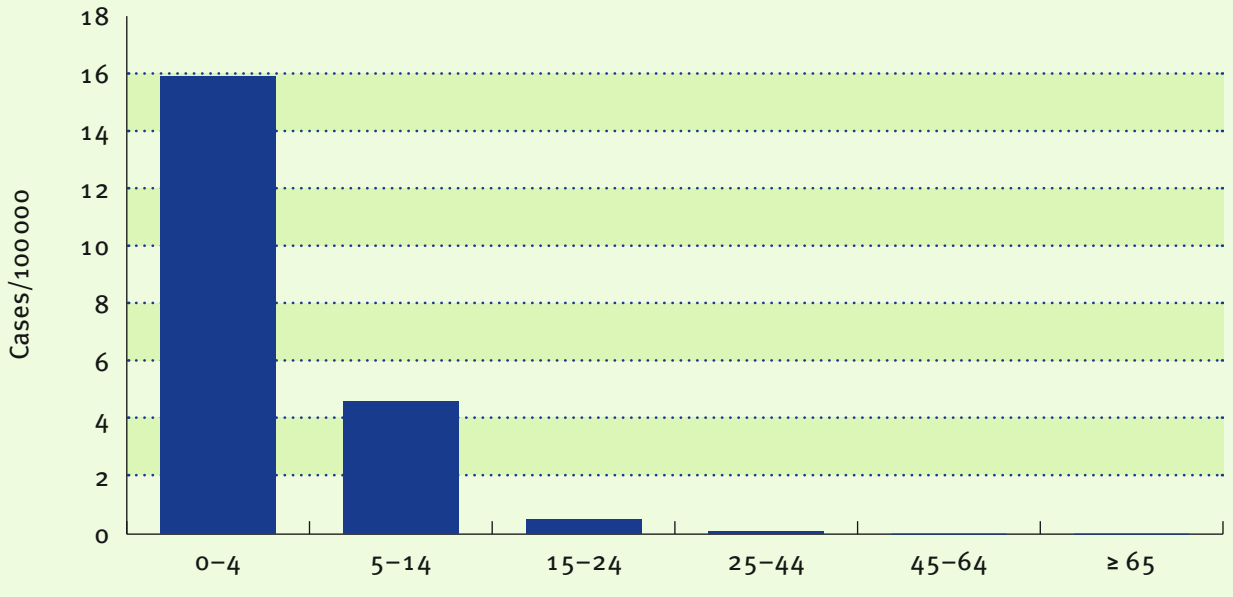
Reported incidence of confirmed rubella cases in 2006 was at a very low level. On the other hand, greater effort has to be made in order to increase the capacity for laboratory confirmation of rubella cases. In 2006 over 20 000 cases of rubella were not laboratory confirmed and were therefore not included in this analysis. Improving the sensitivity and specificity of rubella surveillance is paramount in view of the 2010 elimination goal.

Table 3.5.8. Number and notification rate of reported rubella cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	U	—	—	—
Belgium	U	—	—	—
Bulgaria	A	247	247	3.2
Cyprus	U	0	0	0.0
Czech Republic	C	8	5	< 0.1
Denmark	U	0	0	0.0
Estonia	C	5	5	0.37
Finland	C	1	1	< 0.1
France	U	—	—	—
Germany	U	—	—	—
Greece	C	1	1	< 0.1
Hungary	C	22	2	< 0.1
Ireland	C	14	1	< 0.1
Italy	C	252	252	0.43
Latvia	C	12	1	< 0.1
Lithuania	A	110	110	3.2
Luxembourg	U	0	0	0.0
Malta	C	1	1	0.25
Netherlands	C	6	6	< 0.1
Poland	A	20 668	103	0.27
Portugal	C	9	9	< 0.1
Romania	C	3553	3553	16.4
Slovakia	C	2	2	< 0.1
Slovenia	C	1	0	< 0.1
Spain	C	73	27	< 0.1
Sweden	C	3	3	< 0.1
United Kingdom	C	36	36	< 0.1
EU total		25 024	4 365	1.33
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	C	2	2	< 0.1
Total		25 026	4 367	1.31

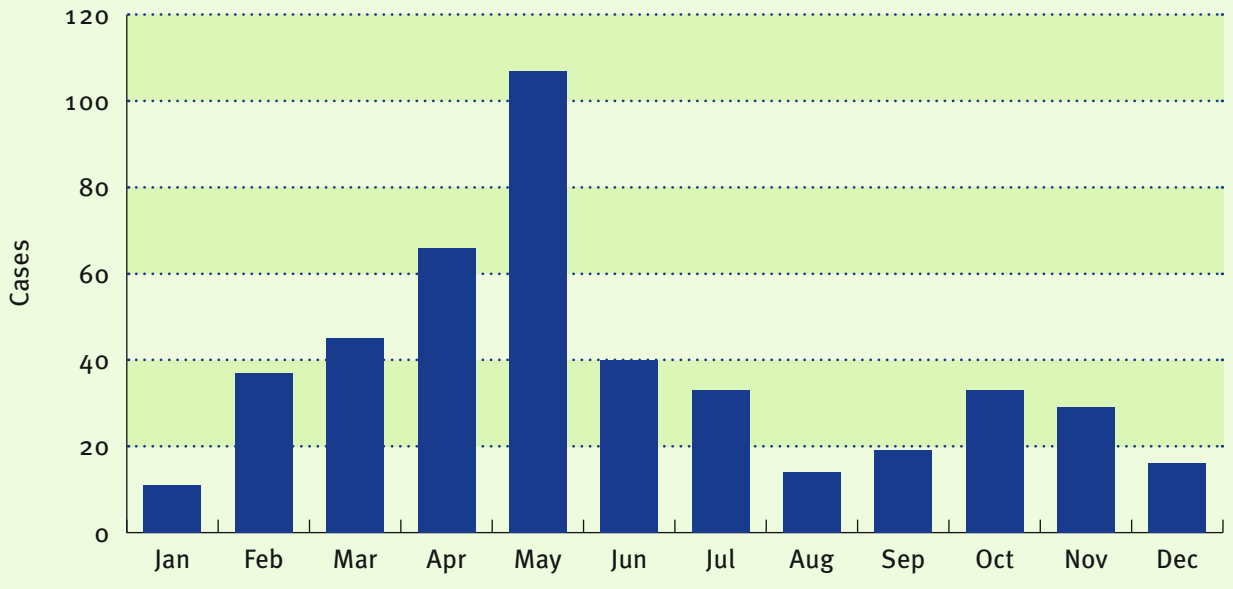
Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Figure 3.5.15. Age-specific notification rates of rubella cases in EU and EEA/EFTA countries, 2006 (n = 4138)



Source: Country reports: Bulgaria, Czech Republic, Estonia, Finland, Greece, Hungary, Ireland, Italy, Latvia, Malta, Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Cyprus, Denmark, Luxembourg and Iceland reported zero cases.

Figure 3.5.16. Seasonal distribution of rubella cases in EU and EEA/EFTA countries, 2006 (n = 450)



Source: Country reports: Czech Republic, Estonia, Finland, Greece, Hungary, Ireland, Italy, Latvia, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, UK and Norway. Cyprus, Denmark, Luxembourg and Iceland reported zero cases.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EPIDEMIEGESETZ_B	Cp	Co	P	C	Y	Y	Y	Y	Y
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-LABNET	V	Se	A	C	Y	N	—	—	Y
Belgium	BE-REFLAB	V	Co	P	C	Y	N	Y	N	Y
Cyprus	CY-LABNET	V	Se	A	C	Y	N	N	N	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-RUBELLA	Cp	Co	P	C	Y	Y	Y	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	Y	N	N	Y
France	FR-RENARUB	V	Co	A	C	Y	Y	Y	Y	—
Greece	GR-SENTINEL	V	Se	P	A	N	Y	N	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-VPD_EU_CASE_DEFINITIONS	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Italy	IT-SPES	V	Se	P	C	N	Y	N	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-INVESTIGATIONFORMS	—	—	—	—	—	—	—	—	—
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	A	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-OSIRIS	Cp	Co	P	C	Y	Y	N	Y	Y

Surveillance systems overview *continued*

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Netherlands	NL-WEEKLY_ SURVEILLANCE_ REPORT	V	O	P	A	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-RUBELLA	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-RUBELLA	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

TETANUS

- The overall notification rate of tetanus in the EU is very low (<1 per million).
- The number of confirmed cases reported in 2006 was 163.
- Five countries reported 77 % of the total number of cases.
- Seventy percent of cases were reported in people over 64 years old.

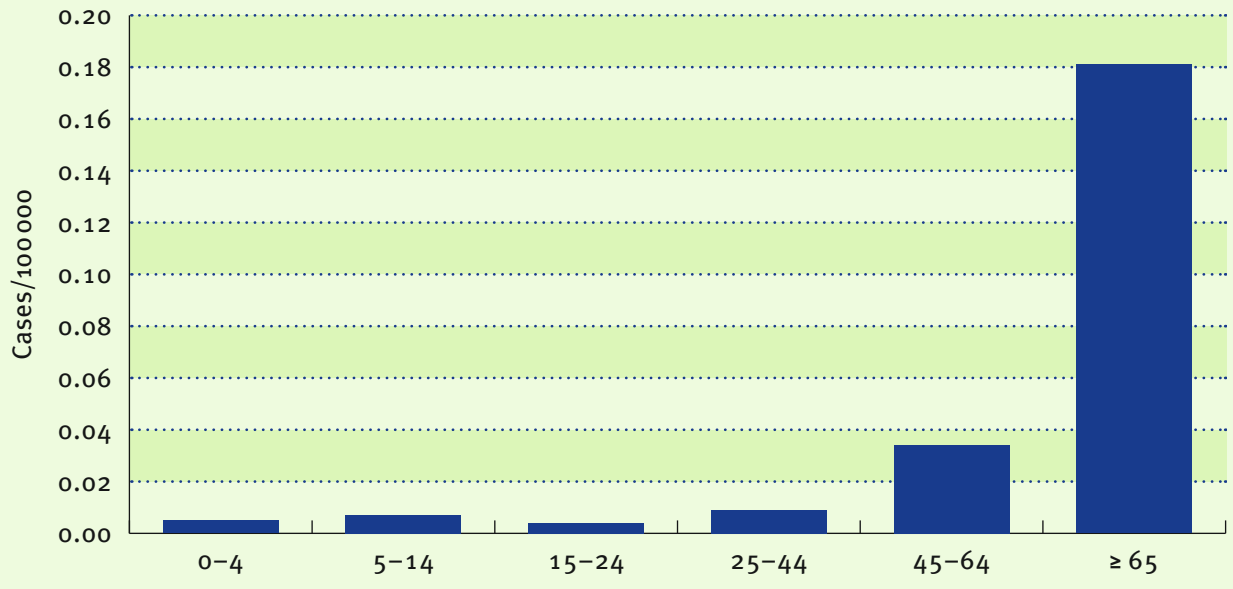
Epidemiological situation in 2006

The overall decreasing trend seen over the last 10 years appears to continue. In 2006, 25 EU and EEA/EFTA countries reported 170 cases, of which 163 cases were confirmed (Austria, Finland, Germany, Netherlands and Liechtenstein did not report). The overall notification rate for Europe is still below 0.04 per 100 000, with the highest rates seen in Slovenia (0.20 per 100 000, resulting in just four cases) and Italy (0.11 per 100 000). Ten countries (Cyprus, Czech Republic, Estonia, Ireland, Latvia, Luxembourg, Malta, Slovakia, Iceland and Norway) reported zero cases.

Age and gender distribution

The notification rate is highest among the population over 65 years old with 114 cases (70 %) and a notification rate of 0.18 per 100 000 (Figure 3.5.17). In this age group there were 2.6 more infections reported in females than in males.

Figure 3.5.17. Age-specific notification rates of tetanus cases in EU and EEA/EFTA countries, 2006 (n = 163)



Source: Country reports: Belgium, Bulgaria, Denmark, France, Greece, Hungary, Italy, Lithuania, Poland, Portugal, Romania, Slovenia, Spain, Sweden and UK. Cyprus, Czech Republic, Estonia, Ireland, Latvia, Luxembourg, Malta, Slovakia, Iceland and Norway reported zero cases.

Table 3.5.9. Number and notification rate of reported tetanus cases in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	U	—	—	—
Belgium	C	1	1	0.01
Bulgaria	A	4	4	0.05
Cyprus	U	0	0	0.0
Czech Republic	U	0	0	0.0
Denmark	C	2	2	0.04
Estonia	U	0	0	0.0
Finland	U	—	—	—
France	C	17	17	0.03
Germany	U	—	—	—
Greece	C	12	5	0.04
Hungary	C	7	7	0.07
Ireland	U	0	0	0.0
Italy	C	64	64	0.11
Latvia	C	0	0	0.0
Lithuania	C	3	3	0.09
Luxembourg	U	0	0	0.0
Malta	U	0	0	0.0
Netherlands	U	—	—	—
Poland	C	22	22	0.06
Portugal	C	7	7	0.07
Romania	C	10	10	0.05
Slovakia	C	0	0	0.0
Slovenia	C	4	4	0.20
Spain	C	13	13	0.03
Sweden	C	1	1	0.01
United Kingdom	C	3	3	< 0.1
EU total		170	163	0.04
Iceland	U	0	0	0.0
Liechtenstein	U	—	—	—
Norway	U	0	0	0.0
Total		170	163	0.04

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Overall information on gender was available for 159 cases, of which 60 % of cases were reported in females.

Seasonality

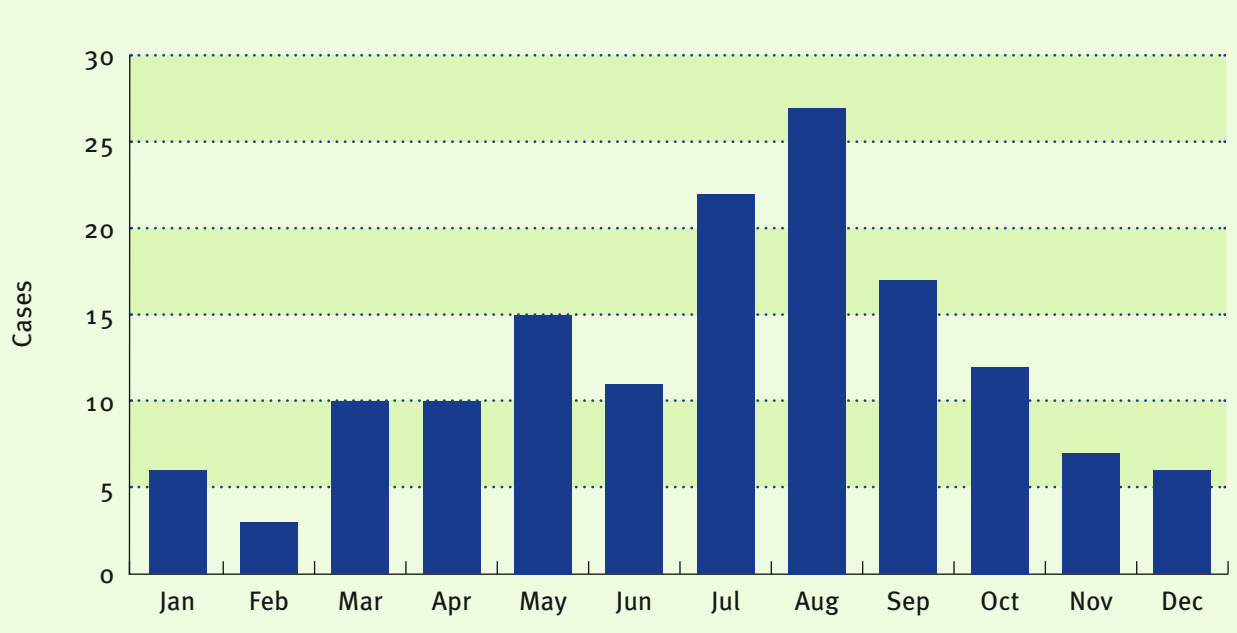
Although the number of cases with information on season are small (n = 146), there is a clear tendency to a peak in the summer months.

Discussion

The overall notification rate for tetanus for 2006 in the EU is < 1 per 1 000 000. However, some countries, such as Italy, continue to report a relatively high number of cases.

Tetanus occurs classically in older individuals with waning immunity. This explains the reported cases in 2006 that were mostly diagnosed among individuals aged over 65 years of age.

Figure 3.5.18. Seasonal distribution of tetanus cases in EU and EEA/EFTA countries, 2006 (n = 146)



Source: Country reports. Belgium, Denmark, France, Greece, Hungary, Italy, Lithuania, Poland, Portugal, Slovenia, Spain and Sweden. Cyprus, Czech Republic, Estonia, Ireland, Latvia, Luxembourg, Malta, Slovakia, Iceland and Norway reported zero cases.

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				
						Laboratories	Physicians	Hospitals	Others	National coverage
Austria	NOT NOTIFIABLE	—	—	—	—	—	—	—	—	—
Belgium	BE-FLANDERS_BRUSSEL	Cp	Co	P	C	Y	Y	Y	Y	N
Belgium	BE-FRENCHCOMMUNITY	Cp	Co	P	C	Y	Y	Y	Y	N
Cyprus	CY-NOTIFIED_DISEASES	Cp	Co	P	C	N	Y	N	N	Y
Czech Republic	CZ-EPIDAT	Cp	Co	A	C	—	Y	Y	N	Y
Denmark	DK-MIS	Cp	Co	P	C	N	Y	N	N	Y
Estonia	EE-TETANUS	Cp	Co	P	C	N	Y	Y	Y	Y
France	FR-MANDATORY_ INFECTIOUS_ DISEASES	Cp	Co	P	C	Y	Y	Y	Y	Y
Greece	GR-NOTIFIABLE_DISEASES	Cp	Co	P	C	Y	Y	Y	N	Y
Hungary	HU-EFRIR	Cp	Co	P	C	N	Y	Y	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-VPD_EU_CASE_DEFINITIONS	Cp	Co	P	C	Y	Y	N	N	Y
Italy	IT-SIMI	Cp	Co	P	C	N	Y	Y	N	Y
Latvia	LV-BSN	Cp	Co	P	C	N	Y	Y	N	Y
Lithuania	LT-COMMUNICABLE_DISEASES	Cp	Co	P	C	Y	Y	N	N	Y
Luxembourg	LU-SYSTEM1	Cp	Co	P	C	N	Y	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Norway	NO-MSIS_A	Cp	Co	P	C	Y	Y	Y	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Portugal	PT-TETANUS	Cp	Co	P	C	N	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
Slovenia	SI-SURVIVAL	Cp	Co	P	C	Y	Y	N	N	Y
Spain	ES-STATUTORY_DISEASES	Cp	Co	P	C	—	Y	Y	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-TETANUS	O	Co	P	C	Y	N	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

3.6 ANTIMICROBIAL RESISTANCE AND HEALTHCARE-ASSOCIATED INFECTIONS (AMR/HCAI)

ANTIMICROBIAL RESISTANCE (AMR)

The European Antimicrobial Resistance Surveillance System (EARSS) is the dedicated network for the surveillance of antimicrobial resistance in Europe. It is funded by ECDC; the Dutch Ministry of Health, Welfare and Sports; and the Dutch National Institute of Public Health and the Environment (RIVM). EARSS collects routinely generated antimicrobial susceptibility data, provides spatial trend analyses and makes timely feedback available via an interactive website at www.rivm.nl/earss. Routine AMR data for major indicator micro-organisms (*Streptococcus pneumoniae*, *Staphylococcus aureus*, *Enterococcus faecalis*, *Enterococcus faecium*, *Escherichia coli*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*) isolated from blood and spinal fluid samples are reported quarterly by almost 800 laboratories serving more than 1200 hospitals in 31 European countries. For the Annual Epidemiological Report only data on EU Member States and EEA/EFTA countries are presented (30 European countries). An overview of results from 28 countries participating in the EARSS is presented in Table 3.6.1.

Streptococcus pneumoniae

The occurrence of penicillin non-susceptibility in *Streptococcus pneumoniae* (PNSP) showed a heterogeneous picture in Europe. Most northern European countries had levels of non-susceptibility below 5 %, although Belgium, Finland and Ireland reported relatively high levels, ranging from 10–16 %. Among the southern European and Mediterranean countries, Bulgaria, Italy and Malta reported relatively low levels of penicillin non-susceptibility (7 %), while Cyprus, France, Romania and Spain reported high levels of penicillin non-susceptibility (› 25 %). Rising trends for full penicillin resistance were reported by Slovenia and Sweden, whereas decreasing trends for PNSP were observed for Belgium, France, Spain and the UK (PNSP and full penicillin resistance).

The occurrence of erythromycin resistance in *S. pneumoniae* showed a more uniform picture; in general either resistance remained at the same medium level, or an increase could be identified. Six countries spread over north, east and central Europe reported erythromycin non-susceptibility at 5 % or lower. Several countries, however, reported 10–25 % of the isolates resistant. Significant increases in erythromycin resistance were observed in the Netherlands, Norway, Portugal, and Finland, whereas decreasing proportions of resistant isolates were observed in France.

Dual resistance to penicillin and erythromycin remained below 5 % for 16 out of 27 countries. For six countries, the proportion of dual-resistant *S. pneumoniae* isolates

Table 3.6.1. Proportion of resistant isolates (median and range) in indicator micro-organisms isolated from blood and spinal fluid

Species, antimicrobial resistance	% R([a]), 2006		No. countries([b])	No. countries with:	
	median	[Range]		Upward trend([c])	Downward trend([c])
Streptococcus pneumoniae, Penicillin-R or I([a]) (PNSP)	7	[<1–39]	26	0	4
S. pneumoniae, Erythromycin-R	14	[<1–47]	26	4	1
Escherichia coli, Aminopenicillin-R	54	[29–85]	28	15	0
E. coli, Third-generation cephalosporin-R	4	[0–41]	28	17	0
E. coli, Aminoglycoside-R	7	[2–41]	28	13	1
E. coli, Fluoroquinolone-R	20	[5–41]	28	23	0
Staphylococcus aureus, Methicillin-R (MRSA)	20	[0–67]	28	9	2
S. aureus, Vancomycin-R	0	[0–<1]	28	—[d]	—
Enterococcus faecium, Aminoglycoside-R (high level)	45	[12–85]	23	—	—
E. faecium, Vancomycin-R	<1	[0–43]	24	3	2
Enterococcus faecalis, Aminoglycoside-R (high level)	37	[3–58]	26	2	1
E. faecalis, Vancomycin-R	0	[0–6]	28	—	—
Klebsiella pneumoniae, Third-generation cephalosporin-R	11	[0–94]	27	—	—
K. pneumoniae, Carbapenem-R	0	[0–33]	24	—	—
K. pneumoniae, Aminoglycoside-R	9	[0–91]	27	—	—
K. pneumoniae, Fluoroquinolone-R	12	[0–50]	27	—	—
Pseudomonas aeruginosa, Piperacillin- or Pip.-Tazobactam-R	14	[<1–47]	24	—	—
P. aeruginosa, Ceftazidime-R	9	[3–42]	24	—	—
P. aeruginosa, Carbapenem-R	13	[2–48]	24	—	—
P. aeruginosa, Aminoglycoside-R	13	[<1–47]	24	—	—
P. aeruginosa, Fluoroquinolone-R	21	[5–48]	24	—	—

Source: EARSS Interactive Database and EARSS Annual Report 2006.

([a]) R: resistant; I: intermediate.

([b]) Only data from countries that reported more than 10 isolates are included.

([c]) Only countries with significant trends are reported. Surveillance period: *Streptococcus pneumoniae* and *Staphylococcus aureus*, 1999–2006; *Escherichia coli* and *enterococci*, 2001–2006.

([d]) Not available.

ranged from 5 to 10 %, and five countries reported 10–20 %. The highest proportions of dual-resistant isolates were reported by France (26 %). Increasing trends of dual resistance were observed for Norway, the Netherlands, Finland and Portugal, whereas decreasing trends were observed for the UK and Spain.

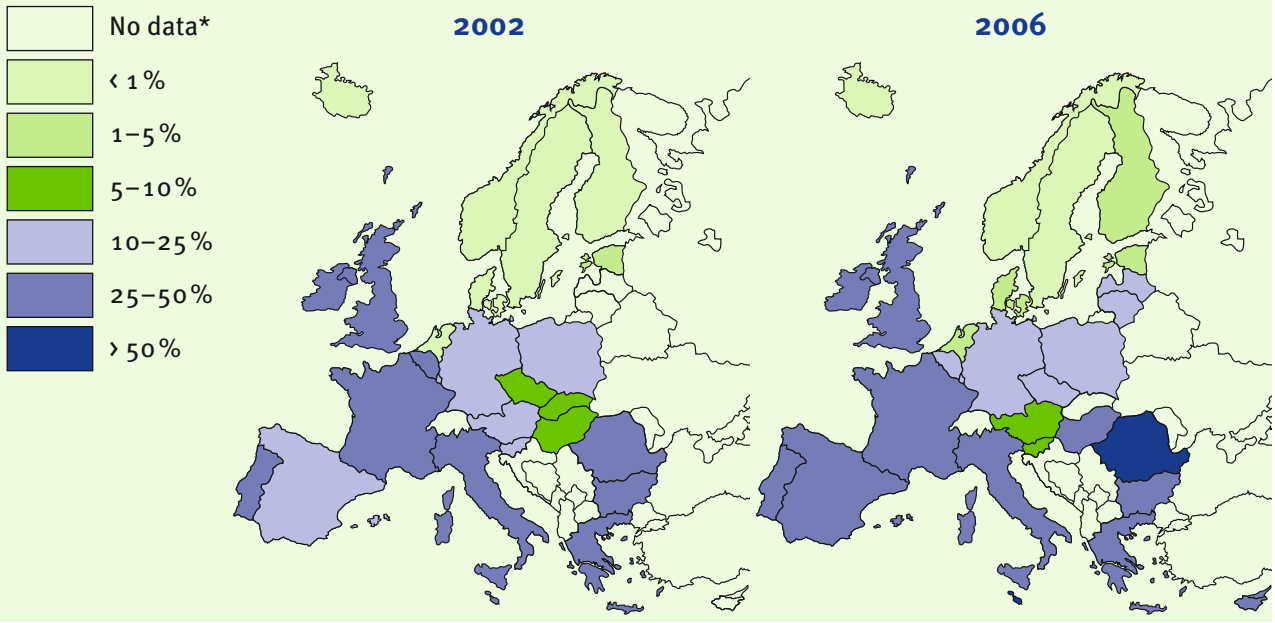
In 2006, eleven countries reported serogroup information for their *S. pneumoniae* isolates. The resistant isolates all belonged to the same few serogroups as reported in 2005. The main penicillin-resistant serogroups are covered by the 7-valent *S. pneumoniae* vaccine, while two serogroups in which erythromycin resistance is common are covered by the 23-valent vaccine.

Staphylococcus aureus

Methicillin-resistant *Staphylococcus aureus* (MRSA) is an increasing problem all over Europe as it continues to spread in high, medium as well as in low endemic countries. In 2006, 12 out of 28 countries, mainly southern European countries, the UK and Ireland, reported MRSA proportions of 25 % or higher. However, in some of the high endemic countries, MRSA proportions seem to be stabilising (Figure 3.6.1). In the northern part of Europe, the proportion of MRSA remains below 4 %.

Increasing MRSA proportions were reported by the Netherlands, Finland, the Czech Republic, Germany, Belgium, Hungary, the United Kingdom, Portugal and Malta, while decreasing proportions of MRSA were reported by France and Slovenia. Interpreting differences of MRSA proportions between countries requires caution, as the proportion of isolates from intensive care units (ICU) varies between countries. In five countries, the proportion of MRSA among ICU isolates was over 60 %. For 13 countries, the proportion of ICU MRSA isolates was significantly higher than the proportion of non-ICU MRSA isolates.

Figure 3.6.1. *Staphylococcus aureus*: proportion of blood and cerebrospinal fluid isolates resistant to methicillin (MRSA) in EU and EEA/EFTA countries* in 2002 and 2006



Source: EARSS.

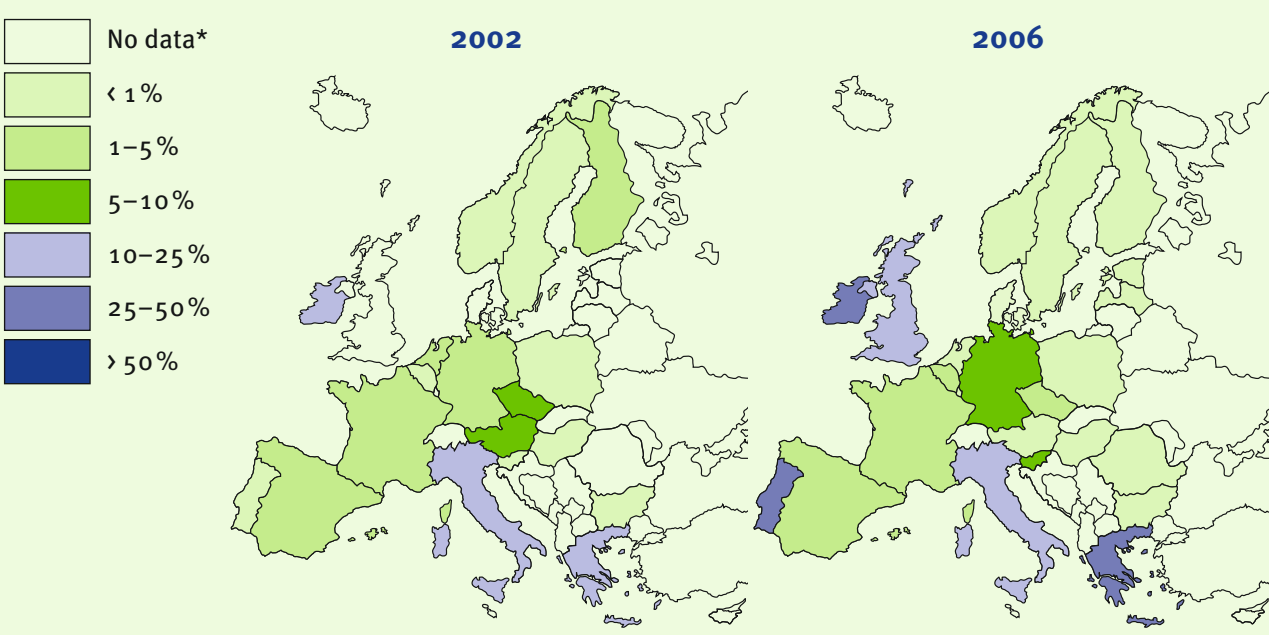
* Only data from countries reporting more than 10 isolates are included.

Enterococci

In 2006, the occurrence of high-level aminoglycoside resistance in *E. faecalis* varied from 3 % to 58 % among 26 countries. The majority of countries reported proportions between 25 % and 50 %. Only Iceland, France, Sweden and Romania reported proportions below 25 %. The occurrence of high-level aminoglycoside resistance in *E. faecalis* has not changed substantially since 2001.

Large variation in the occurrence of vancomycin-resistant *E. faecium* was observed between the countries. Among invasive isolates of *E. faecium*, vancomycin resistance was less or equal to 1 % or even absent in 13 of the 24 countries that reported more than 10 isolates. By contrast, three countries (Greece, Ireland, and Portugal) reported more than 25 % vancomycin-resistant *E. faecium* isolates. Over the past five years, vancomycin resistance increased significantly in four countries (Germany, Greece, Ireland and Slovenia). In Slovenia, vancomycin resistance had been absent until 2005, but started to appear in 2006 (6 %, n = 50). The rapid increase in the occurrence of *E. faecium* in these countries may result from institutional outbreaks. This may not, therefore, represent the situation for all hospitals, most of which have remained unaffected. A decrease in the occurrence of vancomycin-resistant *E. faecium* was observed in Austria, and in Portugal a continuous decrease was observed from 47 % in 2003 to 26 % in 2006.

Figure 3.6.2. *Enterococcus faecium*: proportion of blood and cerebrospinal fluid isolates resistant to vancomycin in EU and EEA/EFTA countries* in 2002 and 2006



Source: EARSS.

* Only data from countries reporting more than 10 isolates are included.

Escherichia coli

The occurrence of resistance in *E. coli* to aminopenicillins, fluoroquinolones, third-generation cephalosporins and aminoglycosides is increasing in almost all countries. Especially for fluoroquinolones the situation is alarming. In parallel, the combined resistance of invasive isolates is increasing, and almost 18 % of the *E. coli* isolates already exhibit resistance to two or more classes of antimicrobials.

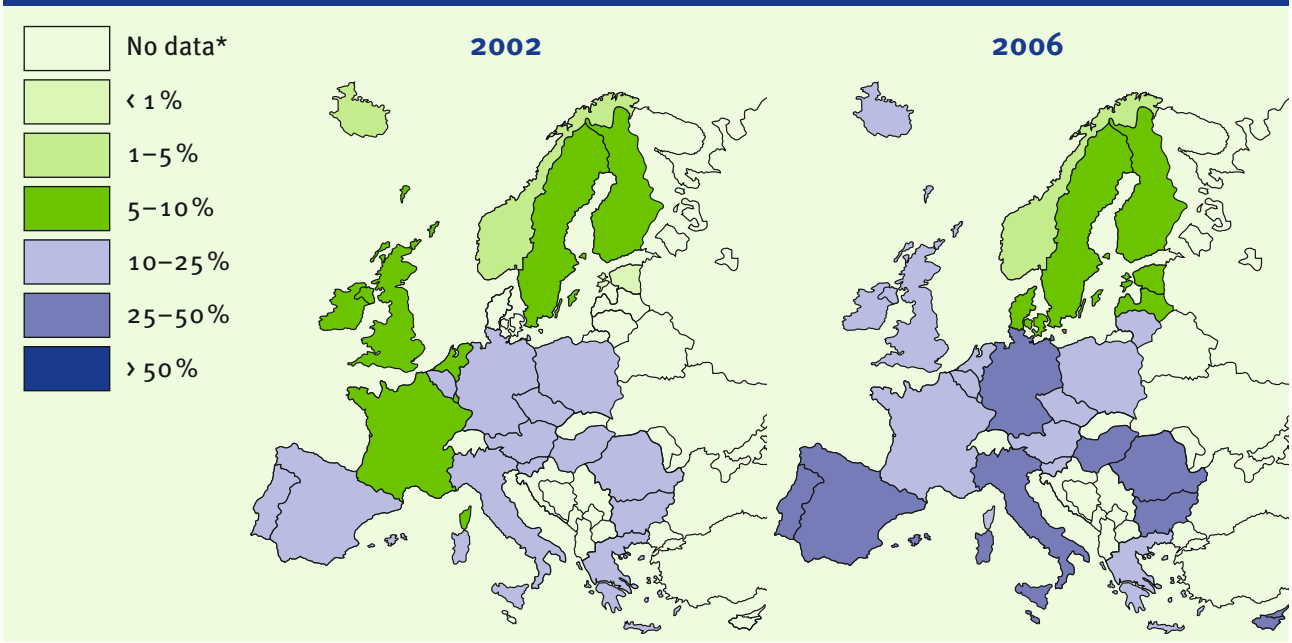
The occurrence of resistance to aminopenicillins ranged from 28 % to 85 %, and all countries except Finland, Sweden and Norway reported resistant proportions above 40 %. At this level of resistance, aminopenicillins can no longer be regarded as a useful option for empirical treatment. Since 2001, resistance to aminopenicillins has increased significantly in 15 countries.

Large variation was observed for third generation cephalosporin resistance in *E. coli,* ranging from 1 % reported by Sweden to 41 % reported by Romania. However, most countries reported less than 5 % resistant isolates.

Fluoroquinolone resistance has increased substantially in 23 countries since 2001, and in 2006 the reported proportions ranged from 5 % to 41 %. Nine countries reported more than 25 % fluoroquinolone-resistant *E. coli* (Figure 3.6.3).

The occurrence of aminoglycoside resistance in *E. coli* ranged from 2 % reported by

Figure 3.6.3. *Escherichia coli*: proportion of blood and cerebrospinal fluid isolates resistant to fluoroquinolones in EU and EEA/EFTA countries* in 2002 and 2006



Source: EARSS.

* Only data from countries reporting more than 10 isolates are included.

Sweden to 41% reported by Romania. Since 2001, significant increases have been observed in 13 of 28 countries.

Combined resistance occurs frequently in *E. coli*, with co-resistance to four antimicrobial classes, including third-generation cephalosporins.

Klebsiella pneumoniae

The reporting of susceptibility results for *K. pneumoniae* was initiated by more European countries and more laboratories in 2006. The data showed that high levels of resistance to third-generation cephalosporins, fluoroquinolones and aminoglycosides exist, especially in the southern and eastern European countries. The most frequent phenotype identified showed resistance to all three of these classes.

Pseudomonas aeruginosa

Resistance in *P. aeruginosa* emerges readily during antibiotic treatment, and combined resistance is the dominant threat imposed by invasive *P. aeruginosa* .Almost one fifth of the invasive *P. aeruginosa* isolates were resistant to three or more antibiotics from the EARSS protocol. The occurrence of resistance was especially high in the more southern countries.

Discussion

The EARSS data must be interpreted with caution. The laboratories participate on a voluntary basis and in some countries only a few laboratories are represented. Furthermore, there may be large regional differences in the prevalence of antimicrobial resistance within countries. Only isolates from blood and spinal fluid samples are included in the EARSS surveillance, and data may not reflect antimicrobial resistance in isolates from other body sites. Although susceptibility testing is expected to be standardised, methodology may still vary between the participating laboratories.

MRSA continues to spread in high, medium as well as low endemic countries. Nevertheless, in some of the high endemic countries, MRSA proportions seem to be stabilising, and decreasing trends are being observed in a few countries.

Penicillin resistance in *S. pneumoniae* is stable or even on the decrease in most countries. This may indicate a decreasing selection pressure. Erythromycin resistance, however, is becoming more prevalent in several countries.

With the spread of clonal complex 17, outbreaks of vancomycin-resistant *E. faecium* continue to affect more hospitals in various countries. The spread of these hospital-adapted clones is facilitated by high-level aminoglycoside resistance, and control of glycopeptides-resistance in *Enterococci* remains a challenge for infection control practitioners.

Fluoroquinolone resistance in *E. coli* increased significantly in nearly all reporting countries, and the speed with which fluoroquinolones lose their activity against *E. coli* is alarming.

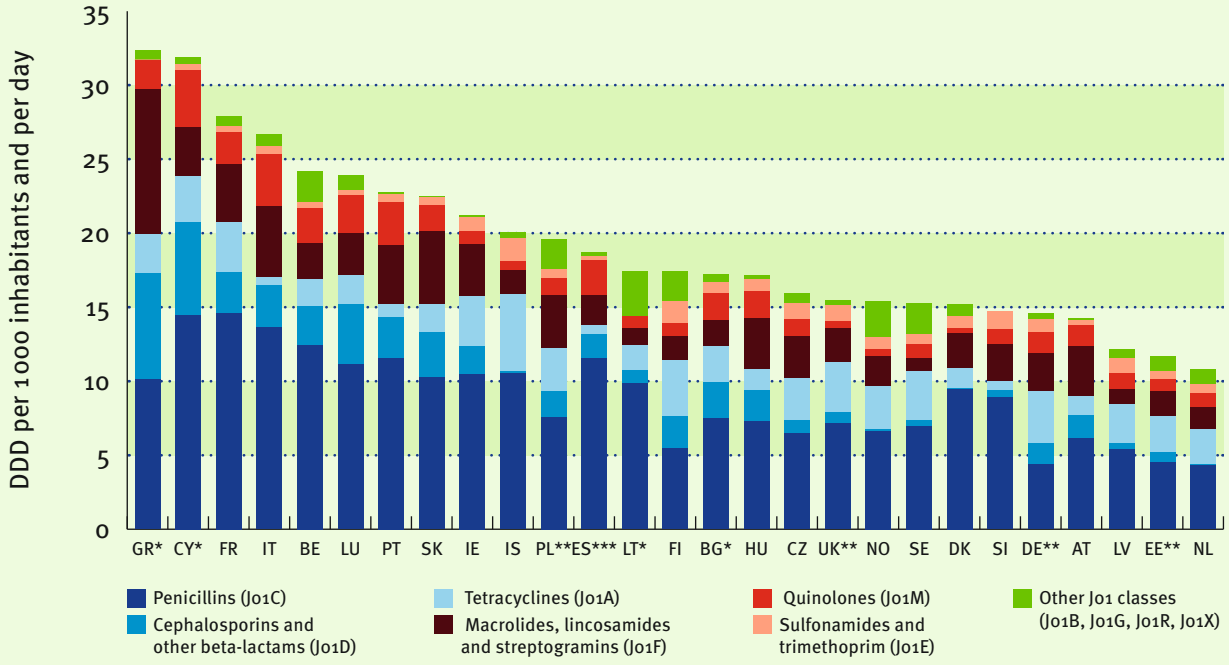
The EARSS surveillance data from 2006 shows that antimicrobial resistance constitutes an increasingly important public health hazard in Europe. International travel and trade may facilitate spread of antimicrobial resistance. The problem calls for international cooperation, as well as concerted efforts at the national level, in order to contain and prevent the occurrence of antimicrobial resistance.

TRENDS IN ANTIMICROBIAL USE IN EUROPE

The European Surveillance of Antimicrobial Consumption (ESAC) project is the dedicated network for the surveillance of antimicrobial consumption in Europe. It is funded by ECDC and the University of Antwerp, Belgium. ESAC collects data on antimicrobial consumption in ambulatory care and hospital settings from 35 European countries (27 EU Member States, three EEA/EFTA countries, three candidate countries and two other countries). Data have been collected since 1997, in accordance with the Anatomic Therapeutic Chemical (ATC) classification and the Defined Daily Dose (DDD) measurement unit[1]. The 2004 version of the ATC/DDD was used for the 1997–2003 data, version 2005 for the 2004 data and version 2006 for the 2005–06 data. For standardisation, consumption of antibiotics (ATC group J01, antibacterials for systemic use) was reported as DDD per 1000 inhabitants and per day.

Of 29 EU and EEA/EFTA participating countries, 21 were able to deliver outpatient data on antibiotic use, whereas Bulgaria, Cyprus, Greece and Lithuania only provided data on overall consumption, covering both ambulatory and hospital care. Total outpatient use varied from 10.8 (The Netherlands) to

Figure 3.6.4. Outpatient antibiotic (ATC group J01) consumption subdivided into the major antibiotic classes according to ATC classification, 2006



Source: ESAC.

* Total use, i.e. including inpatients, for Bulgaria, Cyprus, Greece and Lithuania.

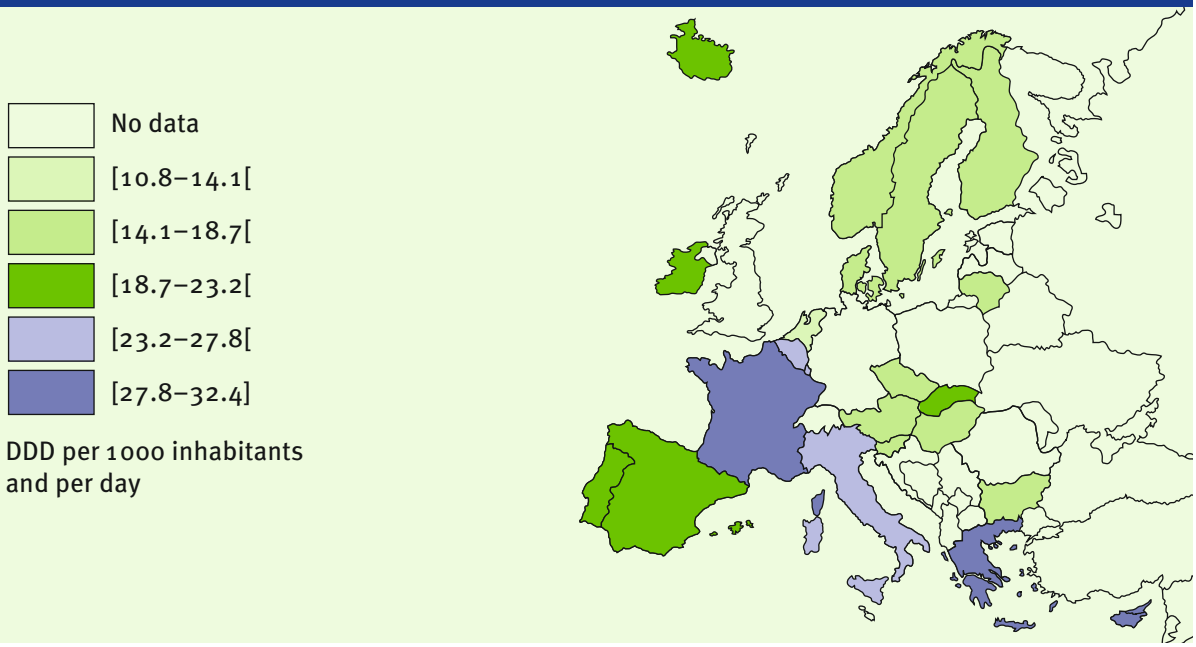
** 2005 data for Estonia, Germany, Latvia, Poland and UK.

***Reimbursement data, which do not include over-the-counter sales without a prescription for Spain.

32.4 DDD per 1000 inhabitants and per day (Greece) (Figure 3.6.4). The median use [inter-quartile range] was 18.1 [15.5–23.6] DDD per 1000 inhabitants and per day. Figure 3.6.5 presents a map of total outpatient antibiotic use in Europe in 2006.

Penicillins represented the most frequently prescribed antibiotic class in all countries, ranging from 30 % (Germany) to 62 % (Denmark and Spain) of the total outpatient antibiotic use. The proportion of use of other antibiotic classes varied greatly among countries, e. g. cephalosporins, from 0.2 % (Denmark) to 22 % (Greece); macrolides, 6 % (Sweden and Lithuania) to 30 % (Greece); and quinolones, 2 % (Denmark) to 13 % (Italy, Portugal) (Figure 3.6.4).

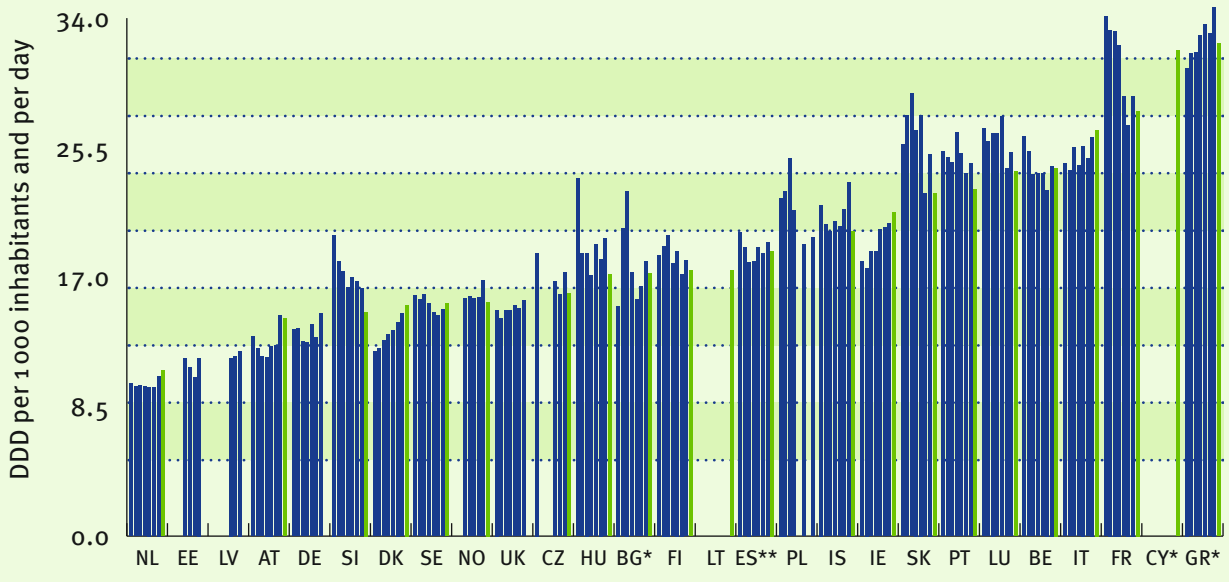
Figure 3.6.5. Total outpatient antibiotic (ATC group J01) consumption in Europe, 2006



Source: ESAC. Bulgaria, Cyprus, Greece and Lithuania: total use, i. e. including inpatient consumption. Spain: reimbursement data, which do not include over-the-counter sales without prescription. 2005 data for Estonia, Germany, Latvia, Poland and United Kingdom. DDD: Defined Daily Dose.

Temporal trends in total outpatient antibiotic consumption are presented in Figure 3.6.6. Three countries (Italy, Ireland and Denmark) have shown a continuous increase since 1999. In Greece, a continuous increase was observed until 2005, but was followed by a decrease in 2006. Conversely, total outpatient antibiotic use decreased in some countries (France, Belgium, Slovenia, and until 2004 in Sweden). These decreases have been attributed to national public campaigns (France and Belgium) or repeated media coverage on the prudent use of antibiotics (Slovenia and Sweden). Norway and the Netherlands showed a stable total outpatient antibiotic consumption until 2005, followed by an increase in 2006. Other countries showed more complex tem-

Figure 3.6.6. Trends of total outpatient antibiotic consumption (ATC group J01) in Europe, from 1999 to 2006 (green bar)



Source: ESAC. *Total use, i.e. including inpatients, for Bulgaria, Cyprus, Greece and Lithuania. **Reimbursement data, which do not include over-the-counter sales without a prescription for Spain.

poral patterns such as short-term increases or decreases or sudden changes, which so far have not been explained.

References

1. WHO Collaborating Centre for Drug Statistics Methodology [homepage on the Internet]. Oslo (Norway): Norwegian Institute of Public Health. Available from: http://www.whocc.no/atcddd/

Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Austria	AT-EARSS	V	Se	A	C	Y	N	Y	N	Y
Belgium	BE-NSIH_AMR	V	Se	A	C	Y	Y	Y	N	Y
Cyprus	CY-EARSS	V	Se	A	C	Y	N	N	N	N
Czech Republic	CZ-EARSS	V	Se	P	A	Y	Y	-	N	Y
Denmark	DK-DANMAP_DANRES	V	Co	A	A/C	Y	N	N	Y	Y
Finland	FI-NIDR	Cp	Co	P	C	Y	N	N	N	Y
France	FR-NATIONAL_REFERENCE_ CENTRE_FOR_PNEUMOCOCCI/ INVS	V	Co	P/A	C	Y	N	N	N	Y
France	FR-ONERBA / INVS	V	Co	P	A	Y	N	N	N	Y
Germany	DE-EARSS	V	Se	P	C	Y	N	N	N	N
Greece	GR-AMR	V	O	A	C	Y	—	—	—	N
Hungary	HU-ANTIBIOTIC_RESISTANCE	V	Se	P	C	Y	N	N	N	Y
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Ireland	IE-EARSS	V	Co	P	C	Y	N	N	N	N
Italy	IT-ARISS	V	Se	P	C	Y	N	N	N	N
Latvia	LV-LABORATORY	Cp	Co	P	C	Y	N	N	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-AMR	V	Se	P	C	Y	N	N	N	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Norway	NO-NORM	Cp	Co	A	A	Y	N	N	N	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Sweden	SE-SMINET	Cp	Co	P	C	Y	Y	Y	N	Y
United Kingdom	UK-AMR	V	Co	A	C	Y	Y	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

HEALTHCARE-ASSOCIATED INFECTIONS

The surveillance of healthcare-associated infections (HCAI) in Europe is supported by the European Commission through the IPSE (Improving Patient Safety in Europe) network (2005–June 2008), which includes the coordination of the Hospitals in Europe Link for Infection Control through Surveillance surgical site infection surveillance (HELICS-SSI) and the surveillance of nosocomial infections in intensive care units (HELICS-ICU). The HELICS network collects data from the national surveillance networks for HCAI (see Chapter 2), based on common protocols that were agreed in 2002–03. It also provides support to Member States to set up hospital surveillance networks in their countries by providing free software for hospitals and network coordination centres, training courses on HCAI surveillance and through country visits. The main objectives of HELICS are to follow up trends in HCAI rates in the EU, to analyse inter-country differences and work towards comparable surveillance methods, to draw up European reference tables for inter-hospital comparisons of risk-adjusted HCAI rates and to contribute to the extension of HCAI surveillance in the EU.

Surveillance of surgical site infections

The approach taken by HELICS to surgical site infections (SSI) surveillance is to enhance the comparability of data by targeting clearly defined groups of procedures and collecting data that enable adjustment for variation in case-mix. Adjustment for case-mix is based on the NNIS risk index[1,2]. This is composed of an American Society of Anesthesiologists (ASA) physical status score of 3, 4 or 5, a wound class of 'contaminated' or 'dirty' and a duration of operation of greater than the time at the NNIS 75th percentile time (T time) for that group of procedures. Each factor is equivalent to one point, and each operation is therefore allocated a risk index score of between 0 and 3, depending on how many of the factors are present.

Two indicators have been used to express the risk of SSI: the cumulative incidence, which is the crude percentage of operations resulting in a SSI, and the incidence density, which is the number of SSI per 1000 post-operative days at risk (i.e. without prior SSI) in the hospital. The incidence density is the preferred measure for the comparison of incidence between countries as it uses only observations during the hospital stay in both numerator and denominator, and comparisons are therefore less affected by variation in length of post-operative stay or intensity of case-finding post-discharge. However, the incidence density can only be calculated when the discharge date is known.

Results of HELICS SSI surveillance, 2006

In 2006, data on surgical site infection (SSI) surveillance were received from 16 networks in 13 countries and included 238550 surgical interventions from 1033 hospitals (compared with 138893 interventions and 765 hospitals in 2005). Additional data from five networks (three countries) for 2005

were also received after the publication of the previous report. The types and numbers of operations reported by each country are given in Table 3.6.2.

The percentage of surgical site infections varied according to the type of surgical intervention and according to the NNIS risk index, and remained stable as compared with 2004–05 except for hip prosthesis operations (HPRO) where a significant decreasing trend can be observed; from 2.2 % in 2004 to 1.6 % in 2005 and 1.3 % in 2006 ($p<0.001$) (Figure 3.6.7). This decrease in HPRO infections was significant in Finland, the Netherlands, Poland, Portugal and UK (Figure 3.6.8), and was confirmed when adjusting for the length of stay in the hospital by trend analysis of the incidence density.

Inter-country comparisons of SSI rates should be made with caution because at least part of the inter-country differences can be explained by one or several of following parameters:

1. differences in post-discharge surveillance methods (e.g. more intensive in the Netherlands, Finland and Norway, no post-discharge surveillance in England);
2. differences in post-operative length of stay (infections are more likely to

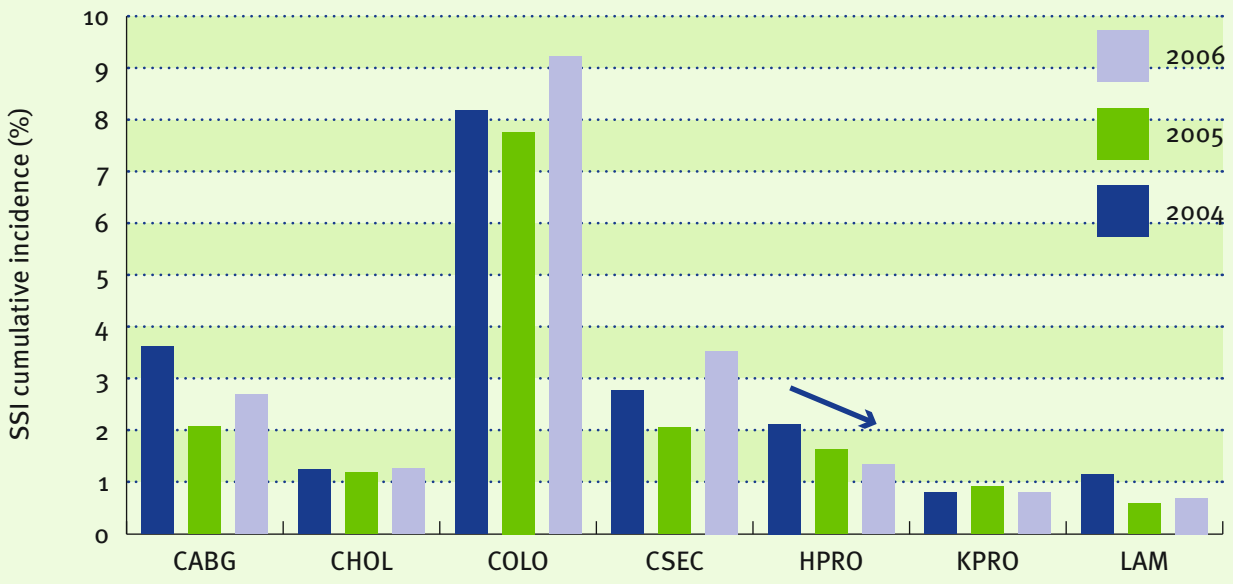
Table 3.6.2. Number of interventions included in the HELICS-SSI surveillance by category and country in 2006

	CABG	CHOL	COLO	CSEC	HPRO	KPRO	LAM	Total
Austria	340	131	25	1040	1913	484	130	4063
Belgium	126	25	200	92	403	236	210	1292
Finland	0	0	0	0	4923	3750	0	8673
France	665	8895	5122	13088	11652	6769	980	47171
Germany	5960	9406	5224	12246	17641	8737	2762	61976
Hungary	0	1034	356	2074	730	0	119	4313
Lithuania	628	746	261	0	0	0	0	1635
Netherlands	0	521	663	1433	8557	5348	71	16593
Poland	1	2228	530	1965	1186	244	219	6373
Portugal	1	772	214	393	507	0	26	1913
Spain	258	646	606	729	916	380	62	3597
UK*	3945	0	1645	9688	31435	30887	0	77600
Norway	612	241	0	1345	1153	0	0	3351
Total	12536	24645	14846	44093	81016	56835	4579	238550

Source: HELICS network. CABG: Coronary artery bypass graft; CHOL: Cholecystectomy; COLO: Colon surgery; CSEC: Caesarean section; HPRO: Hip prosthesis; KPRO: Knee prosthesis; LAM: Laminectomy.

* Data from United Kingdom include data from four different surveillance networks (England, Wales, Scotland and Northern Ireland); orthopaedic surgery data were received from all four networks, CABG and COLO from England only, CSEC data from Wales and Scotland.

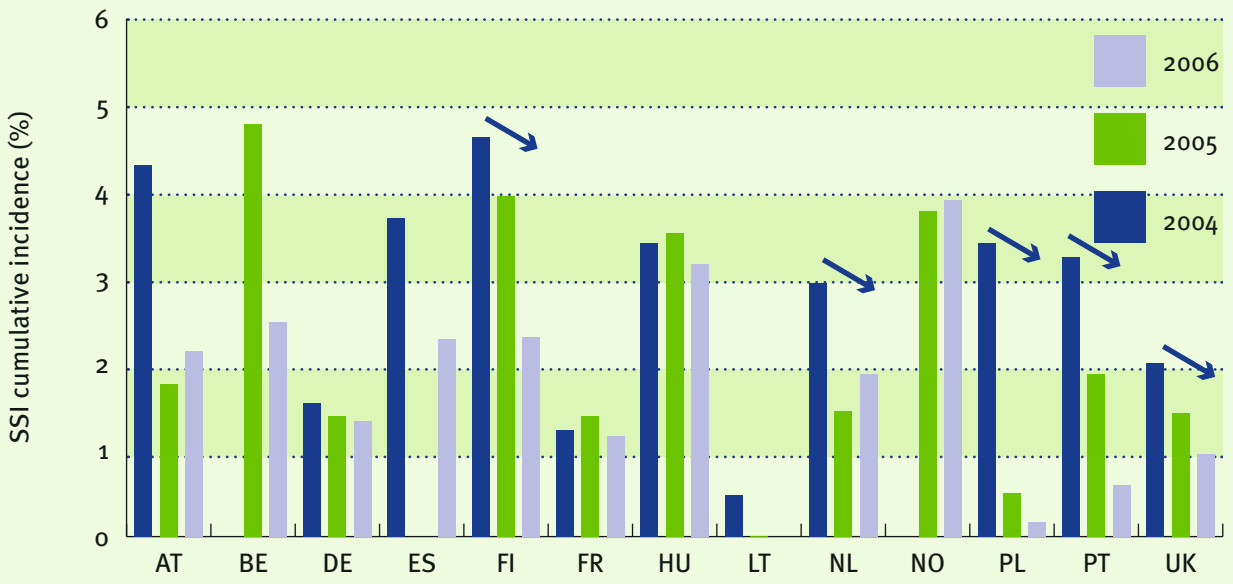
Figure 3.6.7. Trends in cumulative incidence of surgical site infections in Europe by operation category, 2004–06



Source: HELICS-SSI. CABG: Coronary artery bypass graft; CHOL: Cholecystectomy; COLO: Colon surgery; CSEC: Caesarean section; HPRO: Hip prosthesis; KPRO: Knee prosthesis; LAM: Laminectomy.

Arrows indicate significant decrease in surgical site infection rates.

Figure 3.6.8. Trends in cumulative incidence of surgical site infections in hip prosthesis (HPRO) by country, 2004–06



Source: HELICS-SSI.

Arrows indicate significant decrease in surgical site infection cumulative incidence in hip prosthesis operations.

* Data for Belgium in 2004–05 were pooled because of too small numbers in individual years; Spain started new network in 2006 so provided no data in 2005; Lithuania did not provide data on HPRO in 2006; Data for UK contain data from England and the 'celtic network' (Northern Ireland, Scotland, Wales), with minor methodological differences between them.

be detected in the hospital than in the community);
3. selection of hospitals with specific problems in countries with low participation in the SSI surveillance module (e. g. Austria, Belgium);
4. differences in case-mix and type of operation (although these are partly taken into account by the NNIS risk index), e. g. some countries perform more total hip prostheses and fewer partial hip prostheses (higher intrinsic infection risk) than others within the HPRO category;
5. different interpretations of the same case definitions, resulting in different percentages of superficial infections being reported;
6. organisational aspects such as mandatory participation with or without public disclosure of SSI indicators (e. g. in England, http://www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListName/Page/1191942150156) may influence the sensitivity of reporting so that changes in rates might not reflect a true change of practices.

Surveillance of ICU-acquired infections

The HELICS-ICU protocol includes a unit-based (level 1, minimal dataset) and a patient-based (level 2) module. In unit-based surveillance, denominator data (patient-days) are collected for the entire unit, in patient-based surveillance, data (including risk factors for risk-adjusted inter-hospital comparisons) are collected for each patient, infected or not. The full protocol is available at http://ipse.univ-lyon1.fr/protocols/icu_protocol.pdf.

Eight patient-based networks (Austria, Belgium, France, Spain, Portugal, Italy, Luxemburg and Lithuania), two piloting countries (Slovakia and Estonia) and one unit-based (Germany) surveillance network contributed data on 7 880 episodes of ICU-acquired pneumonia (PN) and 3 594 episodes of ICU-acquired bloodstream infections (BSI) from 740 ICUs and 583 hospitals in 2006.

Of 51 621 patients staying more than two days in the ICU, 6.8 % (mean of ICU cumulative incidences 8.1 %, median 6.9 %) acquired a pneumonia (intubator-associated 91.2 %). The incidence varied from 1.5 % in unventilated patients to 22.2 % in patients ventilated for one week or more. The median incidence density varied from 3.3 PN episodes per 1 000 patient-days (pd) in ICUs with less than 30 % patients intubated, to 6.4 per 1 000 patient-days in ICUs with 30–59 % patients intubated and 9.4 per 1 000 patient-days in ICUs with ≥ 60 % of patients intubated. Table 3.6.3 shows the distribution of the intubator-associated pneumonia rates by country.

ICU-acquired bloodstream infections (BSI) occurred on average in 3.4 % (mean of ICU cumulative incidences 3.4 %, median 2.5 %) of patients staying more than two days in the ICU. The incidence varied from 1.3 % in patients with no intubation to 18.6 % in patients who were intubated for two weeks or more. Table 3.6.3 shows the distribution of the catheter-associated bloodstream infection rates by country.

Table 3.6.3. Distribution of intubator-associated pneumonia rates and catheter-associated bloodstream infection rates in patients staying more than two days in intensive care, by country

	N of patients	N of patient-days	Average length of stay	IUR	CUR	IAP/1000 intubation days	C-BSI/ 1000 cvc days
Austria	6 602	68 617	10.4	610	854	9.4	2.7
Belgium	3 362	26 687	7.9	415	736	11.3	2.7
Estonia	94	1 274	13.6	852	747	3.7	4.2
France	21 951	243 880	11.1	586	637	13.6	3.7
Italy	1 720	20 041	11.7	556	628	15.1	5.2
Lithuania	1 810	15 159	8.4	404	706	12.7	3.9
Luxembourg	2 144	22 269	10.4	302	624	6.6	2.6
Portugal	795	11 092	14.0	650	811	12.6	3.6
Slovakia	103	1 345	13.1	479	474	20.2	11.0
Spain	13 143	109 785	8.4	469	791	17.3	3.2
TOTAL	51 724	520 149	10.9	532	701	12.2	4.3

IUR: intubation utilisation rate (N of intubation days x 1000/ N of patient-days).
CUR: central venous catheter (CVC) utilisation rate ((N of central line days x 1000/N of patient-days).
IAP: intubator-associated pneumonia.
C-BSI: catheter-associated bloodstream infection.
Data from Estonia are pilot data from a single ICU.

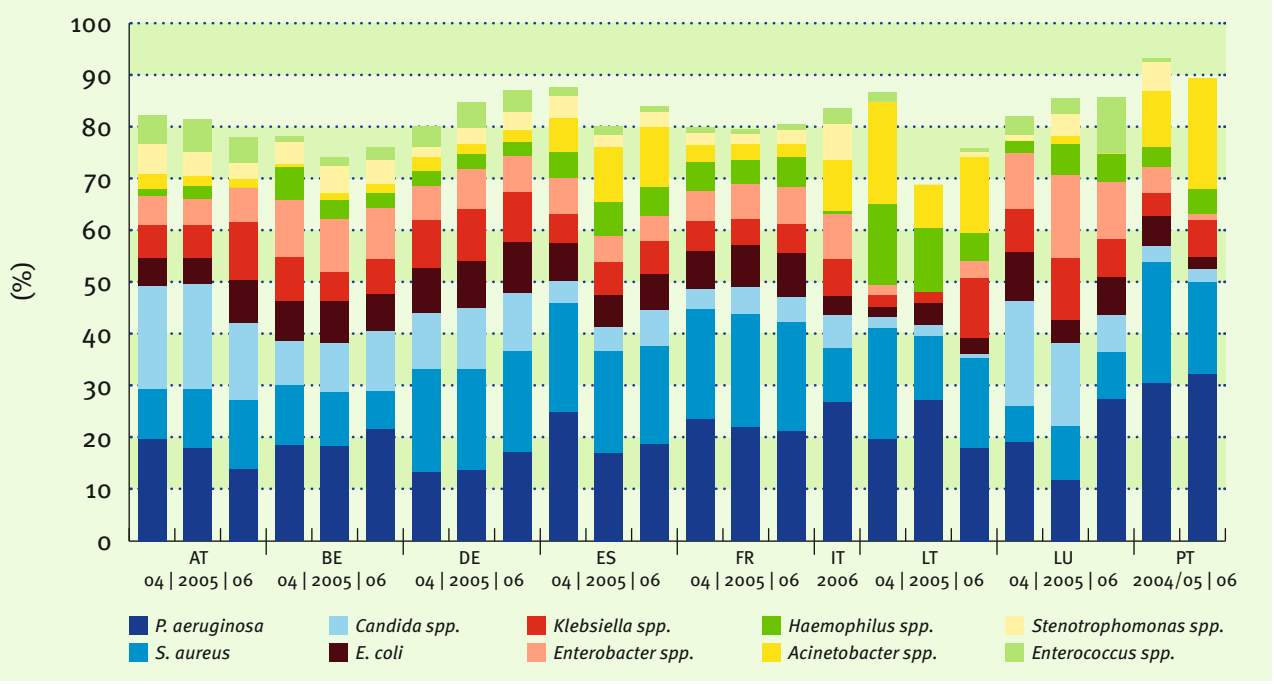
Bloodstream infections were catheter-associated (defined as a primary bloodstream infection with central line use in the 48 hours preceding the infection) in 52 % of cases. In 35 % of the bloodstream infections, the origin was another infection site (pulmonary infection 36 %, gastro-intestinal tract infection 21 %, urinary tract infection 15 %, skin and soft tissue 9 %, surgical site infection 7 %, other/unknown 11 %). Twelve percent of the BSI were primary BSI without association with central line use.

The distribution of the most frequent micro-organisms isolated in ICU-acquired pneumonia and ICU-acquired bloodstream infections are given in Figures 3.6.9 and 3.6.10.

Overall, the most frequently isolated pathogen in ICU-acquired pneumonia was *Pseudomonas aeruginosa* (19.0 %), followed by *S. aureus* (18.0 %) with an average percentage methicillin resistance of 42.8 %. Inter-country differences showed higher relative frequencies of *Acinetobacter spp.* in Spain, Italy, Portugal and Lithuania, while *Enterobacter spp.* were more prevalent in Belgium and Luxembourg, and enterococci are more frequently reported by Austrian and German ICUs. The percentages of the different micro-organisms remained stable throughout the years.

The most frequently isolated micro-organisms in BSI were coagulase-negative

Figure 3.6.9. Evolution of the relative frequency of the 10 most isolated micro-organisms in ICU-acquired pneumonia, 2004–06



Source: HELICS-ICU.

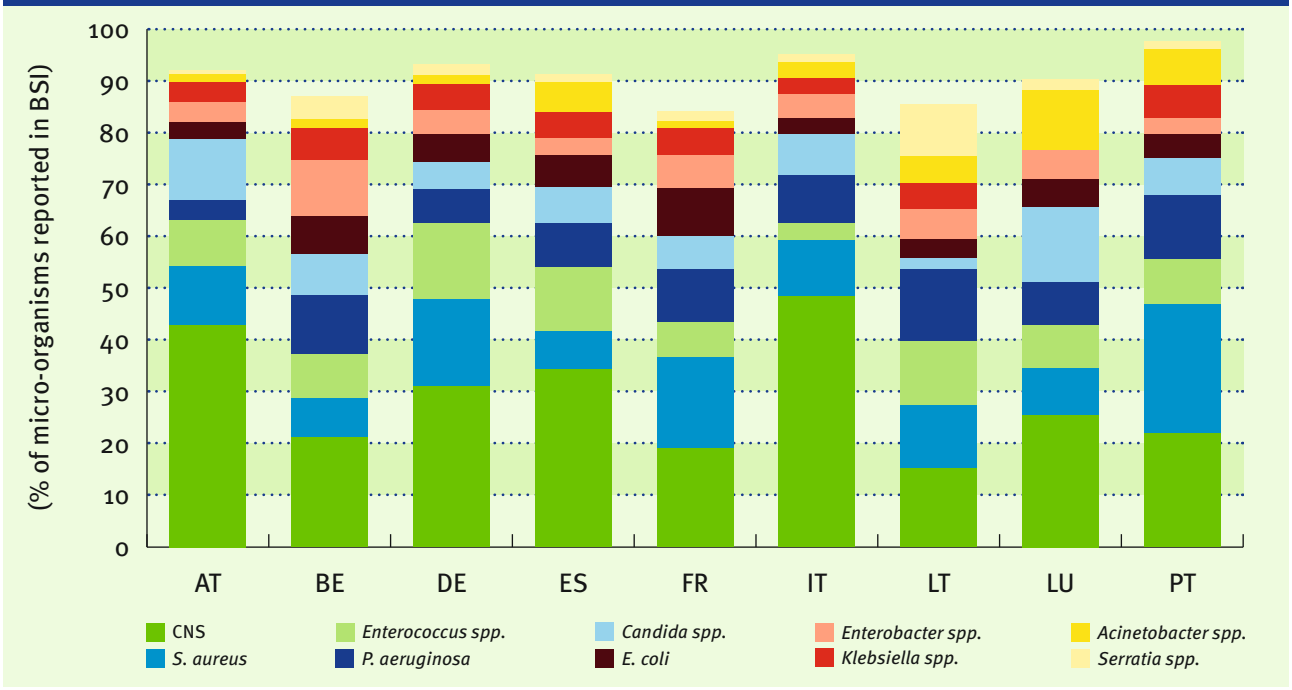
staphylococci, followed by *S. aureus*, enterococci, *P. aeruginosa* and *Candida spp.* (Figure 3.6.10). Again, the percentage of *Acinetobacter spp.* was higher in Spain and Lithuania, while *Enterobacter spp.* were more prevalent in Belgium. The higher proportion of coagulase-negative staphylococci in Italy may indicate more sensitive reporting of skin contaminants in the new Italian network.

Discussion

The surveillance of HCAI was further extended in 2006, with one additional network joining the surgical site infection surveillance (Portugal) and two more patient-based surveillance networks for the surveillance of ICU-acquired infections (Italy and Portugal). Moreover, other countries started piloting surveillance in 2006 and the extension process is expected to continue over the coming years.

HCAI infection rates mostly remained stable in 2006, with the exception of a decreasing trend in surgical site infections in hip prosthesis. However, inter-country methodological differences persist and further emphasis should be given to harmonisation of methods, for example through the organisation of a European field validation study to assess the sensitivity and specificity of the different surveillance systems as compared to the case definitions of stand-

Figure 3.6.10. Relative frequency of the 10 most isolated micro-organisms in ICU-acquired bloodstream infections, 2004–06



Source: HELICS-ICU. Data for 2004 to 2006 were pooled because of smaller numbers for some countries.
CNS=Coagulase-negative staphylococci.

ardised HELICS protocols. Furthermore, as discussed in the Chapter 2 (healthcare-associated infections), an EU-wide prevalence survey of healthcare-associated infections is needed to assess the burden of all types of infections in Europe. Such a protocol, although less suited than the present protocols for the follow-up of HCAI rates and for risk-adjusted comparisons between hospitals, is likely to promote the surveillance of HCAI because it is simple to implement and would provide useful baseline data.

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Surveillance systems overview

Country	Data source	Compulsory (CP)/Voluntary (V)	Comprehensive (Co)/Sentinel (Se)	Active (A)/Passive(P)	Case-Based (C)/Aggregated (A)	Data reported by				National coverage
						Laboratories	Physicians	Hospitals	Others	
Belgium	BE-NSIH	Cp/V	Se	A	C	Y	Y	Y	N	Y
Cyprus	CY-HOSPITAL_ ACQUIRED_ INFECTIONS	O	O	A	C	N	N	Y	N	N
Czech Republic	CZ-NOSOCOMIAL_ INFECTIONS_1	V	Se	P	C	Y	Y	Y	N	N
Czech Republic	CZ-NOSOCOMIAL_ INFECTIONS_2	V	Se	P	C	Y	Y	Y	N	N
Finland	FI-SIRO	V	Se	A	C	—	—	Y	—	N
France	FR-RAISIN	V	Se	A	C	Y	Y	Y	N	Y
Germany	DE-KISS	V	Se	A	A/C	N	N	Y	N	Y
Hungary	HU-BLOODSTREAM_INFECTION	Cp	Co	A	C	N	N	Y	N	Y
Hungary	HU-INTENSIVE_CARE	V	Co	A	A	N	N	Y	N	N
Hungary	HU-NOSOCOMIAL_INFECTION	Cp	Co	A	C	N	N	Y	N	Y
Hungary	HU-SURGICAL_INFECTION	V	Co	A	C	N	N	Y	N	N
Iceland	IS-SUBJECT_TO_REGISTRATION	Cp	Co	P	C	Y	Y	N	N	Y
Lithuania	LT-NOSOCOMIAL_INFECTIONS	V	Co	A	C	N	—	Y	N	Y
Malta	MT-DISEASE_SURVEILLANCE	Cp	Co	P	C	Y	Y	Y	Y	Y
Netherlands	NL-ISIS-LABORATORY	V	O	P	C	Y	N	N	N	N
Netherlands	NL-PREZIES	V	Se	A	C	N	N	Y	N	N
Norway	NO-NOIS	Cp	Co	A	C	—	N	Y	—	Y
Poland	PL-NATIONAL_SURVEILLANCE	Cp	Co	P	C	Y	Y	N	N	Y
Slovakia	SK-EPIS	Cp	Co	A	C	Y	Y	Y	Y	Y
United Kingdom	UK-NOSOCOMIAL	V	Co	A	C	Y	Y	Y	Y	Y

Note. Y: Yes; N: No; O: Other; —: Not specified/unknown.

4 ANALYSIS OF THREATS MONITORED 2005–07

4.1 GENERAL ANALYSIS OF THREATS

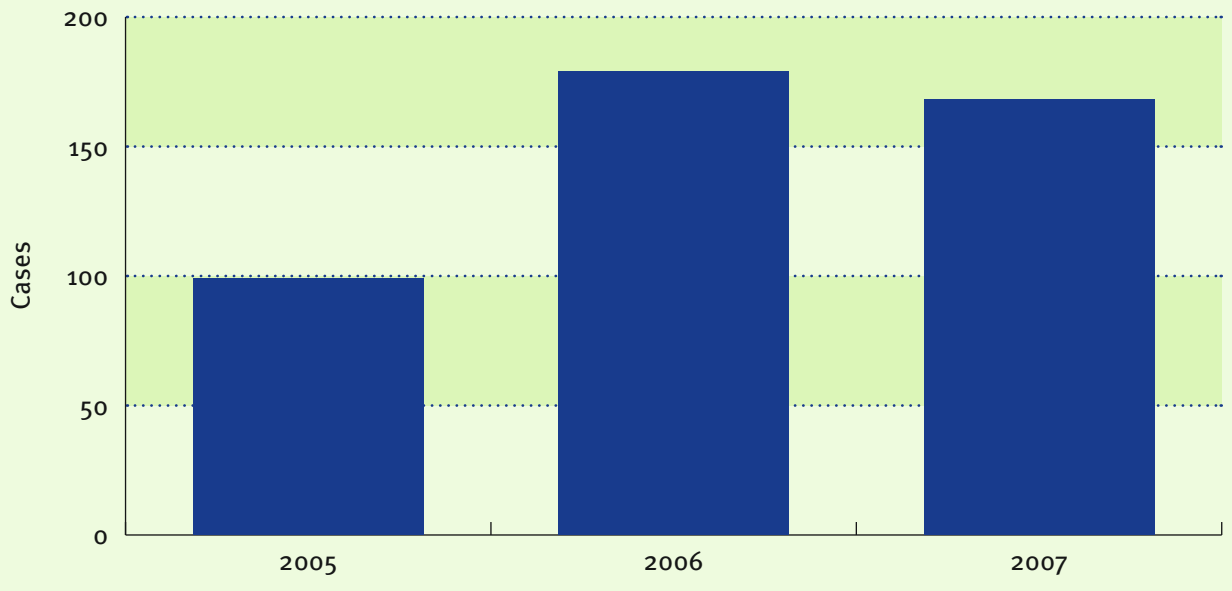
Threats monitored by year

In 2007, ECDC monitored 168 threats of which 142 (85 %) were new threats, 21 were opened in 2006 and still active in 2007, while five were opened in 2005. Four of these five recurrent threats are related to the worldwide situation of A/H5N1, cholera, poliomyelitis and chikungunya, while one is related to the situation of *Clostridium difficile* 027 in EU and EEA Member States. A total of 1360 news items were entered in the Threat Tracking Tool in 2007 to update threats.

In the last six months of 2005, 99 threats were monitored and 179 in 2006 (Figure 4.1.1). On average, this means that 3.3 new threats are monitored every week at ECDC.

Sixty-six threats required an active follow-up by ECDC. Ten of them resulted in a detailed threat assessment that was circulated to the EU Member States and the European Commission through the EWRS. Three of these threats assessments were published on the ECDC website due to the high public and media interest (chikungunya outbreak in Italy, extensively drug-resistant (XDR) tuberculosis exposure for airline passengers between the USA and the EU, and low-pathogenic avian influenza (LPAI) type A/H7N2 in poultry in the UK (Wales).

Figure 4.1.1. Distribution of threats by year



Threats by source of initial notification

With 118 notifications (29 % of all monitored alerts), EWRS remains by far the first source of notification for emerging threats to the EU. Overall, 75 % of EWRS notifications (89) concerned events that occurred in the EU/EEA countries and 25 % (29) had to do with events that occurred outside of the EU; primarily in Asia (11), but also in non-EU Europe (8), Africa (8) and the Americas (2).

Of the 82 threats affecting EU/EEA countries in 2007, 30 (37 %) were reported initially by EWRS, 30 (37 %) were travel-associated *legionella* clusters reported through the European Working Group for *Legionella* Infections (EWGLI), and five (6 %) were reported initially by the food- and waterborne diseases surveillance network (previously ENTERNET). For the remaining 60 non-EU threats, 16 (27 %) were first reported by the Program for Monitoring Emerging Diseases (ProMED), 13 (22 %) by EWRS, 10 (17 %) by EWGLI, and 21 (35 %) by other sources.

The rise of EWGLI as a source of notification is due to the start of systematic recording of these threats in the TTT in 2006, and therefore does not fully reflect the epidemiological situation. The decrease in WHO reports as a source of primary information on threats in 2007 coincides with the implementation of the International Health Regulations (IHR) and the discontinuation of the production and circulation of the Outbreak Verification List (OVL).

Threats by initial place of occurrence

Overall, from June 2005 until end of 2007, 224 threats (55 % of all recorded threats)

Table 4.1.1. Distribution of threats by source and year of initial notification

Source	2005*	2006	2007	2005–07*
EWRS	23	52	43	118
EWGLI	2	30	40	72
ProMED	36	15	20	71
GPHIN	4	19	4	27
ENTERNET	8	11	7	26
Information on public websites	5	9	12	26
WHO	12	13	—	25
Other	7	3	13	23
MedISys	2	5	—	7
Information from Member States	—	5	1	6
Eurosurveillance	—	1	2	3
Total	99	163	142	404

* Includes only June to December 2005.

related to events within the EU/EEA region. Asia and Africa are the two other world regions reporting most threats of interest for ECDC with 14 % and 12 %, respectively, of events identified.

Table 4.1.2. Distribution of threats by geographic region, 2005–07

Region	Total	%
EU/EEA	224	55
Asia	57	14
Africa	47	12
Other Europe	36	9
Americas	24	6
Middle-East	8	2
Multiple regions	6	1
Australia and Oceania	2	0
Total	404	100

In 2007, 57 % of threats were directly related to events that occurred in the EU and EEA Member States (Figure 4.1.2).

Overall, in 2007, threats of EU interest remained very widespread, ranging from Panama (undiagnosed respiratory syndromes) to the Federated States of Micronesia (Zika virus outbreak reported from Yap State), from Australia (reports of more severe seasonal influenza epidemics) to Canada (patient developing mumps after travelling to Europe). Figure 4.1.3 shows the country of origin and number of threats monitored by ECDC in 2007 through TTT.

Threats by disease group

Diseases belonging to the food- and waterborne disease programme of ECDC remain the most common source of threats monitored in the EU. Most of these threats are opened in response to urgent enquiries concerning the identification of strains of enteric germs that are circulated to Member

Figure 4.1.2. Number of threats monitored in 2007 by region of interest

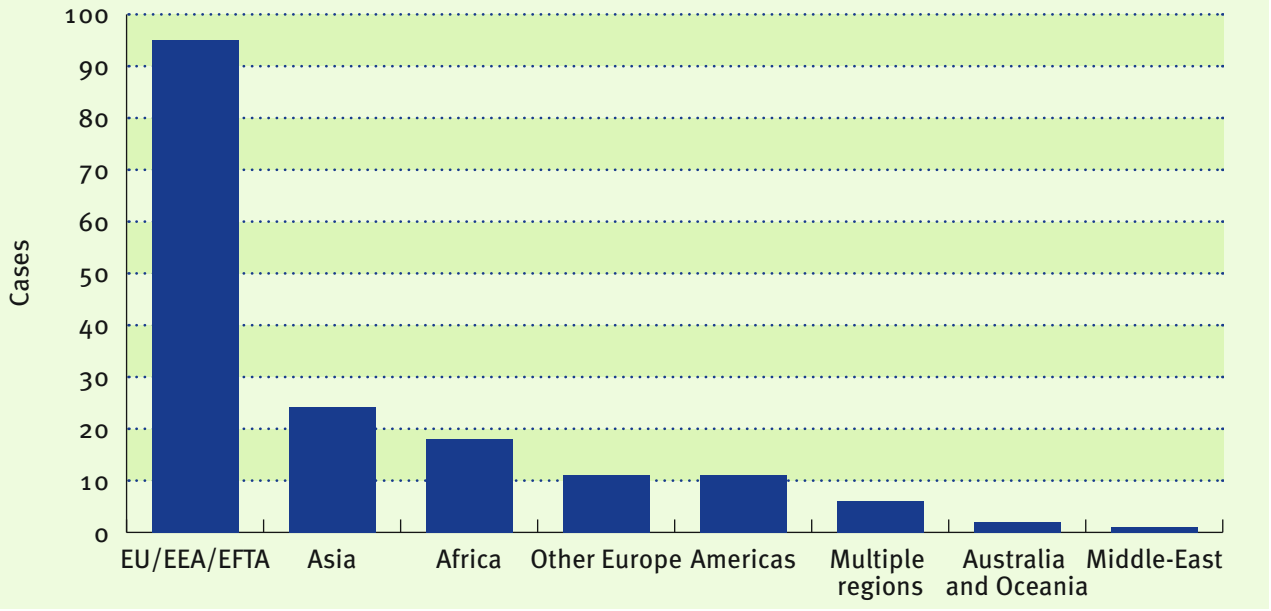


Figure 4.1.3. Distribution of threats monitored in 2007 by country of origin

Table 4.1.3. Distribution of threats by disease group and calendar year of activity

Disease group	2005[a]	2006	2007	2005–07[b]
Food- and waterborne diseases	42	68	42	137
Emerging and vector-borne diseases	20	53	64	130
Vaccine-preventable diseases and invasive bacteria	13	11	16	35
Tuberculosis	2	3	17	21
Influenza	6	6	4	12
Antimicrobial resistance and healthcare-associated infections	3	4	2	6
Hepatitis, HIV, STI and blood-borne diseases	1	2	1	4
Not applicable[c]	12	32	22	59
Total	99	179	168	404

Disease groups correspond to ECDC's disease programmes.

(a) Includes only June to December 2005.

(b) Total for 2005–07 is smaller than the sum of individual years as threats remaining open across years appear in each year during which they were active.

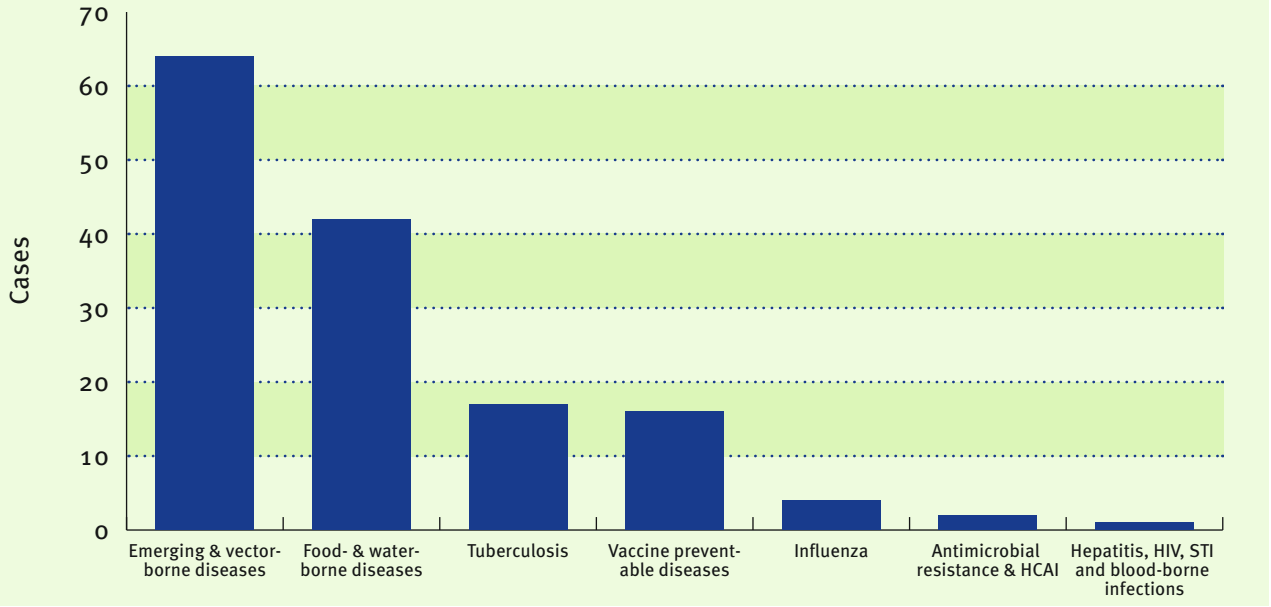
(c) Threats related to an unknown disease or to situation of increased risk for communicable disease transmission, such as floods or large mass gatherings.

States' epidemiologists in charge of food- and waterborne disease surveillance in order to identify related cases. Diseases belonging to the emerging and vector-borne disease programme are also common, mainly because of the inclusion of travel-related Legionnaires' disease clusters in this programme at ECDC. Indeed, in 2007, emerging and vector-borne diseases was the most monitored group (Figure 4.1.4).

There was a significant increase in threats related to tuberculosis in 2007, and in particular events related to multidrug-resistant (MDR) and XDR tuberculosis, as well as exposure of co-passengers to tuberculosis patients travelling while infectious.

The absolute number of threats monitored in the system does not reflect the importance of the early warning and response for some disease groups. Influenza remained a very active topic in 2007, even though the number of threats monitored remained artificially low, as H5N1-related events worldwide belong to a single threat, though it has been continuously active since the establishment of ECDC.

Figure 4.1.4. Number of threats monitored in 2007 by disease group



4.2 ANALYSIS OF SELECTED THREATS IN 2007

Emerging and vector-borne diseases

Chikungunya outbreak in Italy, August 2007

In 2007, chikungunya remained high on the agenda. Firstly because of the outbreak in Italy[1,2,3,4] which was the first documented autochthonous transmission of the virus on the European continent. Further, several outbreaks worldwide were reported, including in the Maldives, Gabon, India, Indonesia, and Sri Lanka.

In Italy, following the initial notification on 30 August 2008 through EWRS of the local transmission of chikungunya fever in the province of Emilia-Romania, 217 laboratory-confirmed cases and 30 probable cases were reported up to the end of October 2007 when the outbreak was declared controlled. One elderly patient died. Apart from the two initially affected villages of Castiglione di Cervia and Castiglione di Ravenna, local transmission has been reported in Cervia, Cesena, Ravenna, Bologna and Rimini. This event was considered as particularly significant as the local transmission of chikungunya virus followed its introduction by a single returning visitor to India and indicated that the *Aedes albopictus* mosquito is indeed a vector capable of transmitting the virus efficiently at EU latitudes and in Europe's ecological conditions[5].

The presence and spread of the vector *Aedes albopictus* in Europe was also followed closely[6] by ECDC. In 2007, the Swiss canton of Aargau reported the presence of the mosquito for the first time.

Viral haemorrhagic fevers

The Ebola outbreak in the West Kassai province in the Democratic Republic of Congo was officially declared to be over in November 2007, with an estimated 264 suspected cases and 187 deaths over an eight-month period.

At the same time, the start of a new Ebola outbreak was reported from the Bundibugyo district in Uganda, which continued well into 2008, and was caused by a previously unknown Ebola virus strain. The end of the epidemic was declared in February 2008. The cumulative total is 149 cases, 37 of whom have died (including five health workers). The case fatality ratio was 24.8 %.

The Rift Valley fever outbreak in Kenya, which was identified at the end of 2006, continued into 2007, with a total of 684 cases including 155 deaths reported by the World Health Organization. Also Somalia (114 cases, 51 deaths), the United Republic of Tanzania (264 cases, 109 deaths), and later Sudan (698 cases, 222 deaths) reported Rift Valley fever epidemics over the course of 2007.

Two threats recorded in 2007 were related to the increased reporting of dengue fever in Brazil and in the British Virgin Islands. This is in the context of a global increase in

dengue reporting in recent decades. ECDC published an update of the situation of dengue fever and the implications for Europe in *Eurosurveillance*[7].

No outbreaks related to Crimean-Congo haemorrhagic fever were reported in 2007, but an increase of cases reported in Turkey was monitored (717 cases in 2007).

Food- and waterborne diseases

Forty-two alerts related to food and waterborne diseases were recorded and monitored in the Threat Tracking Tool in 2007 (Table 4.2.1). Two of these alerts resulted in ECDC preparing detailed threat assessments: a multinational outbreak of *Salmonella java* between August and December 2007 and an outbreak of *Salmonella enteritidis* PT1e in the UK in November 2007.

The system for issuing urgent inquiries was integrated into ECDC in October 2007. Following this, 10 urgent inquiries were issued in the last three months of 2007. Eight related to *Salmonella* strains and two to VTEC O157 events.

Eleven outbreaks involved norovirus, of which three involved cruise ships, three were associated with the importation of contaminated products, three were related to a global reporting increase of norovirus and two concerned tourists affected in a holiday resort.

There were two reports concerning hepatitis A, but neither involved and EU country (Ethiopia and Serbia). The single threat related to hepatitis E concerned the identification of hepatitis E carriers among pigs.

Table 4.2.1. Distribution of food- and waterborne disease threats monitored in 2007

Pathogen group	Total
Salmonella	12
Norovirus	11
E. coli shiga-like toxin producer	4
Vibrio	2
Trichinella	2
Hepatitis A	2
Transmissible spongiform encephalopathies variant	2
Shigella	2
Cryptosporidium	1
Calicivirus	1
Clostridium	1
Listeria monocytogenes	1
Hepatitis E virus	1
Total	42

Respiratory tract infections

Tuberculosis

Airline traveller with suspected XDR TB on two intercontinental flights between USA and Europe, May 2007

A 32 year-old man from Atlanta, USA, affected by tuberculosis, travelled on two long-haul international flights across the Atlantic in May 2007. The patient had been diagnosed with tuberculosis in March and a four-drug treatment initiated. Sensitivity tests revealed MDR type on 10 May and XDR type on 22 May, while he was travelling in Europe.

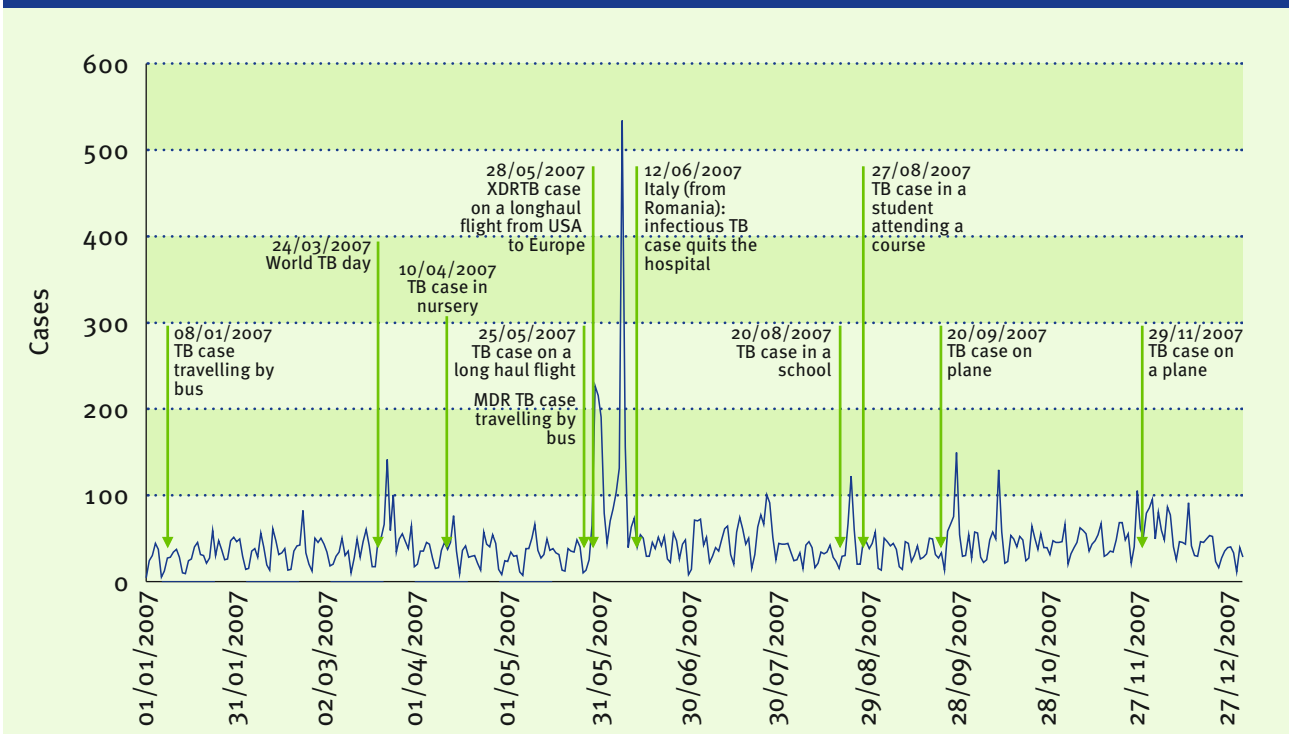
The patient was not symptomatic while travelling, and – in particular – he was not coughing. The risk for his contacts was therefore deemed to be extremely low. However, as a precautionary measure given that XDR TB was at stake, it was agreed to apply the WHO guidelines concerning symptomatic MDR TB patients on long-haul flights. This was decided at a meeting of the EWRS national focal points, and as a consequence contact tracing of the passengers in the same row as the case, in two rows ahead and behind, as well as the concerned crew members was initiated.

ECDC and the Canadian health authorities coordinated preliminary contact tracing activities with respect to the USA–France and Czech Republic–Canada flights. Passenger lists were distributed to the relevant Member States care of ECDC. The US CDC and WHO were provided with information on the passengers to be traced from the USA and from other countries, respectively.

In all, 17 passengers and five crew members from six different EU Member States had to be traced. On 4 July, it became known that the case status had been downgraded to MDR TB (by multiple re-testing of several old samples).

ECDC issued a risk assessment for this event on 29 May 2007[8]. Similar assessments were prepared and circulated through the EWRS regarding additional events:

Figure 4.2.1. Distribution of news items related to tuberculosis as monitored by MedISys* in 2007



* The Medical Intelligence System, developed by the European Commission.

- XDR tuberculosis case travelling from Estonia to Iceland, 28 November 2007;
- MDR tuberculosis case travelling from Kinshasa to Brussels, 12 December 2007.

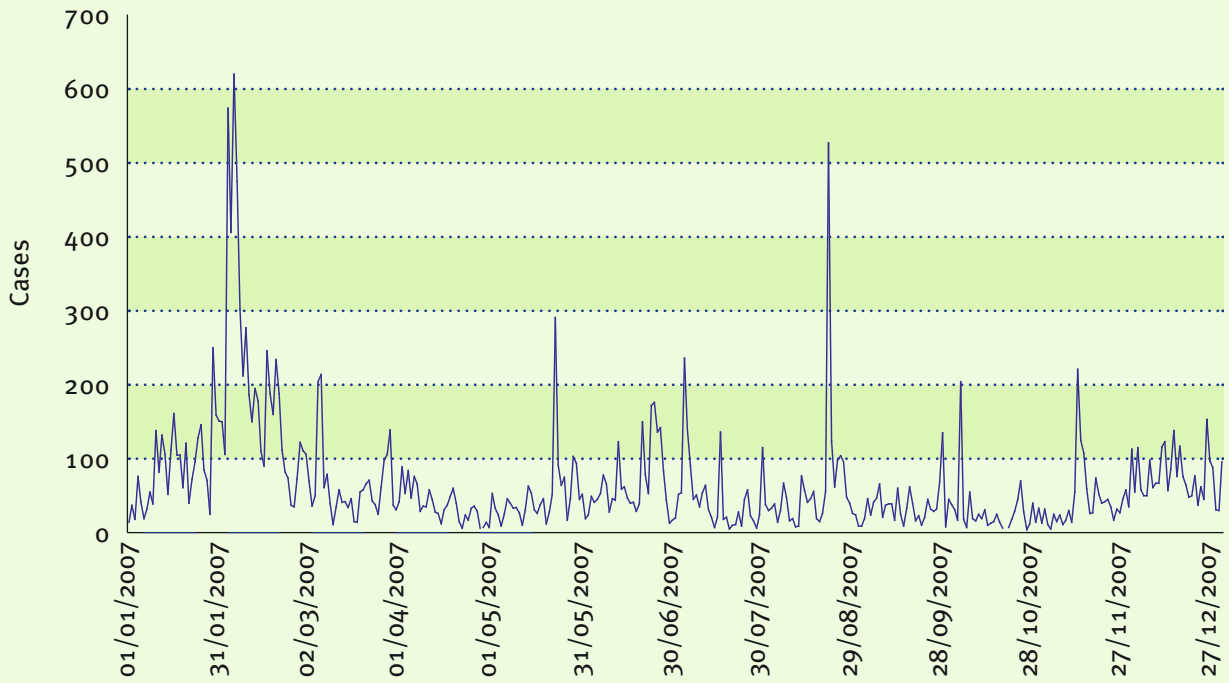
Influenza

Overall, media attention on avian influenza decreased in 2007 as shown by Figure 4.2.2.

There is value in providing early warning of evolving influenza strain variants globally, and associated information on altered epidemiology. As an example, initial information on the potentially increased severity of seasonal influenza in Australia in August 2007 alerted ECDC to an increased potential threat to the EU from influenza in the coming winter, and prompted further investigation. In this case, the epidemiology of the predominant circulating strains in Australia and elsewhere in the southern hemisphere did not suggest an increase in severity of illness. These investigations were summarised in a *Eurosurveillance* article published in August 2007[9].

Reports of human cases of H5N1 continued throughout the reporting period. These were all outside the EU, although two WHO EURO member countries (Azerbaijan and Turkey) had reported cases and fatalities in 2006. It is important that the global community continues to monitor and track the H5N1 virus evolution and particularly that it remains alert for evidence of H5N1 viruses evolving into strains with real pandemic

Figure 4.2.2. News items regarding avian influenza as monitored by Medisys* in 2007



* The Medical Intelligence System, developed by the European Commission.

potential. This would occur if sustained human to human transmission of the virus was identified, which would cause WHO to increase the global pandemic threat. However, the majority of the 382 human cases of H5N1 infection confirmed by WHO since 1997 (up to 30 April 2008) have been isolated single cases, and there remains no evidence of sustained human to human transmission of H5N1 virus. While this remains the case, these isolated cases are of little public health relevance to the EU, but ECDC's ongoing interest in monitoring H5N1 human cases globally promotes the continuation of the important activity of monitoring.

With regard to avian influenza, much of the global attention remains on H5N1. However, the reported human cases of H7N2 following exposure to infected poultry provide further evidence that other avian influenza strains, including low pathogenic strains, can also pose a risk to public health. This outbreak, and subsequent public health action taken by UK authorities is reported in more detail in Chapter 3.1, and also in *Eurosurveillance*[10]. More generally, this case prompted ECDC's influenza team to produce a short commentary in *Eurosurveillance* in May 2007on the potential EU public health risks from low pathogenic avian influenza strains, especially for those who regularly handle poultry[11].

Legionellosis

Thirty-seven threats due to legionellosis were entered in the threat tracking database at ECDC in 2006. Of these, the vast majority (30) were travel-associated legionnaires' disease (TALD) cluster alerts notified by EWGLINET. Six threats originated from messages by Member States through the EWRS and included community outbreaks in the Netherlands and Spain.

In 2007, the number of threats related to legionellosis totalled 45, with 40 being cluster notifications from EWGLINET and four EWRS alerts. Bulgaria detected its first TALD cluster.

Legionellosis in Thailand, January 2007

In January 2007, a cluster of travel-associated cases of Legionnaire's disease was reported associated with a stay at a hotel in Phuket, Thailand, in a period when many northern European citizens travel there for holidays. In order to limit the exposure and prevent new European travellers becoming infected, ECDC closely collaborated with the Thai Ministry of Health and the Thai country office of the World Health Organization, to ensure appropriate actions were taken both on local and European levels.

Related to this and following similar experiences, ECDC organised a consultation of experts to assess the rationale for informing travellers who are possibly exposed to *Legionella* bacteria after the identification of a cluster alert, and to provide guidance to Member States accordingly.

Vaccine-preventable diseases

Measles is still present in a number of EU countries despite the WHO objective of its

elimination in Europe by 2010. Most threats related to the occurrence of these measles cases do not have a wider EU dimension. However, seven threats were monitored by ECDC in 2007, in relation to measles transmission following the importation of a case. Three threats were reported through the EWRS while the others were published on the website of a national institute. ECDC issued two detailed threat assessments following the notification through EWRS of outbreaks involving religious minorities.

Three threats related to meningococcal meningitis were monitored in 2007, concerning the potential exposure of co-travellers. All were reported through the EWRS.

In the period 2005–07, epidemic intelligence was the primary source of information in 53 % of cases (Table 4.2.2).

Table 4.2.2. Measles threats: first source of information in 30 events, 2005–07

First source	Number	%
EWRS	9	30
Websites (Promed/ GPHIN)	7	23
Eurosurveillance	5	17
National authorities	4	13
Dedicated Surveillance Networks	2	7
Others	2	7
Local media	1	3
Total	30	100

4.3 CONCLUSIONS

ECDC's monitoring of threats through epidemic intelligence complements the routine case reporting occurring in Member States and forwarded to ECDC surveillance database for the 49 diseases and conditions under EU reporting. About half of the threats identified in 2007 as having a potential impact on EU Member States originated outside of the EU. This highlights the importance of a global approach to threat detection, the added value of ECDC involvement and the important role of the World Health Organization in facilitating exchange of information at global level.

Threats related to food- and waterborne transmission, together with those from emerging and vector-borne diseases represent 63% of the threats monitored, illustrating the added value of the European networks of experts in threat detection (EWGLINET and the food- and waterborne disease surveillance network, previously ENTERNET). Given the globalisation of trade and travel, such threats often have by their nature a multi-country dimension and highlight the added value that ECDC brings in facilitating the coordination of their assessment and investigation. The World Health Organization is instrumental in ensuring the coordination with third countries and this was very effectively done in 2007, as seen for example during the cluster of Legionnaires' disease cases in Thailand (see Section 4.5, above).

In 2007, ECDC noted a decrease in the amount of information on threats related to pandemic or avian influenza, although the risk associated with these diseases remains very high. However, timely information regarding avian influenza continues to be available through WHO and other partners, allowing effective monitoring and preparedness.

Threats related to vector-borne diseases emerged in 2007, with the first ever transmission of chikungunya fever in the EU, in Italy in August 2007. This major development had been anticipated[12], meaning that preparedness activities had already begun, aimed at ensuring laboratory capacity for the diagnosis of the disease, increasing the awareness of physicians, and monitoring imported cases. This again stresses the need to maintain a global approach to threat detection, as viral haemorrhagic fevers or vector-borne diseases once occurring only in tropical countries may be imported and eventually transmitted locally in the EU, as a result of climate change and the globalisation of trade and travel.

Threats of EU dimension related to tuberculosis increased dramatically from two in 2005 to 17 in 2007. Most of that increase is accounted for by MDR and XDR TB exposures of passengers on long-haul flights.

Most of the threats identified as having a potential impact on the EU in 2007 were reported through the EWRS or through European networks designed for this purpose (EWGLI, food- and waterborne disease surveillance – ENTERNET). This illustrates

the importance of the European networks of experts and stresses the need for collaboration and rapid exchange of information.

The EWRS has been continuously proven to be an effective tool for the coordination of the timely implementation of public health measures by EU Member States to contain confirmed threats. However, there is as yet no similar communication platform in the EU for epidemic intelligence. ECDC therefore began developing, together with the EU Member States, the specifications of such a tool in 2007, and is currently working on its further development and implementation.

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ANNEX LIST OF COMMUNICABLE DISEASES FOR EU SURVEILLANCE

Annex I of Commission Decision 2000/96/EC of 22 December 1999 on the communicable diseases to be progressively covered by the Community network under Decision No 2119/98/EC of the European Parliament and of the Council, as amended by Decisions 2003/534/EC, 2003/542/EC and 2007/875/EC.

1 COMMUNICABLE DISEASES AND SPECIAL HEALTH ISSUES TO BE PROGRESSIVELY COVERED BY THE COMMUNITY NETWORK

1.1 For the diseases/health issues listed below, surveillance within the Community network will be performed by standardised collection and analysis of data in a way that will be determined for each disease/health issue when specific Community surveillance networks are put in place.

2 DISEASES

2.1 Diseases preventable by vaccination

Diphtheria
Infections with haemophilus influenza group B
Influenza
Measles
Mumps
Pertussis
Poliomyelitis
Rubella
Smallpox [*added by Commission Decision No 2003/534/EC*]
Tetanus [*added by Commission Decision No 2003/534/EC*]

2.2 Sexually transmitted diseases

Chlamydia infections
Gonococcal infections
HIV-infection/AIDS
Syphilis

2.3 Viral hepatitis

Hepatitis A
Hepatitis B
Hepatitis C

2.4 Food- and water-borne diseases and diseases of environmental origin

Anthrax [*added by Commission Decision No 2003/534/EC*]
Botulism
Campylobacteriosis
Cryptosporidiosis
Giardiasis
Infection with Enterohaemorrhagic E.coli
Leptospirosis
Listeriosis
Salmonellosis
Shigellosis
Toxoplasmosis
Trichinosis
Yersinosis

2.5 Other diseases

2.5.1 Diseases transmitted by non-conventional agents

Transmissible spongiform encephalopathies variant (CJD)

2.5.2 Air-borne diseases

Legionellosis
Meningococcal disease
Pneumococcal infections
Severe Acute Respiratory Syndrome (SARS) [*added by Commission Decision No 2007/875/EC*]
Tuberculosis

2.5.3 Zoonoses (other than in 2.4)

Avian influenza in humans [*added by Commission Decision No 2007/875/EC*]
Brucellosis
Echinococcosis
Q-Fever [*added by Commission Decision No 2003/534/EC*]
Rabies
Tularaemia [*added by Commission Decision No 2003/534/EC*]
West Nile virus infection [*added by Commission Decision No 2007/875/EC*]

2.5.4 Serious imported diseases

Cholera
Malaria
Plague
Viral haemorrhagic fevers

3 SPECIAL HEALTH ISSUES

3.1 Nosocomial infections
3.2 Antimicrobial resistance

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